Table A2. Assessment of environmental performance requirements.

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
Environmental Management Framework (EM)				
EM1	Develop a program to set out the process and timing for development of an Environmental Management System (EMS), 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 and as relevant to any stage of the project. The process for development of and implementation of the EMS, the CEMP the SEIP and OEMP must include consultation with Councils, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Victoria, and the Environment Protection Authority and other stakeholders as relevant. These consultation processes must be described in the program.	EM1	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.	IAC recommendation supported.
EM2	Prepare and implement an Environmental Management System that is certified to ISO 14001:2015 *Environmental Management Systems – requirements with guidance for use* for construction and operation. Prepare a Construction Environmental Management Plan (CEMP), Site Environment Implementation Plans, Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements and as relevant to any stage of the project. The CEMP should be prepared in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).	EM2	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 (EPR) and as relevant to any stage of the Project. 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 EPR and as relevant to any stage of the Project. The process for development of and implementation of the EMS, the CEMP the SEIP and OEMP must include consultation with Councils, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Victoria (PTV), 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. The CEMP should be prepared in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).	IAC recommendation supported.
EM3	Appoint an Independent Environmental Auditor to audit proposed plans, as required in the Incorporated Document, for compliance with the Environmental Performance Requirements and to undertake environmental audits of compliance with the approved CEMP, SEIP, OEMP (the OEMP is for PPP only), Environmental Performance Requirements and approval conditions.	EM3	Appoint an Independent Environmental Auditor to audit proposed plans, as required in the Incorporated Document, so as to ensure compliance with the EPR and to undertake environmental audits of compliance with the approved CEMP, SEIP, OEMP (the OEMP is for Public Private Partnership (PPP) only), EPR and approval conditions.	IAC recommendation supported.
		EM4	Prior to works commencing, 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. The complaints management system must be consistent with the Community and Stakeholder Engagement Management Plan required under EPR SC3 and consistent with the Proponent and Contractors' own EMS'.	IAC recommendation supported, but amended to include a complaints management system consistent with the Business Support Guidelines for Construction required under (EPR B2).
Aquatic Ecology and River Health (AE)				
AE1	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). The best practice performance objectives for achieving compliance with SEPP (Waters of Victoria) during the construction phase are described below: Pollutant type / Receiving water objective / Current best practice performance objective[(1)] Suspended solids / Comply with SEPP / 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)		IAC recommends no change.	MMRA draft supported.

<table>
<tr><th colspan="2">MMRA Version 4</th><th colspan="2">IAC Recommendations</th><th rowspan="2">Minister for Planning comment</th></tr>
<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td></td><td>to remove 95% of sediment down to 125 µm for a 1 year ARI.</td></tr>
<tr><td>Litter</td><td>Comply with SEPP</td><td>Prevent litter from entering the stormwater system.</td></tr>
<tr><td>Other pollutants</td><td>Comply with SEPP</td><td>Limit the application, generation and migration of toxic substances to the maximum extent practicable.</td></tr>
</table>
Notes
1 Best practice performance objectives are based on the Best Practice Environmental Management Guidelines for Urban Stormwater – CSIRO.
</td><td></td><td></td><td></td></tr>
<tr><td>AE2</td><td>Best practice sedimentation and pollution control measures must be applied to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996) and in accordance with an approved construction environmental management plan.
Measures should include: vehicle wheel wash and rumble bars at worksite egress points, appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring, where required.</td><td>AE2</td><td>Best practice sedimentation and pollution control measures must be applied to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996) and in accordance with an approved CEMP.
Control measures should include: vehicle wheel wash and rumble bars at worksite egress points, appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring, where required.</td><td>IAC recommendation supported.</td></tr>
<tr><td>AE3</td><td>During construction, discharge tunnel, station box and portal construction water to sewer.
Where groundwater interception during construction is predicted to occur, dewatering is to be managed so that groundwater is not released to stormwater or sensitive surface water bodies (refer to Environmental Performance Requirement GW4).</td><td>AE3</td><td>During construction, discharge all tunnel, station box and portal construction water to sewer.
Where groundwater interception during construction is predicted to occur, dewatering is to be managed so that groundwater is not released to stormwater or sensitive surface water bodies (refer to Environmental Performance Requirement GW4).</td><td>IAC recommendation supported.</td></tr>
<tr><td>AE4</td><td>Where ground treatment works are required in waterways, design and implement methods that prevent discharge of sediments into the water column.</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
<tr><td>AE5</td><td>Design the Arden electrical substation (as per SW1) to provide appropriate protection against floodwaters during operation, to prevent the release of contaminants to Moonee Ponds Creek.</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
<tr><td>AE6</td><td>During operation, discharge tunnel drainage water to sewer, unless otherwise agreed by EPA and Melbourne Water.
Where groundwater interception during operation is predicted to occur, disposal is to be managed so that contaminated water is not released to stormwater or sensitive surface water bodies (refer to Environmental Performance Requirement GW4).</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
<tr><td>AE7</td><td>Fully integrate the stormwater treatment system into the design of all precincts portal to ensure that stormwater entering a receiving water body complies with SEPP (Waters of Victoria). The best practice performance objectives for achieving compliance with SEPP (Waters of Victoria) during the operations phase are described below:
<table>
<tr><th>Pollutant type</th><th>Receiving water objective</th><th>Current best practice performance objective(1)</th></tr>
<tr><td>Suspended solids (SS)</td><td>Comply with SEPP (not to exceed the 90th percentile of 80 mg/L) (2)</td><td>80% retention of the typical urban annual load</td></tr>
<tr><td>Total phosphorus (TP)</td><td>Comply with SEPP (base flow concentration not to exceed 0.08 mg/L) (3)</td><td>45% retention of the typical urban annual load</td></tr>
<tr><td>Total nitrogen (TN)</td><td>Comply with SEPP (base flow concentration not to exceed 0.9 mg/L) (3)</td><td>45% retention of the typical urban annual load</td></tr>
<tr><td>Litter</td><td>Comply with SEPP (No litter in waterways) (2)</td><td>70% reduction of typical urban annual load (4)</td></tr>
<tr><td>Flows</td><td>Maintain flows at pre-urbanisation levels</td><td>Maintain discharges for the 1.5 year ARI at pre-development levels</td></tr>
</table>
Notes</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
</table>

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	1 Best practice performance objectives are based on the Best Practice Environmental Management Guidelines for Urban Stormwater – CSIRO. 2 An example using SEPP (Waters of Victoria), general surface waters segment. 3 SEPP Schedule F7 – Yarra Catchment – urban waterways for the Yarra River main stream. 4 Litter is defined as anthropogenic material larger than five millimetres. Sedimentation and pollution control measures must be applied to protect waterways and habitat areas such as periphery surrounding Moonee Ponds Creek in accordance with industry best practice. This shall include water quality monitoring, where required.			
Aboriginal Cultural Heritage				
AH1	Comply with a Cultural Heritage Management Plan approved under the *Aboriginal Heritage Act 2006* and prepared in accordance with the Aboriginal Heritage Regulations 2007.		IAC recommends no change.	MMRA draft supported.
Air Quality (AQ)				
AQ1	Develop and implement plan(s) for dust management and monitoring, in consultation with EPA and the owners of key sensitive equipment or locations, to minimise and monitor the impact of construction dust and advise the community of the plan, in accordance with the Community and Stakeholder Engagement Plan (EPR SC3). The plan must: • Set out air quality criteria and outline the justification for those criteria for above ground construction works • Be informed by air modelling of construction activities, which should identify the main dust sources and sensitive land uses • Describe the proposed air quality management system including (but not necessarily limited to): - Routinely reviewing weather model predictions - Continuous monitoring and real-time alert systems in the event of measured exceedances - Protocols for record-keeping - Protocols to ensure that site personnel advise the site manager if excessive dust emissions are observed • Describe the measures that would be implemented to ensure compliance with air quality criteria. • Address monitoring requirements for key sensitive receptors, including (but not limited) to: - Residential and commercial properties, including ACMI - Hospitals and research facilities within the Parkville precinct - Heritage listed places sensitive to dust including St Pauls Cathedral and the Melbourne City Baths - Universities, including The University of Melbourne and RMIT - Schools, including Melbourne Grammar School (South Yarra Campus) and Christ Church Grammar School - The Arts Centre Melbourne and National Gallery of Victoria - Public parks and outdoor public recreational areas including the Shrine of Remembrance Reserve and JJ Holland Reserve.	AQ1	Develop and implement plan(s) for dust management and monitoring, in consultation with EPA and the owners of key sensitive equipment or locations, to minimise and monitor the impact of construction dust and advise the community of the plan, in accordance with the Community and Stakeholder Engagement Plan (EPR SC3). The plan must: • Set out air quality criteria and outline the justification for those criteria for above ground construction works • 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. • A specific risk assessment (human toxicology) should be conducted for human health, by a suitably qualified professional, for any 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). • Describe the proposed dust management and monitoring system including (but not limited to): - Routinely reviewing weather model predictions - Continuous monitoring and real-time alert systems in the event of measured exceedances - Protocols for record-keeping - Protocols to ensure that site personnel advise the site manager if excessive dust emissions are observed • Describe the mitigation measures that will be implemented to ensure compliance with air quality criteria. • Address monitoring requirements for key sensitive receptors, including (but not limited) to: - Residential and commercial properties, including ACMI - Hospitals and research facilities within the Parkville precinct - Heritage listed places sensitive to dust including St Pauls Cathedral and the Melbourne City Baths - Universities, including The University of Melbourne and RMIT - Schools, including Melbourne Grammar School (South Yarra Campus) and Christ Church Grammar School - The Arts Centre Melbourne and National Gallery of Victoria Public parks and outdoor public recreational areas including the Shrine of Remembrance Reserve and JJ Holland Reserve.	Supported however some rephrasing is needed for clarity. In addition, MMRA should consult EPA and DELWP in the course of finalising the wording of this EPR.
AQ2	Manage construction activities to minimise dust and other emissions in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).		IAC recommends no change	MMRA draft supported.

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AQ3	Control the emission of smoke, dust, fumes and other pollution into the atmosphere during construction and operation in accordance with the SEPPs for Air Quality Management and Ambient Air Quality.		IAC recommends no change	MMRA draft supported.
Arboriculture (AR)				
AR1	During detailed design, review potential tree impacts and provide for the maximum tree retention on both public and private land, also having regard to valuable habitat linkages or corridors where practicable. Prior to construction of main works and shafts, develop and implement a plan in consultation with the relevant local council that identifies all trees in the project area which covers: • Trees to be removed or retained • Condition and significance of the trees to be removed • Options for temporary re-location of palms and reinstatement at their former location or another suitable location. The plan should include a tree removal protocol that includes a process for MMRA approval of trees prior to removal.	AR1	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. Comply with any requirements of Heritage Victoria if the trees are on the VHR. Prior to construction of main works and shafts, develop and implement a plan in consultation with the relevant local council that identifies all trees in the Project Area which covers: • Trees to be removed or retained • Condition and significance of the trees to be removed • Options for temporary re-location of palms and reinstatement at their former location or another suitable location. 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 MMRA approval of trees prior to removal.	IAC recommendation supported with addition of sentence at the beginning to the effect that no trees should be removed during early works that are not associated with those early works. Moreover, "Prior to construction of main works and shafts" should be removed and replaced with "Prior to commencement of Project works" This is to make AR1 consistent with AR4. Dot point three not to be constrained to named species but to include all species.
AR2	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) principles where possible.	AR2	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.	IAC recommendation supported.
AR3	Re-establish trees to replace loss of canopy cover and achieve canopy size equal to (or greater than) healthy, mature examples of the species in Melbourne. Consult with the City of Melbourne, the City of Port Phillip, the City of Stonnington, the Shrine of Remembrance and Shrine Trustees, University of Melbourne and Heritage Victoria as applicable. Policy documents that should be referenced to re-establish trees and valued landscape character include: • 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 • The City of Port Phillip's Community Amenity Local Law No. 1 and Greening Port Phillip – An Urban Forest Approach • The City of Stonnington's General Local Law 2008 (No 1) and City of Stonnington Street Tree Strategy • Any associated precinct plans • Specific policies of the Domain Parklands Conservation Management Plan for trees within Domain Parklands • 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) • South African Soldiers Memorial Conservation Management Plan (in preparation, Context, 2016) • The preferred future character of the University of Melbourne, for trees in the grounds of the University of Melbourne. The re-establishment of trees must also consider the contribution to creation of habitat corridors and linkages where possible.	AR3	Re-establish trees to replace loss of canopy cover and achieve canopy size equal to (or greater than) healthy, mature examples of the removed species in Melbourne. Consult with the City of Melbourne, the City of Port Phillip, the City of Stonnington, the Shrine of Remembrance and Shrine Trustees, University of Melbourne and Heritage Victoria as applicable. When re-establishing trees, regard should be had to the following documents where relevant: • 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 • The City of Port Phillip's Community Amenity Local Law No. 1 and Greening Port Phillip – An Urban Forest Approach • The City of Stonnington's General Local Law 2008 (No 1) and City of Stonnington Street Tree Strategy • Any associated precinct plans • Specific policies of the Domain Parklands Conservation Management Plan, for trees within Domain Parklands • 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) • South African Soldiers Memorial Conservation Management Plan (, Context, 2016) • The preferred future character of the University of Melbourne, for trees in the grounds of the University of Melbourne. 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.	IAC version supported with AR6 included as suggested below. 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. Investigate the relocation (as opposed to destruction) of all mature trees identified for removal. 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 with immediate impact. 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. When re-establishing trees, regard should be had to the following documents where relevant: • 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 • The City of Port Phillip's Community Amenity Local Law No. 1 and Greening Port Phillip – An Urban Forest Approach • The City of Stonnington's General Local Law 2008 (No 1) and City of Stonnington Street Tree Strategy • Any associated precinct plans • Specific policies of the Domain Parklands Conservation Management Plan, for trees within Domain Parklands • 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) • South African Soldiers Memorial Conservation Management Plan (Context, 2016) • The preferred future character of the University of Melbourne, for trees in the grounds

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				of the University of Melbourne. 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. Cross-reference as appropriate to CH12.
AR4	Prior to construction commencing of main works or shafts in affected areas, prepare and implement Tree Protection Plans for each precinct in accordance with AS4970-2009 Protection of Trees on Development Sites, addressing the detailed design and construction methodology of the project. Within precincts 1, 4 and 7 a Tree Protection Plan must be developed for each heritage place as relevant to the satisfaction of Heritage Victoria or the responsible authority.	AR4	Prior to commencement of construction of any works in affected areas, 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. A Tree Protection Plan must be developed for each heritage place in consultation with Heritage Victoria or the relevant council (as applicable).	IAC recommendation supported
AR5	For City of Melbourne trees that are to be retained and protected, a bank guarantee or bond of the trees value will be held against the approved Tree Protection Plan for the duration of the works in accordance with the city of Melbourne Tree Retention and Removal Policy.			MMRA draft supported.
		AR6	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 with immediate impact. These Protocols are to be developed 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, Heritage Victoria and other stakeholders as appropriate.	Not supported as stand-alone EPR. This is more correctly a component of a tree replacement program and should be included in AR3.
Business (B)				
B1	Reduce the disruption to businesses from direct acquisition or temporary occupation of land, and work with business and land owners to endeavour to reach agreement on the terms for possession of the land.	B1	Reduce the disruption to businesses from direct acquisition or temporary occupation of land, and work with business and land owners to endeavour to reach agreement on the terms for possession of the land. Provide businesses with adequate notice of any need for relocation, which is caused by the Project including the termination of leases of public or private land where the displacement is a direct consequence of the Project.	IAC recommendation supported.
B2	Prepare a business disruption plan consistent with a Community and Stakeholder Engagement Management Plan (SC3) to manage potential impacts to non-acquired businesses, commercial property owners and to engage with local councils, businesses, property owners and the community throughout construction. The plan shall outline the stakeholder engagement measures for each precinct and shall include: • Timely information on key project milestones • Changes to traffic and parking conditions and duration of impact • A project construction schedule developed in coordination with transport authorities and local councils and in consultation with businesses to minimise cumulative impacts of this and other projects • Plans for notifying customers of proposed changes to business operations, including the setting of suitable timeframes for notification prior to commencement of works • Measures to ensure access to businesses is maintained for customers, delivery and waste removal unless there has been prior engagement with affected businesses (including mutually agreed mitigation measures as required). 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.) • 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. • Measures for supporting affected businesses during construction in accordance with the Business Support Guidelines for Construction such as marketing and promotion, local activation, way-finding programs and upskilling opportunities.	B2	Prepare a business disruption plan consistent with the Community and Stakeholder Engagement Management Plan (SC3) to: • Manage potential impacts to non-acquired businesses, commercial property owners and not-for-profit organisations • Ensure appropriate engagement with local councils, businesses, property owners and the community throughout construction. The plan must outline the stakeholder engagement measures for each precinct and shall include: • Adequate notice of key Project milestones • Details of any changes to traffic and parking conditions and duration of impact • A Project construction schedule developed in coordination with transport authorities and local councils and in consultation with businesses to minimise cumulative impacts of this and other projects • Plans for notifying customers of proposed changes to business operations, including the setting of suitable timeframes for notification prior to commencement of works • Measures to ensure access to businesses are maintained for customers, deliveries and consistent with T8 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.) • Assistance with the preparation of Business Plans where sought by businesses likely to be affected by construction to create financial baselines that may be used to demonstrate impacts from the Project. • Process for registering, management and resolution of complaints from affected	Generally support the IAC addition for Business Plans to create financial baselines, however note this requirement should identify the process through which MMRA would provide assistance to businesses. This requirement should be incorporated into "Section 3.1 Process for communicating eligibility to businesses" of the BSGC.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
			businesses consistent with Australian Standard AS/NSZ 10002:2014 Guidelines for Complaint Management in Organisations. • Measures for supporting affected businesses during construction in accordance with the Business Support Guidelines for Construction such as marketing and promotion, local activation, way-finding programs and upskilling opportunities.	
B3	Following consultation with potentially affected businesses and prior to main works and shaft construction commencing, prepare management plans and during construction implement those plans to minimise dust, noise and vibration impacts during construction, as per AQ1, NV1 and NV4.			MMRA draft supported.
B4	Maintain vehicular and pedestrian access to hospital emergency departments at all times during construction and to other key health and medical facilities, where practicable.			MMRA draft supported.
B5	Develop a stop work contingency plan for Class 1 emergencies (as defined in the *Emergency Management Act 2013*) in consultation with medical institutions in the Parkville precinct in the event that Melbourne Metro construction works are required to cease.	B5	Develop a stop work contingency plan for Class 1 emergencies (as defined in the *Emergency Management Act 2013*) in consultation with medical institutions in the Parkville precinct in the event that Melbourne Metro construction works are required to cease as a result of any such emergency.	IAC recommendation supported
Contaminated Land and Spoil Management (C)				
C1	Prior to construction of main works or shafts, prepare and implement a Spoil Management Plan (SMP) in accordance with MMRA's Spoil Management Strategy and relevant regulations, standards and best practice guidance. The SMP shall be developed in consultation with the EPA. The SMP will include but is not limited to the following: • Applicable regulatory requirements • Identifying nature and extent of spoil (clean fill and contaminated spoil) across all precincts • Roles and responsibilities • Identification of management measures for handling and transport of spoil for the protection of health and the environment • Identification, design and development of specific environmental management plans for temporary stockpile areas • Identifying suitable sites for re-use, management or disposal of any spoil • Monitoring and reporting requirements • Identifying locations and extent of any prescribed industrial waste (PIW) and characterising PIW spoil prior to excavation • Identifying suitable sites for disposal of any PIW. The SMP shall include sub-plans as appropriate, including but not limited to an Acid Sulphate Soil and Rock (ASS/ASR) Management Sub-Plan (Refer to C2).	C1	Prior to construction of main works or shafts, prepare and implement a Spoil Management Plan (SMP) in accordance with MMRA's Spoil Management Strategy and 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: • Applicable regulatory requirements • Identifying the nature and extent of spoil (clean fill and contaminated spoil) • Roles and responsibilities • Identification of management measures for handling and transport of spoil for the protection of health and the environment • Identification, design and development of specific environmental management plans for temporary stockpile areas • Identifying suitable sites for re-use, management or disposal of any spoil • Monitoring and reporting requirements • Identifying locations and extent of any prescribed industrial waste (PIW) and the method for characterising PIW spoil prior to excavation • Identifying suitable sites for disposal of any PIW. The SMP shall include sub-plans as appropriate, including but not limited to an Acid Sulphate Soil and Rock (ASS/ASR) Management Sub-Plan (Refer to C2).	IAC recommendation supported, however cross-reference should be made the relevant Transport EPR that addresses selection of haul routes.
C2	Prepare and implement an Acid Sulphate Soil and Rock (ASS/ASR) Management Sub-Plan prior to construction of the project as a sub-plan of an overarching SMP in accordance with the regulations, standards and best practice guidance and in consultation with the EPA. This sub-plan will include the general requirements of the SMP and also: • Identify locations and extent of any potential ASS/ASR • Characterise ASS/ASR spoil prior to excavation • Identify and implement measures to prevent oxidation of ASS/ASR wherever possible • Identify suitable sites for re-use, management or disposal of any ASS/ASR.	C2	Prior to the commencement of construction of the project, and in consultation with the EPA, prepare and implement an Acid Sulphate Soil and Rock (ASS/ASR) Management Sub-Plan prior to construction of the Project as a sub-plan of an overarching SMP in accordance with the Industrial Waste Management Policy (Waste Acid Sulphate Soils) 1999, EPA Publication 655.1 Acid Sulphate Soil and Rock and relevant (EPA) regulations, standards and best practice guidance and in consultation with the EPA. This sub-plan must include the general requirements of the SMP and also: • Identify locations and extent of any potential ASS/ASR • Characterise ASS/ASR spoil prior to excavation • Identify and implement measures to prevent oxidation of ASS/ASR wherever possible • Identify suitable sites for re-use, management or disposal of any ASS/ASR.	IAC recommendation supported.
C3	Prior to construction of main works or shafts, prepare a Remedial Management Plan (RMP). The RMP must: • Consider the outcomes of further investigations including the appropriate groundwater investigations and modelling required in GW1, GW2, GW3 and GW5 • Interpret groundwater permeation and VOC results • Present and take account of the outcomes of risk assessments • If required, identify remedial options to be implemented for contaminated land and		IAC recommends no change.	MMRA draft supported, with cross-reference to the relevant GW EPR addressing contaminated groundwater.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	groundwater in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of EPA. If required, as an outcome of the RMP, prepare and implemented 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.			
C4	Prior to construction of main works or shafts commencing, prepare and implement a health, safety and environmental plan for the management of hazardous substances. The plan must include but not be limited to: • Consideration of the risks associated with exposure to hazardous substances for employees, visitors and general public • The identification of methods to control such exposure in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of WorkSafe and EPA • Method statements detailing monitoring and reporting.		IAC recommends no change.	MMRA draft supported.
Cultural Heritage (Historical)				
CH1	Design permanent and temporary works to avoid or minimise impacts on the cultural heritage values of heritage places. Consult, as required, with Heritage Victoria and/or the responsible authority (as applicable). Note: all necessary heritage permits are to be obtained as required under the Heritage Act 1995.	CH1	Design permanent and temporary works to avoid or minimise impacts on the cultural heritage values of heritage places. Consult, as required, with Heritage Victoria and/or the relevant local council (as applicable). Note: the Project must meet the requirements of the Heritage Act 1995	IAC recommendation supported.
CH2	To avoid or minimise impacts on the cultural heritage values of heritage places: • Prepare and implement a Heritage Management Plan (HMP), which must identify the mitigation measures to be adopted to avoid or minimise impacts on the cultural heritage values of heritage places • Perform works in accordance with the following noise and vibration and ground movement Environmental Performance Requirements as related to heritage places: New NVA, NV2, NV3, NV6, NV11, GM2, GM4, GM5, GM6 • Undertake condition assessments of heritage places prior to commencement of construction where located within the identified vibration and ground settlement zones of sensitivity and monitor as per NV6, GM4 and GM5. Should damage occur to a building or structure in the Victorian Heritage Register or that is subject to a Heritage Overlay as a result of works, undertake rectification works in accordance with accepted conservation practice (with reference to the Australia ICOMOS Burra Charter 2013) with input from a qualified heritage practitioner and in consultation with the land owner and 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 Victoria Heritage Register.	CH2	To avoid or minimise impacts on the cultural heritage values of heritage places: • Prepare and implement a Heritage Impact Statement (HIS) in consultation with Heritage Victoria or the responsible authority (as applicable). The HIS 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. • Perform works in accordance with the following noise and vibration and ground movement EPR as related to heritage places: NV20, NV2, NV3, NV6, NV7, GM2, GM3, GM4, GM5, GM6 • Undertake condition assessments of heritage places prior to commencement of construction where located within the identified vibration and ground settlement zones of sensitivity and monitor as per NV6, GM4 and GM5. Should damage occur to a 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.	IAC recommendation supported.
CH3	Prior to construction, undertake archival photographic recording in accordance with Heritage Victoria's specification for the archival photographic recording of heritage places and objects where heritage places are to be demolished or modified.	CH3	Prior to construction, 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.	IAC recommendation supported.
CH4	Prior to construction of main works or shafts that affect heritage structures or places, develop detailed methodology in accordance with Australia ICOMOS Burra Charter and in consultation with Heritage Victoria or the land owner or local council (as applicable) where heritage fabric is required to be dismantled, stored and reconstructed. Work is to be documented and overseen by an appropriately qualified conservation practitioner.	CH4	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) where heritage fabric is required to be dismantled, stored and reconstructed. Work is to be documented and overseen by an appropriately qualified heritage practitioner. Prior to dismantling, develop interpretative material for display while the heritage fabric is not visible.	IAC recommendation supported.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
CH5	Prior to construction of main works or shafts that affect heritage structures or places, develop and implement appropriate protection measures for heritage places and objects including sculptures, memorials, monuments and associated heritage fabric where retained in proximity to works. This is to be done in consultation with Heritage Victoria or the land owner or local council (as applicable).	CH5	Prior to construction of 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).	IAC recommendation supported.
CH6	In consultation with Heritage Victoria: • Develop archaeological management plans to manage disturbance of archaeological sites and values affected by the project • Undertake investigation in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2014 (as amended or updated) and to the satisfaction of the Executive Director, Heritage Victoria. Develop and implement a protocol for managing previously unidentified historical archaeological sites discovered during project works.	CH6	In consultation with Heritage Victoria and as required by the Heritage Act 1995: • Develop archaeological management plans to manage disturbance of archaeological sites and values affected by the Project. • Undertake investigation in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2014 (as amended or updated) Develop and implement a protocol for managing previously unidentified historical archaeological sites discovered during Project works.	IAC recommendation supported.
CH7	Develop and implement a heritage interpretation strategy as part of detailed design as a whole which seeks to explore historical and Aboriginal cultural heritage themes. This must include (but not be limited to) the exploration of opportunities for interpretation at Arden station (referencing the use of this land for railways workshops and sidings), and at CBD South station (referencing the Port Phillip Arcade and the early Port Phillip Club Hotel).	CH7	In consultation with Heritage Victoria for places in the VHR and VHI or the relevant local council and/or Aboriginal Victoria (as applicable), develop and implement, in consultation with stakeholders, a heritage interpretation strategy which explores historical and Aboriginal cultural heritage themes.	IAC recommendation supported.
CH8	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.		IAC recommends no change.	MMRA draft supported.
CH9	Ensure new development is responsive to heritage places in terms of height, massing, form, façade articulation and materials.	CH9	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.	IAC recommendation supported.
CH10	Ensure no direct impact on heritage buildings on the former Glueworks site in Kensington.			IAC recommendation supported.
CH11	Retain and protect Langford Street pumping station (part of proposed Moonee Ponds Creek and Infrastructure Precinct) as part of the design for the new substation.	CH11	Retain and protect Langford Street pumping station as part of the design for the new substation.	IAC recommendation supported.
CH12	Replace removed Elm trees in Royal Parade as part of project delivery using appropriate species and re-establish the boulevard formation. Provide suitable soil conditions to facilitate the growth of new trees to reach the size of the existing mature trees in the boulevard.	CH12	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. Provide suitable soil conditions to facilitate the growth of new trees to reach the size of the existing mature trees in the boulevard.	IAC recommendation supported.
CH13	In detailed design ensure the eastern Parkville station entry is set no less than 8-10 metres from the original Gatekeeper's Cottage and an appropriate boundary treatment is retained or re-established for the heritage building.		IAC recommends no change.	MMRA draft supported.
CH14	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.		IAC recommends no change.	MMRA draft supported.
CH15	In the event of 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 construction. (See Environmental Performance Requirement CH4)	CH15	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 construction. (See EPR CH4)	IAC recommendation supported.
CH16	Integrate the bluestone pillar and cast iron fencing at the corner of Grattan Street and Royal Parade into the design for the station entry and surrounds in consultation with the University of Melbourne.		IAC recommends no change.	MMRA draft supported.
CH17	Replace removed trees as part of project delivery in accordance with relevant policy documents and to re-establish valued landscape character and in consultation with the City of Melbourne, the City of Port Phillip, the Shrine of Remembrance and Shrine Trustees and Heritage Victoria as applicable. Policy documents are as follows: • Domain Parklands Conservation Management Plan 2016 and the Domain Parklands	CH17	Replace removed trees as part of Project delivery in accordance with relevant policy documents and to retain heritage values and in consultation with the City of Melbourne, the City of Port Phillip, NV1 Heritage Victoria, the Shrine of Remembrance and Shrine Trustees (as applicable). Policy documents are as follows:	Supported with the exception of the word 'retain heritage values' amend to 'reinstate heritage values'.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	Masterplan (in preparation) • 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) • South African Soldiers Memorial Conservation Management Plan (Context, 2016)		• Any Conservation Management Plan adopted by those bodies, including: • Domain Parklands Conservation Management Plan 2016 and the Domain Parklands Masterplan (when completed) • 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) • South African Soldiers Memorial Conservation Management Plan (Context, 2016)	
CH18	Review the siting and design of the eastern Domain station entry in detailed design to ensure it is as recessive as possible in this location and has only a limited presence on the edge of the Shrine of Remembrance Reserve. The design needs to allow for the maintenance of an appropriate setting to the Macpherson Robertson Memorial Fountain.	CH18	To the satisfaction of Heritage Victoria, review the siting and design of the eastern Domain station entry in detailed design to ensure it is as recessive as possible in this location and has only a limited presence on the edge of the Shrine of Remembrance Reserve, in consultation with the City of Melbourne, the Shrine of Remembrance and Shrine Trustees (as applicable) and Heritage Victoria. The design needs to allow for the maintenance of an appropriate setting to the Macpherson Robertson Memorial Fountain.	IAC recommendation supported.
CH19	In consultation with Heritage Victoria: • Prior to dismantling the South African Soldiers Memorial, in consultation with City of Port Phillip develop interpretive material to display in the precinct until the monument is restored. • For detailed design, in consultation with City of Port Phillip review the siting and design of the western Domain station entry to ensure the South African Soldiers Memorial has an appropriate landscaped setting if relocated on this site. If no appropriate setting can be established, consider options for relocation of the memorial to an alternative site.	CH19	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. 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 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.	IAC recommendation supported.
CH20	In consultation with VicRoads, Heritage Victoria and/or relevant local councils, replace removed trees in St Kilda Road to re-establish the boulevard formation.	CH20	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 retain heritage values. 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 in the Heritage Impact Statement (HIS).	IAC recommendation supported with the exception of the word 'retain heritage values' amend to 'reinstate heritage values'.
CH21	Retain and protect the Cross Street Electrical Substation in situ within or abutting proposed construction site.		IAC recommends no change.	MMRA draft supported.
CH22	Ensure that, where impacted by project works, street fabric and infrastructure is conserved and/or accurately reconstructed.	CH22	Ensure that, where impacted by Project works, street fabric and infrastructure is conserved and/or accurately reconstructed in consultation with the relevant local council.	IAC recommendation supported, with the amendment of including consultation with Heritage Victoria.
New CHA*	Before tunnelling commences: • Consider the construction noise and vibration modelling required by EPR NV3 and identify heritage places on the Victorian Heritage Register that may be vulnerable to degradation as a result of vibration from construction and identify appropriate mitigation measures to prevent damage to heritage places from vibration • Conduct pre-construction condition surveys of heritage places identified in the modelling as potentially being vulnerable to degradation as a result of vibration, to record structural condition and structural integrity prior to the commencement of tunnelling • Implement the identified mitigation measures to prevent damage to heritage places from vibration • Conduct vibration monitoring at the heritage places that may be vulnerable to degradation to assess the actual vibration from construction works. If the vibration monitoring demonstrates the condition of heritage places may be degraded as a result of vibration, ground vibration must be reduced until the risk of vibration related degradation is assessed as acceptable.	CH23	Consider the construction noise and vibration modelling required by EPR NV3 and review the ground movement plan required by EPR GM3, and identify heritage places that may be vulnerable to damage from construction and identify appropriate mitigation measures to prevent damage to heritage places. Conduct pre-construction condition surveys of heritage places identified in the modelling as potentially being vulnerable to damage to record structural condition and structural integrity prior to the commencement of tunnelling. Implement the identified mitigation measures to prevent damage to heritage places in consultation with Heritage Victoria and the relevant local council (as applicable).Conduct vibration monitoring at the heritage places that may be vulnerable to damage to assess the actual impacts from construction works. 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. Construction techniques must also seek to limit as far as practicable ground movement to avoid causing damage to heritage places, (see also EPR GM3, GM4, GM5 and GM6).	IAC recommendation supported, with the amendment of removing the word modelling for pre-construction surveys, as other heritage places may be identified as vulnerable from other means such as EPR GM3.
Electro Magnetic Interference (EMI)				
EMI1	During detailed design: • undertake a project wide Electro Magnetic Interference (EMI) assessment for existing	EMI1	During detailed design: • undertake a Project wide Electro Magnetic Interference (EMI) assessment for existing	IAC recommendation supported, subject to minor editorial corrections to convert dot point 2 to a fourth dash point under dot point 1 and to relocate "either" to after "as a

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	infrastructure, systems and equipment considering: - Baseline conditions - Stakeholder requirements - Manufacturer specifications of sensitive equipment - The electromagnetic emissions generated by the operation of any electrical or electronic equipment to be used during construction and operation of the project • Undertake baseline monitoring in accordance with sensitive equipment manufacturer environmental test requirements, where available. • Agree operational EMI limits with equipment owners having regard to equipment manufacturer environmental specifications where available and background EMI levels • If EMI limits are expected to be exceeded, as a result of the construction and/or operation of the project, design mitigation measures, in consultation and agreement with equipment owners, to minimise impact on sensitive equipment in accordance with ;'best practice' industry standards.		infrastructure, systems and equipment that considers: - Baseline conditions - Stakeholder requirements - Manufacturer specifications of sensitive equipment • Any electromagnetic emissions generated by moving metallic objects which may alter magnetic fields and the operation of any electrical or electronic equipment to be used during construction and operation of the Project • Undertake baseline monitoring of sensitive equipment in accordance with any relevant manufacturer environmental test requirements, where available. • Determine operational EMI limits in consultation with sensitive equipment owners having regard to equipment manufacturer environmental specifications where available and background EMI levels • If EMI limits are expected to be exceeded, either as a result of 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.	result of."
EMI2	Prior to construction and operation, prepare and implement an Electro Magnetic Compatibility (EMC) Management Plan that includes the following (but is not necessarily limited to): • Considers the electromagnetic emissions generated by the Works • Identifies sensitive equipment and the management measures • Includes a testing strategy in accordance with equipment specifications to monitor performance of appropriate management measures • Outlines a program for regular auditing of electronic and electrical systems during the construction, testing and commissioning. • Outlines remedial action if EMI limits are not met systems during the construction, testing, commissioning and operation of the project.	EMI2	Prior to commencement of construction and operation, prepare and implement an Electro Magnetic Compatibility (EMC) Management Plan that includes the following (but is not necessarily limited to): • An assessment of the likely electromagnetic emissions generated by the Works • Identification of sensitive equipment that might be affected by those electromagnetic emissions and the proposed management measures • Includes a testing strategy in accordance with equipment specifications to monitor performance of appropriate management measures • Identification of possible works to sensitive equipment to avoid adverse impacts • A program for regular auditing of electronic and electrical systems during the construction, testing and commissioning. • Remedial action to be undertaken if EMI limits are not met during the construction, testing, commissioning and operation of the Project.	IAC recommendation supported in principle. However, reword to read: "Prior to commencement of relevant Project works …" to avoid the need for the EMC MP to be prepared before early works if that is not necessary.
Flora and Fauna - Terrestrial (FF)				
FF1	Where 'unavoidable' native vegetation (as defined under relevant policy) needs to be removed, meet the requirements of the *Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines*.	FF1	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*.	IAC recommendation supported in principle; some minor rewording may be required in consultation with DELWP.
FF2	Develop and implement measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle hygiene.	FF2	Develop and implement measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle and equipment hygiene.	IAC recommendation supported in principle: some minor rewording may be required in consultation with DELWP
FF3	Prior to site clearance for construction, all vegetation being removed is to be inspected by a suitably experienced and qualified environmental officer for habitat features and fauna occupancy. Where non-listed species (native and exotic) are encountered, any individuals will be encouraged to leave the tree or vegetation. Where nests/young are encountered, they will be relocated to a similar tree (or habitat) in close proximity. Prior to site clearance for construction, develop a translocation plan for the management of listed fauna species if encountered.		IAC recommends no change.	MMRA draft supported in principle, however rewording is required to ensure consistency with best practice wildlife welfare management including avoiding removal of vegetation which may provide nesting habitat for native wildlife during the spring breeding season where practicable.
Greenhouse Gas				
GHG1	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.		IAC recommends no change.	MMRA draft supported.
GHG2	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.		IAC recommends no change.	MMRA draft supported.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
Ground Movement and Land Stability (GM)				
GM1	Develop and maintain geological and groundwater models (as per GW2) which: • Use monitored ground movement and ground water levels prior to construction to identify pre-existing movement • Inform tunnel design and the construction techniques to be applied for the various geological and groundwater conditions • Assess potential drawdown and identify trigger levels for implementing additional mitigation measures to minimise potential primary consolidation settlement • Assess potential ground movement effects from excavation and identify trigger levels for implementing additional mitigation measures to minimise potential ground movement effects.		IAC recommends no change.	MMRA draft supported.
GM2	Design and construct the permanent structures and temporary works to limit ground movements to within appropriate acceptability criteria (to be determined in consultation with relevant stakeholders, local councils and land managers) for vertical, horizontal, and angular deformation as appropriate for project activities during the construction and operational phase.	GM2	Design and construct the permanent structures and temporary works to limit ground movements to within appropriate acceptability criteria (to be determined in consultation with relevant stakeholders, local councils and land managers and which builds upon the assumptions and mitigation measures presented in the EES) for vertical, horizontal, and angular deformation as appropriate for Project activities during the construction and operational phase.	Reword to refer to "investigations reported in the EES and subsequent relevant investigations" and be clear that design and construction should assume implementation of appropriate best-practice mitigation measures (which should be documented in and implemented under the Ground Movement Plan required under EPR GM3).
GM3	Develop and implement a ground movement plan for construction and operational phases of the project that: • Addresses the location of structures/assets which may be susceptible to damage by ground movement resulting from Melbourne Metro works, having particular regard to places listed on the Victorian Heritage Register • Identifies appropriate ground movement impact acceptability criteria for buildings, utilities, trains, trams and pavement after consultation with the various stakeholders • Identifies mitigation measures to ensure acceptability criteria can be met • Identifies techniques for limiting settlement of buildings and protecting buildings from damage • Addresses additional measures to be adopted if acceptability criteria are not met such as reinstatement of any property damage • Establishes monitoring 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 • Consult with land and assets owners that could potentially be affected and where mitigation measures would be required.	GM3	Develop and implement a Ground Movement Plan for construction and operational phases of the Project that: • Addresses the location of structures/assets which may be susceptible to damage by ground movement resulting from Melbourne Metro works, having particular regard to heritage places and EPR CH2. • Identifies appropriate ground movement impact acceptability criteria for buildings, utilities, trains, trams and pavement after consultation with the various stakeholders • Identifies mitigation measures to ensure acceptability criteria can be met • Identifies techniques for limiting settlement of buildings and protecting buildings from damage. Where these may apply to heritage places, they should be developed in consultation with Heritage Victoria and the relevant council (as applicable). • 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. • Establishes monitoring 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 • Consult with land and assets owners that could potentially be affected and where mitigation measures would be required.	IAC recommendation supported subject to editorial amendments to review the second last point that repeats monitoring and the last point for structure.
GM4	Conduct pre-construction condition surveys for the assets predicted to be affected by ground movement. Develop and maintain a data base of as-built and pre-construction condition information for each potentially affected structure identified as being in an area susceptible to damage (GM3) and where a property owner has requested an assessment, specifically including: • Identification of structures/assets which may be susceptible to damage resulting from ground movement resulting from Melbourne Metro works • Results of condition surveys of structures, pavements, significant utilities and parklands to establish baseline conditions and potential vulnerabilities • Records of consultation with landowners in relation to the condition surveys. • Post-construction stage condition surveys conducted, where required, to ascertain if any damage has been caused as a result of Melbourne Metro. • Share pre- and post-condition assessments and records of consultation with the property owner proactively. • Ensure all stakeholder engagement activities are undertaken within the framework of the Community and Stakeholder Engagement Management Plan		IAC recommends no change.	MMRA draft supported.
GM5	Adopt construction techniques for Melbourne Metro to limit ground movement to within appropriate acceptability criteria (to be determined in consultation with relevant stakeholders).		IAC recommends no change.	MMRA draft supported.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
GM6	For properties and assets affected by ground movement, undertake any required repair works.	GM6	For properties and assets affected by ground movement, undertake any required repair works. For places on the VHR, consultation with Heritage Victoria and the relevant local council is to occur (as applicable).	IAC recommendation supported
Groundwater (GW)				
GW1	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.	GW1	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. In the case of existing, registered groundwater bore users, for the assessment of a 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.	IAC recommendation supported
GW2	Develop a groundwater model in 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 Environmental Performance Requirements and mitigation measures are sufficient to mitigate impacts from changes in groundwater levels, flow and quality. 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. Undertake monitoring during construction to ensure that predictions are accurate and mitigation measures are appropriate.	GW2	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 Environmental Performance Requirements and mitigation measures are sufficient to mitigate impacts from changes in groundwater levels, flow and quality. 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. 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. Undertake monitoring during construction to ensure that predictions are accurate and mitigation measures are appropriate.	IAC recommendation supported.
GW3	Develop and implement a Groundwater Management Plan (GMP) detailing groundwater management approaches to address the predicted impacts to groundwater dependent values during construction. The GMP must be based on the detailed design phase groundwater model, and should include the following details: • Approach to collection, treatment and disposal of groundwater collected during construction in accordance with the MMRA Groundwater Disposal Strategy • Identifying and if necessary, specifying mitigation measures to protect groundwater dependent vegetation during periods of drawdown • An approach identified in consultation with the EPA so that contaminant migration cause no significant impacts on beneficial uses and vapour intrusion into underground structures, and establish appropriate monitoring networks to confirm effectiveness of approach • Methods for minimising drawdown in areas of known PASS and establishing appropriate monitoring networks to confirm effectiveness of approach • Methods for minimising drawdown at any existing recharge bores, and establishing appropriate monitoring networks to confirm effectiveness of mitigation • Groundwater drawdown trigger levels for groundwater dependant values at which additional mitigation measures must be adopted • Design, operation and management of groundwater injection borefields • Contingency measures if impacts occur at existing active groundwater bores and surface water bodies • Contingency measures should unexpected groundwater conditions be encountered. The GMP must satisfy the EPA and relevant water authorities that groundwater dependent values would be protected. The GMP should also address MMRA's sustainability requirements where appropriate.		IAC recommends no change.	IAC recommendation supported subject to minor editorial changes if required.
GW4	Use the Groundwater Disposal Strategy and GMP to obtain a Trade Waste Agreement with		IAC recommends no change.	MMRA draft supported.

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No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	the relevant Water Retailers for groundwater disposal.			
GW5	Develop and implement a groundwater monitoring plan as part of the GMP that details sufficient monitoring of groundwater levels to verify that no significant impacts occur from potential: • Contaminant migration on the beneficial uses of groundwater at third party properties caused by drawdown and vapour intrusion to underground structures • Activation of PASS and groundwater acidification • Reduction in access to water for bore owners in the area around the project • Reduction in access to groundwater for trees– particularly in the Tunnels precinct between CBD South and Domain stations, and the CBD South station and eastern portal precincts • Change in groundwater levels in any existing recharge bores that may be present in the area around the project.		IAC recommends no change.	MMRA draft supported.
Land Use and Planning (LU)				
LU1	Develop and implement a plan for construction and operation of Melbourne Metro that has the purpose of minimising impacts to the development and/or operation of existing land uses, including: • Limiting the permanent change of use within existing public open space • Minimising footprints of construction sites and permanent infrastructure on public land • The location and design of all project works to avoid, to the extent practicable, temporary and permanent loss of public open space and be designed to maximise the re-instatement potential • 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 Oval, and the Albert Road Reserve • 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. Such measures must be developed in consultation with affected land managers for public land.	LU1	Develop and implement a plan for construction and operation of Melbourne Metro that has as its purpose minimising impacts on existing land uses, including by: • Limiting the extent of any permanent change of use within existing public open space • Minimising the footprints of construction sites and any permanent infrastructure which is to be located on public land • Locating and designing all Project works to avoid, to the extent practicable, any temporary and permanent loss of public open space and be designed to maximise the re-instatement potential of that land. • Minimising impacts to existing public open spaces and recreational facilities and the users of these facilities, including (but not limited to): JJ Holland Park, University Square, the Melbourne City Baths, City Square, Federation Square, the Shrine of Remembrance and the Shrine Reserve, Domain Parklands, Edmund Herring Oval, and the Albert Road Reserve • 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. Such measures must be developed in consultation with affected land managers for public land.	IAC recommendation generally supported with amendments: • An additional performance measure under LU1 be included to require the investigation of the return of property to land owners. • This plan should be developed with Councils as well as key stakeholders. • In meeting this EPR, articulate how the process under EPR SC9 will fit into this EPR. Any notice on SC9 regarding early works should describe how the EWP plan meets each of the points under LU1.
LU2	Development of the project is to be generally in accordance with the relevant Open Space Master Plans (including but not limited to, the Domain Parklands, and University Square Master Plans) in designing and constructing above-ground infrastructure for the tunnels. Consultation must occur with land managers and/or agencies responsible for the implementation of the relevant Open Space Master Plans.	LU2	Development of the Project is to be generally in accordance with the relevant Open Space Master Plans (including but not limited to, the Domain Parklands, and University Square Master Plans, Chapel ReVision Structure Plan) in designing and constructing above-ground infrastructure for the tunnels. Consultation must occur with land managers and/or agencies responsible for the implementation of the relevant Open Space Master Plans.	IAC recommendation generally supported but amended to demonstrate how this EPR is consistent with SC7.
LU3	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. The design must include integrated water sensitive urban design (EPR SW2) and management of the extent of flooding across the site.		IAC recommends no change.	MMRA draft generally supported however this plan should be referred to to the Urban Design and Architectural Advice Panel (UDAAP).
LU4	Develop and implement a plan to ensure the design meets the Melbourne Metro Urban Design Strategy and relevant planning schemes that considers: • Permanent above ground structures • Temporary structures adopting principles of the Growing Green Guide 2014 including green walls, roofs and facades, where practicable • the MMRA Creative Strategy	LU4	Develop and implement a plan to ensure the design of the Project meets the Melbourne Metro Urban Design Strategy and relevant planning schemes that considers: • Permanent above ground structures • Temporary structures adopting principles of the Growing Green Guide 2014 including green walls, roofs and facades, where practicable • the MMRA Creative Strategy	IAC recommendation generally supported, with amendment to include consultation with the Urban Design and Architectural Advice Panel (UDAAP).

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	• Wayfinding, signage and advertising for above ground elements of the project The strategies must be developed in consultation with relevant local councils and land managers. (See Environmental Performance Requirement LV1)		• Wayfinding, signage and advertising for above ground elements of the Project The strategies must be developed in consultation with relevant local councils and land managers. (See EPR LV1)	
Landscape and Visual (LV)				
LV1	Develop and implement a plan for the design of permanent and temporary works in consultation with local councils and the Office of Victorian Government Architect to comply with the Melbourne Metro Urban Design Strategy. Avoid or minimise to the extent practicable, visual impacts on sensitive receptors and maintain broader landscape character values, particularly in relation to: • Tunnels: Queen Victoria Gardens, Tom's Block, Fawkner Park • Western Portal: JJ Holland Park • Parkville Station: University of Melbourne, Victorian Comprehensive Cancer Centre, Royal Melbourne Hospital, University Square • CBD North Station: Royal Melbourne Institute of Technology, the State Library and State Library Forecourt • CBD South Station: St Paul's Cathedral, Federation Square, City Square and Flinders Street Station • Domain Station: The Shrine of Remembrance, Shrine of Remembrance Reserve, Albert Road Reserve, Domain Parklands • Eastern Portal: South Yarra Siding Reserve and Osborne Street. • Existing habitat corridors within and proximate to Moonee Ponds Creek, if the alternate substation site adjacent to the Moonee Ponds Creek is selected Consult with University of Melbourne in relation to location and design of station entries on University land.	LV1	Develop and implement a plan for the design of permanent and temporary works 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: • Tunnels: Queen Victoria Gardens, Tom's Block • Western Portal: JJ Holland Park • Parkville Station: University of Melbourne, Victorian Comprehensive Cancer Centre, Royal Melbourne Hospital, University Square • CBD North Station: Royal Melbourne Institute of Technology, the State Library and State Library Forecourt • CBD South Station: St Paul's Cathedral, Federation Square, City Square and Flinders Street Station • Domain Station: The Shrine of Remembrance, Shrine of Remembrance Reserve, Albert Road Reserve, Domain Parklands • Eastern Portal: South Yarra Sidings Reserve and Osborne Street. • A'Beckett Street open space • Existing habitat corridors within and proximate to Moonee Ponds Creek, if the alternate substation site adjacent to the Moonee Ponds Creek is selected Consult with University of Melbourne in relation to location and design of station entries on University land.	IAC recommendation generally supported however please amend to include the following places: • City baths • Young and Jackson Hotel • St Kilda road • Lovers Walk Pedestrian Walk
LV2	Develop and implement a plan in consultation with the Office of Victorian Government Architect, local councils and other land managers to comply with the Melbourne Metro Urban Design Strategy to re-establish and enhance where appropriate public open space, recreation reserves and other valued places disturbed by temporary works. 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) The plan should also include exploring opportunities for renewal of public spaces for the benefit of communities beyond resident groups, including visitors, business owners and commuters. The plan should include a timeframe for re-establishment of public open space, recreation reserves and other valued places disturbed by temporary works.	LV2	Develop and implement a plan in consultation with the Office of Victorian Government Architect, local councils and other land managers to comply with the Melbourne Metro Urban Design Strategy to re-establish 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. 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) 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.	IAC recommendation generally supported however this plan should link with the relevant Arboriculture EPRs for reinstatement of trees.
LV3	Prior to construction, develop measures to minimise light spillage during construction to protect the amenity of adjacent neighbourhoods, parks and community facilities. Lighting for operation would be designed in accordance with council requirements and relevant standards.	LV3	Prior to construction, 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.	IAC recommendation supported
		LV4	Develop and implement a plan to consider the re-use of temporary landscape and other temporary features or structures.	IAC recommendation supported
Noise and vibration (NV)				
NV1	Manage construction noise in accordance with EPA Publication 1254 Noise Control Guidelines unless otherwise specified in the Construction Noise and Vibration Management Plan prepared under NVB*.	NV1	Manage construction noise in accordance with EPA Publication 1254 Noise Control Guidelines and as specified in the Construction Noise and Vibration Management Plan prepared under NV20.	NV1 should be reworded to clarify that, while the CNVMP should be seen as complementing the 1254 Guidelines, it may not prescribe standards or practices which are less rigorous than recommended by the 1254 Guidelines

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
NV2	For construction works conducted between CBD South station and Domain station, comply with the requirements of the Notification of Referral Decision for the Melbourne Metro Rail Project (EPBC 2015/7549, dated 22 September 2015) under the EPBC Act for vibration monitoring and measurement, as follows: • Conduct pre-construction dilapidation surveys of the nearest Commonwealth Heritage listed structures to the construction activity, including the Former Guardhouse (Block B), to record structural condition and structural integrity prior to commencement of tunnelling • Conduct vibration monitoring at the commencement of tunnelling in geological conditions that are similar to those at Victoria Barracks in order to quantify the actual tunnel boring machine vibration characteristics (level and frequency) for comparison to the values derived from the literature and the German DIN (DIN 4150) target • Conduct continuous vibration monitoring at the nearest Victoria Barracks heritage structures to the construction activity, including the Former Guardhouse (B Block), to assess the actual tunnelling vibration for acceptability, taking into account both the vibration frequency and condition of structures, until monitoring of vibration at the Former Guardhouse (B Block) shows measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block) • If monitoring conducted according to the above demonstrates the condition of heritage structures may be degraded as a result of vibration, ground vibration must be reduced by adjusting the advance rate of the tunnel boring machine until monitoring of vibration at the Former Guardhouse (B Block) shows consistent measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block). (See Environmental Performance Requirement New CHA)	NV2	For construction works conducted between CBD South station and Domain station, comply with the requirements of the Notification of Referral Decision for the Melbourne Metro Rail Project (EPBC 2015/7549, dated 22 September 2015) under the EPBC Act for vibration monitoring and measurement, as follows: • Conduct pre-construction dilapidation surveys of the nearest Commonwealth Heritage listed structures to the construction activity, including the Former Guardhouse (Block B), to record structural condition and structural integrity prior to commencement of tunnelling • Conduct vibration monitoring at the commencement of tunnelling in geological conditions that are similar to those at Victoria Barracks in order to quantify the actual tunnel boring machine vibration characteristics (level and frequency) for comparison to the values derived from the literature and the German DIN (DIN 4150) target • Conduct continuous vibration monitoring at the nearest Victoria Barracks heritage structures to the construction activity, including the Former Guardhouse (B Block), to assess the actual tunnelling vibration for acceptability, taking into account both the vibration frequency and condition of structures, until monitoring of vibration at the Former Guardhouse (B Block) shows measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block) • If monitoring conducted according to the above demonstrates the condition of heritage structures may be degraded as a result of vibration, ground vibration must be reduced by adjusting the advance rate of the tunnel boring machine until monitoring of vibration at the Former Guardhouse (B Block) shows consistent measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block). (See EPR CH23)	IAC recommendation supported.
NV3	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 would be used to determine appropriate mitigation to achieve the Environmental Performance Requirements. The acoustic and vibration consultant will also be required to undertake noise and vibration monitoring to assess levels with respect to Guideline Targets specified in the Environmental Performance Requirements. Where monitoring indicates exceedances of Guideline Targets, apply appropriate management measures as a soon as possible. The acoustic and vibration consultant will document the modelling and mitigation investigation in a Construction Noise and Vibration Assessment Report for review by the Independent Environmental Auditor, which shall provide the basis for the development of the construction noise and vibration management plan required under EPR NVB*.	NV3	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 would be used to determine appropriate mitigation to achieve the Environmental Performance Requirements. The model must consider airborne noise to residential and non-residential receivers, ground-borne noise, sleep disturbance at residences, blasting vibration and vibration. The model must include the parameters as detailed in the NSW ICNG Section 4.5. The acoustic and vibration consultant must also be required to undertake noise and vibration monitoring to assess levels with respect to any Guideline Targets specified in the Environmental Performance Requirements. Where monitoring indicates exceedances of Guideline Targets, apply appropriate management measures must be implemented as a soon as possible. The acoustic and vibration consultant will 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 NV20. For heritage places see EPR CH23.	NV3 requires the appointment of a consultant to model noise and vibration and to prepare a construction noise and vibration assessment report, which is to inform the CNVMP required by NV20. I support this requirement in principle, although the reference to the ICNG needs clarification. Although NV3 is aligned with construction, the modelling should be done at the detailed design stage in order to inform the CNVMP and design options for management of noise most usefully. NV3 also requires the consultant to undertake noise and vibration monitoring. This is a separate function, requiring different technical skills from modelling, and would be undertaken during rather than before the construction phase. Whilst I support it in principle, it should form a separate EPR.
NV4	Prepare and implement a communications plan to liaise with potentially affected community stakeholders and land owners regarding potential noise and vibration impacts. The plan shall include procedures for complaint management. In developing the plan, consult with relevant councils, EPA Victoria, the Parkville Precinct Reference Group and RMIT.	NV4	Prepare and implement a communications plan to liaise with potentially affected community stakeholders and land owners regarding potential noise and vibration impacts. The plan shall include procedures for complaint management as per EM4. In developing the plan, consult with relevant local councils, EPA Victoria, the Parkville Precinct Reference Group and RMIT.	IAC recommendation supported: should be cross-referenced to SC3.
NV5	**Airborne Construction Noise Guideline Targets (Internal)** Implement management actions if construction noise is predicted to exceed the internal noise levels below for Highly Sensitive Areas (based on AS/NZS 2107:2000) and a noise sensitive receptor is adversely impacted. **Highly Sensitive Area** — **Maximum Internal Construction Noise Level $L_{Aeq, 15\ mins}$**	NV5	**Airborne Construction Noise Guideline Targets (Internal)** Implement management actions if construction noise is predicted to or does exceed the internal noise levels below for Highly Sensitive Areas (based on AS/NZS 2107:2000) and a noise sensitive receptor is adversely impacted. **Highly Sensitive Area** — **Maximum Internal Construction Noise Level $L_{Aeq, 15\ mins}$**	IAC recommendation is supported with rewording to clarify the intent of the reference to the ICNG and the meaning of the notes.

<table>
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<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr>
<td></td>
<td>
<table>
<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>Teaching Spaces</td><td>45</td></tr>
</table>
If construction exceeds the internal noise levels above:
• Consider the duration of construction noise
• Consider the existing ambient noise levels
• Consult with the owner or operator of the noise sensitive receptor
• Consider any specific acoustic requirements of specialist space
to determine whether a noise sensitive receptor is adversely impacted and whether management actions are required.
(See Environmental Performance Requirement New NVB* [subclause 3])
</td>
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<td>
<table>
<tr><td>Intensive Care Wards</td><td>45</td></tr>
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<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>Active recreational areas (characterised by sporting activities)</td><td>External noise level 65dBA</td></tr>
<tr><td>Passive recreation centres</td><td>External noise level 60dBA</td></tr>
<tr><td>Community centres</td><td>Depends on intended use. Refer to max levels in AS2107</td></tr>
</table>
For other sensitive areas not listed above (including but not limited to theatres, concert halls, child care centres), the methodology described in Section 4.1.3 of the NSW ICNG should be adopted to identify and determine noise guideline targets for other sensitive receivers.
Notes:
If construction exceeds the internal noise levels above:
• Consider the duration of construction noise
• Consider the existing ambient noise levels
• Consult with the owner or operator of the noise sensitive receptor
• Consider any specific acoustic requirements of specialist space
(See EPR New NV20subclause 3).
</td>
<td></td>
</tr>
<tr>
<td>NV6</td>
<td>
Vibration Guideline Targets for Structures
Implement management actions if, due to construction activity, the following DIN 4150 Guideline Targets for structural damage to buildings (for short-term vibration or long-term vibration) are not achieved.
Short-term vibration on structures
<table>
<tr><th rowspan="2">Type of structure</th><th colspan="3">Vibration at the foundation, mm/s (Peak Component Particle Velocity)</th><th>Vibration at horizontal plane of highest floor at all frequencies</th></tr>
<tr><th>1 to 10 Hz</th><th>10 to 50 Hz</th><th>50 to 100 Hz[1]</th><th>mm/s (Peak Component Particle Velocity)</th></tr>
<tr><td>Type 1: Buildings used for commercial purposes, industrial buildings and buildings of similar design</td><td>20</td><td>20 to 40</td><td>40 to 50</td><td>40</td></tr>
<tr><td>Type 2: Dwellings and buildings of similar design and/or occupancy</td><td>5</td><td>5 to15</td><td>15 to 20</td><td>15</td></tr>
<tr><td>Type 3: Structures that have a particular sensitivity to vibration e.g. heritage buildings</td><td>3</td><td>3 to 8</td><td>8 to 10</td><td>8</td></tr>
</table>
Notes
1 It may be necessary, in accordance with New NVB*(6), to modify the guidelines 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 those vibration levels in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of
</td>
<td>NV6</td>
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Vibration Guideline Targets for Structures
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Notes
1. It may be necessary, in accordance with New NVB*(6), to modify the guidelines 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 those vibration levels in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of
</td>
<td>IAC recommendation is supported with amendments to New Notes 6 and 4 that refer to pre-construction surveys, which by definition must be done before construction commences, so the Timing column should also refer to the “Detailed design” phase. Pre-condition surveys should be offered, and should be performed where landowners agree.
Other editorial changes for clarity or consistency may also be needed.</td>
</tr>
</table>

<table>
<tr><th colspan="2">MMRA Version 4</th><th colspan="2">IAC Recommendations</th><th rowspan="2">Minister for Planning comment</th></tr>
<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td>damage.
4 For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the values for Type 1 buildings may be increased by a factor of 2.
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.
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 necessary, in accordance with New NVB*(6), to modify the guidelines targets 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 is required 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.</td><td></td><td>damage.
4. For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the values for Type 1 buildings may be increased by a factor of 2.
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.
6. Pre-construction surveys must be performed at all properties located within designated Project Area, and at properties where it is predicted that guideline targets will be exceeded
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 places</td><td>2.5</td></tr></table>Notes
1. It may be necessary, in accordance with New NVB*(6), to modify the guidelines targets 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 is required 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. Pre-construction surveys must be performed at all properties located within designated Project Area and at properties where it is predicted that guideline targets will be exceeded.</td><td></td></tr>
<tr><td>NV7</td><td>Vibration Guideline Targets for Above-ground Utility Assets and Infrastructure
Undertake condition assessments of aboveground utility assets and infrastructure, including (but not limited to) the Arden Street Bridge and Princess Bridge, to establish construction vibration limits with asset owners.
Monitor vibration during construction to demonstrate compliance with the relevant vibration guideline targets under NV6. Take remedial action if limits are not met.
(See Environmental Performance Requirement New CHA*)</td><td>NV7</td><td>Vibration Guideline Targets for Above-ground Utility Assets and Infrastructure
Undertake condition assessments of above ground utility assets and infrastructure, including (but not limited to) the Arden Street Bridge and Princess Bridge, to establish construction vibration limits in consultation with the asset owners.
Monitor vibration during construction to demonstrate compliance with the relevant vibration guideline targets under NV6. Take remedial action if limits are not met.
(See Environmental Performance Requirement New CH23).</td><td>IAC recommendation supported.</td></tr>
<tr><td>NV8</td><td>Vibration Guideline Targets for Below-ground Infrastructure
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.
Implement management actions if agreed construction vibration targets or if no specific targets have been established the DIN 4150 Guideline Targets, for buried pipework/underground infrastructure from construction are not achieved.
<table><tr><th>Pipe material</th><th>Vibration Velocity, mm/s (PPV)</th></tr><tr><td>Steel</td><td>100</td></tr><tr><td>Clay, concrete, reinforced concrete, prestressed concrete, metal</td><td>80</td></tr><tr><td>Masonry, plastic</td><td>50</td></tr></table>Notes
1 These values may be reduced by 50% when evaluating the effects of long-term vibration on buried pipework.
2 It is assumed pipes have been manufactured and laid using current technology (however it is noted that this is not the case for the majority of buried pipework potentially affected by Melbourne Metro).</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
</table>

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<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td>3 Compliance with asset owner’s Utility Standards is to be achieved.</td><td></td><td></td><td></td></tr>
<tr><td>NV9</td><td>Vibration Dose Values (VDVs) (Human Comfort)
Implement management actions if the following Guideline Targets (VDVs) (based Table 1 in BS6472-1:2008) for continuous (as for TBMs and road headers), intermittent, or impulsive vibration are not achieved.
<table><tr><th rowspan="3">Location</th><th colspan="4">VDV (m/s$^{1.75}$)</th></tr><tr><th colspan="2">Day
7:00am to 10:00pm</th><th colspan="2">Night
10:00pm to 7:00am</th></tr><tr><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr><tr><td>Residences</td><td>0.20</td><td>0.40</td><td>0.10</td><td>0.20</td></tr><tr><td>Offices, schools, educational institutions, places of worship</td><td>0.40</td><td>0.80</td><td>0.40</td><td>0.80</td></tr><tr><td>Workshops</td><td>0.80</td><td>1.60</td><td>0.80</td><td>1.60</td></tr></table>Notes
1 The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of feasible and reasonable mitigation measures. If exceeded then management actions would be required.
2 The VDVs may be converted to PPVs within a future noise and vibration construction management plan</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
<tr><td>NV10</td><td>Sensitive Equipment Guideline Targets
Implement management actions if equipment manufacturer specifications or measured background levels (whichever are higher) are expected to be exceeded for vibration sensitive equipment at the Parkville and CBD North precincts.
Where equipment manufacturer specifications are not available for vibration, adopt the applicable ASHRAE Equipment Vibration Guideline Targets:
<table><tr><th>Equipment requirements</th><th>Curve</th></tr><tr><td>Bench microscopes up to 100x magnification; laboratory robots</td><td>Operating Room</td></tr><tr><td>Bench microscopes up to 400x magnification; optical and other precision balances; co-ordinate measuring machines; metrology laboratories; optical comparators; micro electronics manufact-uring equipment; proximity and projection aligners, etc.</td><td>VC-A</td></tr><tr><td>Microsurgery, eye surgery, neurosurgery; bench microscope at magnification greater than 400x; optical equipment on isolation tables; microelectronic manufacturing equipment such as inspection and lithography equipment (including steppers) to 3mm line widths</td><td>VC-B</td></tr><tr><td>Electron microscopes up to 30,000x magnification; microtomes; magnetic resonance images; microelectronics manufacturing equipment such as lithography and inspection equipment to 1mm detail size</td><td>VC-C</td></tr><tr><td>Electron microscopes at magnification greater than 30,000x; mass spectrometers; cell implant equipment; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for phot-lithography with line widths of ½ micro m; includes electron beam systems</td><td>VC-D</td></tr><tr><td>Unisolated laser and optical research systems; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for photolithography with line widths of ¼ micro m; includes electron beam systems</td><td>VC-E</td></tr></table>Notes
1 Background vibration and noise must be measured in accordance with equipment environmental test requirements.</td><td>NV10</td><td>Sensitive Equipment Guideline Targets
Implement management actions (which may include source mitigation) if equipment manufacturer specifications or measured background levels (whichever are higher) are expected to be or are exceeded for vibration sensitive equipment at the Parkville and CBD North precincts during construction.
For operation, the manufacturer specifications or measured background levels (whichever are higher) must not be exceeded.
Where equipment manufacturer specifications are not available for vibration, adopt the applicable ASHRAE Equipment Vibration Guideline Targets:
<table><tr><th>Equipment requirements</th><th>Curve</th></tr><tr><td>Bench microscopes up to 100x magnification; laboratory robots</td><td>Operating Room</td></tr><tr><td>Bench microscopes up to 400x magnification; optical and other precision balances; co-ordinate measuring machines; metrology laboratories; optical comparators; micro electronics manufacturing equipment; proximity and Projection aligners, etc.</td><td>VC-A</td></tr><tr><td>Microsurgery, eye surgery, neurosurgery; bench microscope at magnification greater than 400x; optical equipment on isolation tables; microelectronic manufacturing equipment such as inspection and lithography equipment (including steppers) to 3mm line widths</td><td>VC-B</td></tr><tr><td>Electron microscopes up to 30,000x magnification; microtomes; magnetic resonance images; microelectronics manufacturing equipment such as lithography and inspection equipment to 1mm detail size</td><td>VC-C</td></tr><tr><td>Electron microscopes at magnification greater than 30,000x; mass spectrometers; cell implant equipment; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for phot-lithography with line widths of ½ micro m; includes electron beam systems</td><td>VC-D</td></tr><tr><td>Unisolated laser and optical research systems; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for photolithography with line widths of ¼ micro m; includes electron beam systems</td><td>VC-E</td></tr></table></td><td>IAC recommendation generally supported subject to rewording for clarification, especially with respect to the Notes.
An additional note is needed to reflect the IAC’s findings that target levels may be exceeded only after consultation with affected organisations.
Vibration levels should be framed as targets for both construction and operation phases. For operations, the manufacturers specifications or any alternative agreed levels should provide the benchmark to drive the detailed design approach.</td></tr>
</table>

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<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td>2 Monitoring must be undertaken in accordance with equipment specifications to demonstrate compliance, and monitoring locations be determined in consultation with operators of sensitive equipment (See Environmental Performance Requirement New NVB*(19 iv)).</td><td></td><td>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 be determined in consultation with operators of sensitive equipment (See Environmental Performance Requirement NV20
3. The proponent may undertake consultation with the users and agree alternative Guideline Targets.
4.During the construction phase, a continuous monitoring program shall be adopted (to the asset owner approval), with asset owner access to monitoring data using a 75% alert and not to exceed limit approach.</td><td></td></tr>
<tr><td>NV11</td><td>Ground-borne (internal) Noise Guideline Targets for Amenity
Implement management actions as determined in consultation with potentially affected land owners to protect amenity at residences, sleeping areas in hospital wards, student accommodation and hotel rooms where the following ground-borne noise Guideline Targets (from the NSW Interim Construction Noise Guideline) are exceeded during construction. 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.</td><td></td><td>IAC recommends no change.</td><td>MMRA draft generally supported. NV11 sets guideline internal noise levels to protect amenity from groundborne noise during the construction phase. While the levels may be generally appropriate, they make no allowance for existing background levels. This aspect should be discussed with the EPA before NV11 is finalised.
An additional note is needed to reflect the IAC’s expectation that consultation with educational institutions about daytime groundborne noise levels should occur.</td></tr>
<tr><td>NV12</td><td>Blasting
Comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting
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, develop a plan in consultation with facilities owners that:
• Avoids damage to vibration-sensitive equipment
• Minimises adverse impact on Highly Sensitive Areas and limit adverse impacts on Bio-resources.</td><td></td><td>IAC recommends no change.</td><td>MMRA draft supported.</td></tr>
<tr><td>NV13</td><td>Bio-Resources and Sensitive Research
Implement management actions where the following guideline targets are expected to be exceeded for areas housing bio-resources
• Background noise should be kept below 50 dB and should be free of distinct tones (internal)
• Short exposure should be kept to less than 85 dB (internal).
Notes
1. The levels above should take into consideration the frequency threshold for the Bio-resource under consideration.
2. Higher levels may be acceptable if it can be shown that the Bio-resource under consideration is exposed to higher levels and is not adversely impacted by them.
3. Noise includes airborne and ground-borne born noise at the sensitive receptors.
4. Consider the existing ambient noise levels when assessing predicted exceedances.
5. During the construction phase, a continuous monitoring program shall be implemented in accordance with EPR NVB 19(iv).</td><td>NV13</td><td>Bio-Resources and Sensitive Research
Implement management actions where the following guideline targets are expected to be or are exceeded for areas housing bio-resources:
• Background noise should be below 50 dB LAeq (15min) and should be free of distinct tones (internal)
• Short exposure should be less than 85 dB LAmax (internal).
Notes
1. The nominated levels are guideline targets when applied to construction noise but are mandatory limits that must not be exceeded with regard to operational noise.
2. The levels above should take into consideration the frequency threshold 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 born 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 shall be</td><td>IAC recommendation supported in principle subject to rewording for clarification, especially with respect to the Notes. Vibration levels should be framed as targets for both construction and operation phases.</td></tr>
</table>

<table>
<tr><th colspan="2">MMRA Version 4</th><th colspan="2">IAC Recommendations</th><th rowspan="2">Minister for Planning comment</th></tr>
<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td></td><td></td><td>implemented in accordance with EPR NVB 19(iv).
7. Consideration given to adopting a vibration limit in agreement with the MMRA and stakeholders.</td><td></td></tr>
<tr><td>NV14</td><td>Appoint a suitably qualified acoustic and vibration consultant to predict noise and vibration and determine appropriate mitigation to achieve the Environmental Performance Requirements. The acoustic and vibration consultant would also be required to undertake commissioning noise and vibration measurements to assess levels with respect to the Environmental Performance Requirements.
The acoustic and vibration consultant shall prepare an Operation Noise and Vibration Report for review by the Independent Environmental Auditor, which documents the predictions and mitigation measures during commissioning.</td><td>NV14</td><td>Appoint a suitably qualified acoustic and vibration consultant to assess and predict noise and vibration and determine appropriate mitigation measures necessary to achieve the Environmental Performance Requirements. The acoustic and vibration consultant must undertake commissioning noise and vibration measurements to assess levels with respect to the Environmental Performance Requirements.
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 during commissioning.</td><td>IAC recommendation supported in principle. However, NV14 should be split to distinguish clearly between the requirements for modelling and for collecting of measurement (monitoring) data. The wording should be revised to clarify that NV14 applies to the Operations phase.</td></tr>
<tr><td>NV15</td><td>Victorian Passenger Rail Infrastructure Noise Policy (PRINP)
Avoid, minimise or mitigate rail noise where the following PRINP (April 2013) Investigation Thresholds are exceeded during operation:<table><tr><th>Time</th><th>Type of Receiver</th><th>Investigation Thresholds</th></tr><tr><td>Day (6am – 10pm)</td><td>Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks
Noise sensitive community buildings, including schools, kindergartens, libraries</td><td>65 dBL_{Aeq} and a change in 3 dB(A) or more or
85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr><tr><td>Night (10pm – 6am)</td><td>Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks</td><td>60 dBL_{Aeq} and a change in 3 dB(A) or more or
85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr></table>Notes
1 If an investigation shows that the thresholds are not exceeded, then no further action is considered under the PRINP.
2 L_{Amax} is defined as maximum A-weighted sound pressure level and is the 95 percentile of the highest value of the A-weighed sound pressure level reached within the day or night.
3 For Melbourne Metro the location of assessment is at 1m from the centre of the window of the most exposed external façade.</td><td>NV15</td><td>Victorian Passenger Rail Infrastructure Noise Policy (PRINP)
Avoid, minimise or mitigate rail noise where the following PRINP (April 2013) Investigation Thresholds are exceeded during operation:<table><tr><th>Time</th><th>Type of Receiver</th><th>Investigation Thresholds</th></tr><tr><td>Day (6am – 10pm)</td><td>Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks
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85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr><tr><td>Night (10pm – 6am)</td><td>Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks</td><td>60 dBL_{Aeq} and a change in 3 dB(A) or more or
85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr></table>Notes
1. If an investigation shows that the thresholds are not exceeded, then no further action is considered under the PRINP.
2. The investigation thresholds of the PRINP are to be used as the design targets for the barrier heights and configuration
3. If the PRINP 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 treatment should be designed to meet the following internal noise levels</td><td>IAC recommendation supported in principle, but requires rewording to ensure consistency with related EPRs such as NV17.</td></tr>
</table>

<table>
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<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td></td><td></td><td>• Maximum noise levels of trains should not exceed 50dB L_{Amax} in bedroom
• Maximum noise levels of trains should not exceed 60dBL_{Amax} in living areas
4. L_{Amax} is defined as maximum A-weighted sound pressure level and is the 95 percentile of the highest value of the A-weighed sound pressure level reached within the day or night.
For Melbourne Metro the location of assessment is at 1m from the centre of the window of the most exposed external façade.</td><td></td></tr>
<tr><td>NV16</td><td>Noise from Fixed Plant
For operation, noise from fixed plant associated with Melbourne Metro shall:
• Comply with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1).
• Where SEPP N-1 does not apply, comply with the Satisfactory Recommended Design Sound Levels as defined in AS/NZS 2107 for the following sensitive uses:
- Teaching spaces
- Laboratories
- Conference rooms
- Libraries
- Music studios
- Operating Theatres / Surgeries
- Wards / Recliners
- Performance spaces / Galleries
- Places of worship
If the existing background noise level within any of the above spaces exceeds the Maximum Recommended Design Sound Level in AS/NZS 2107, then noise from the fixed plant associated with the Melbourne Metro project shall not exceed the existing background levels within these spaces at the commencement of operation.
This does not apply to trains and trams.</td><td>NV16</td><td>Noise from Fixed Plant
For operation, noise from fixed plant associated with Melbourne Metro shall:
• Comply with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1).
• Where SEPP N-1 does not apply, comply with the Satisfactory Recommended Design Sound Levels as defined in AS/NZS 2107 for the following sensitive <u>areas</u>:
- Teaching spaces
- Laboratories
- Conference rooms
- Libraries
- Music studios
- Operating Theatres / Surgeries
- Wards / Recliners
- Performance spaces / Galleries
- Places of worship
If the existing background noise level within any of the above <u>areas</u> exceeds the Maximum Recommended Design Sound Level in AS/NZS 2107, then noise from the fixed plant associated with the Melbourne Metro Project <u>must</u> not exceed the existing background levels within these spaces at the commencement of operation.
This does not apply to <u>noise generated by</u> trains and<u>/or</u> trams.</td><td>IAC recommendation supported subject to editorial amendments.</td></tr>
<tr><td>NV17</td><td>Ground-borne Noise Guideline Targets for Operation
Where operational ground-borne noise trigger levels are predicted to be exceeded for sensitive occupancies as shown in the table below (trigger levels are based on the Rail Infrastructure Noise Guideline, 17 May 2013 (RING(1)), assess feasible and reasonable mitigation to reduce noise towards the relevant ground-borne noise trigger level.
<table>
<tr><th>Sensitive land use</th><th>Time of day</th><th>Internal noise trigger levels</th></tr>
<tr><td>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></td><td>Night
(10pm-7am)</td><td>35 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Schools, educational institutions, places of worship</td><td>When in use</td><td>40-45 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Hospitals(bed wards and operating theatres)</td><td>24 hours</td><td>35 dB(A) L_{ASMax}</td></tr>
<tr><td>Offices</td><td>When in use</td><td>45 dB(A) L_{ASMax}</td></tr>
<tr><td>Cinemas and Public Halls</td><td>When in use</td><td>30 dB(A) L_{ASMax}</td></tr>
<tr><td>Drama Theatres</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
<tr><td>Concert halls, Television and Sound Recording Studios</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
</table>
Notes
1 RING provides trigger levels for residential and schools, educational institutions and places of worship, but does not provide guidance on acceptable ground-borne noise levels for other types of sensitive receivers. Ground-borne noise trigger levels for other types of sensitive occupancies have been devised based on RING and industry knowledge.</td><td>NV17</td><td>Ground-borne Noise Limits for Operation
The following operational ground-borne noise limits must be achieved:
<table>
<tr><th>Sensitive land use</th><th>Time of day</th><th>Internal noise trigger levels</th></tr>
<tr><td>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></td><td>Night
(10pm-7am)</td><td>35 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Schools, educational institutions, places of worship</td><td>When in use</td><td>40-45 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Hospitals(bed wards and operating theatres)</td><td>24 hours</td><td>35 dB(A) L_{ASMax}</td></tr>
<tr><td>Offices</td><td>When in use</td><td>45 dB(A) L_{ASMax}</td></tr>
<tr><td>Cinemas and Public Halls</td><td>When in use</td><td>30 dB(A) L_{ASMax}</td></tr>
<tr><td>Drama Theatres</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
<tr><td>Concert halls, Television and Sound Recording Studios</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
</table>
Notes
1 RING provides trigger levels for residential and schools, educational institutions and places of worship, but does not provide guidance on acceptable ground-borne noise levels for other types of sensitive receivers. Ground-borne noise trigger levels for other types of sensitive occupancies have been devised based on RING and industry knowledge.
2 Specified noise levels refer to noise from heavy or light rail transportation only (not ambient noise from other sources).
3 Assessment location is internal near to the centre of the most affected habitable</td><td>IAC recommendation supported in principle, noting that trigger levels should be framed as targets, not limits, but that all practicable efforts should be made to mitigate groundborne noise at source in the light of the difficulty in applying effective mitigation measures at receptor premises.
Modelling of the detailed design should be required to demonstrate the selected mitigation measures will achieve the noise targets. The modelling results should be published.</td></tr>
</table>

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<tr><th>No.</th><th>Environmental performance requirement</th><th>No.</th><th>Environmental performance requirement</th></tr>
<tr><td></td><td>2 Specified noise levels refer to noise from heavy or light rail transportation only (not ambient noise from other sources).
3 Assessment location is internal near to the centre of the most affected habitable room.
4 L_{ASmax} refers to the maximum noise level not exceeded for 95% of the rail pass-by events.
5 For schools, educational institutions, places of worship the lower value of the range is most applicable where low internal noise levels is expected.
6 The values for performing arts spaces may need to be reassessed to address the specific requirements of a venue.</td><td></td><td>room.
4 L_{ASmax} refers to the maximum noise level not exceeded for 95% of the rail pass-by events.
5 For schools, educational institutions, places of worship the lower value of the range is most applicable where low internal noise levels is expected.
6 The values for performing arts spaces may need to be reassessed to address the specific requirements of a venue.</td><td></td></tr>
<tr><td>NV18</td><td>Vibration Guideline Targets for Operation
During operation, achieve the Guideline Targets (based on Table 1 in BS6472-1:2008) or background levels (whichever is higher) for vibration as follows:<table><tr><th rowspan="2">Location</th><th colspan="4">VDV (m/s$^{1.75}$)</th></tr><tr><th colspan="2">Day
7:00am to 10:00pm</th><th colspan="2">Night
10:00pm to 7:00am</th></tr><tr><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr><tr><td>Residences</td><td>0.20</td><td>0.40</td><td>0.10</td><td>0.20</td></tr><tr><td>Offices, schools, educational institutions, places of worship</td><td>0.40</td><td>0.80</td><td>0.40</td><td>0.80</td></tr><tr><td>Workshops</td><td>0.80</td><td>1.60</td><td>0.80</td><td>1.60</td></tr></table>Notes
1 The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of feasible and reasonable mitigation measures.
2 Compliance with these values implies no structural damage due to operation.</td><td>NV18</td><td>Vibration Limits for Operation
During operation the following limits or background levels (whichever is higher) must be achieved (based on Table 1 in BS6472-1:2008) for vibration as follows:<table><tr><th rowspan="2">Location</th><th colspan="4">VDV (m/s$^{1.75}$)</th></tr><tr><th colspan="2">Day
7:00am to 10:00pm</th><th colspan="2">Night
10:00pm to 7:00am</th></tr><tr><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr><tr><td>Residences</td><td>0.20</td><td>0.40</td><td>0.10</td><td>0.20</td></tr><tr><td>Offices, schools, educational institutions, places of worship</td><td>0.40</td><td>0.80</td><td>0.40</td><td>0.80</td></tr><tr><td>Workshops</td><td>0.80</td><td>1.60</td><td>0.80</td><td>1.60</td></tr></table>Notes
1. Compliance with these values implies no structural damage due to operation.</td><td>IAC recommendation supported in principle, although levels should be framed as targets rather than limits.
Modelling of the detailed design should be required to demonstrate the selected mitigation measures will achieve the vibration targets. The modelling results should be published.</td></tr>
<tr><td>New NVA*</td><td>Establish a Parkville Reference Group comprising of relevant government agencies including MMRA, PTV, VicRoads, the Victorian Department of Health and Human Services, Ambulance Victoria, Yarra Trams, and key institutions in the Parkville Precinct.</td><td>NV19</td><td>Establish a Parkville Reference Group comprising of an independent chair, relevant government agencies including MMRA, PTV, VicRoads, the Victorian Department of Health and Human Services, Ambulance Victoria, Yarra Trams, and key institutions in the Parkville Precinct as detailed in MMRA Technical Note 044 Parkville Precinct Reference Group (19 August 2016) document number 21 and tabled 22 August 2016.</td><td>IAC recommendation supported, but should be renumbered as SC, not NV.</td></tr>
<tr><td>New NVB*</td><td>Construction Noise and Vibration Management Plan
Develop and implement a Construction Noise and Vibration Management Plan (“CNVMP”) in consultation with EPA Victoria and the relevant councils. The CNVMP must be informed by the modelling undertaken by the acoustic and vibration consultant in accordance with NV3 and must include (but not be limited to):
General
(1) identification of sensitive receivers along Melbourne Metro’s alignment;
(2) 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.
Airborne Noise
(3) identification of reasonable and practicable measures to be implemented to manage construction noise impacts having regard to:
(i) EPA Publication 1254 Noise Control Guidelines
(ii) the airborne construction noise guideline targets (internal) specified in NV5
(iii) the management levels specified for airborne noise at residences during recommended standard hours in Part 4.1.1 of the NSW Interim Construction Noise Guidelines
(iv) the management levels specified for airborne noise at other sensitive land uses in Part 4.1.2 NSW Interim Construction Noise Guidelines
(v) the approach in Part 2.3 of the NSW Interim Construction Noise Guidelines when scheduling and planning for out of hours works (including unavoidable works)</td><td>NV20</td><td>Construction Noise and Vibration Management Plan
Develop and implement a Construction Noise and Vibration Management Plan (“CNVMP”) in consultation with EPA Victoria and the relevant councils. The CNVMP must be informed by the modelling undertaken by the acoustic and vibration consultant in accordance with NV3 and must include (but not be limited to):
General
(1) identification of sensitive receivers along Melbourne Metro’s alignment;
(2) 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.
Airborne noise targets
I. For residential dwellings, the airborne noise targets in EPA1254 are to be adopted with the addition of the daytime management levels specified for airborne noise at residences during recommended standard hours in Part 4.1.1 of the NSW Interim Construction Noise Guidelines (ICNG) with the hours amended to correspond to the EPA1254 hours as shown in the table below.<table><tr><th>Time of Day</th><th>Management level
LAeq (15 min)</th></tr><tr><td>7am-6pm Monday to Friday
7am-1pm Saturdays</td><td>Noise affected level (see notes)
Background LA90 +10dB
Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td></tr><tr><td>7am-6pm Monday to</td><td>Highly affected level (see notes)</td></tr></table></td><td>IAC recommendation supported in principle, subject to revision of formatting and wording in consultation with DELWP Planning Group and EPA to achieve clarity and consistency. In particular, “unavoidable work” should be separated into “planned unavoidable work”, which may not commence without the prior approval of the Independent Environmental Auditor (IEA), and “emergency unavoidable work”, for which the proponent must provide a rationale to the satisfaction of the IEA within a specified (short) period. The IEA should have regard both to the explanation of unavoidable work in the 1254 Guidelines and to the criteria for “construction outside the recommended standard hours” in the ICNG.
In addition, this plan will be required to be developed prior to works commencing.</td></tr>
</table>

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	(4) any management actions to be implemented if predicted noise levels exceed, for an extended period of time, the guideline targets specified in NV1 or NV5 (or any additional guideline targets specified in accordance with subclause 3 above); (5) any measures to be implemented in accordance with the MMRA 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. **Vibration: Structures** (6) Identification of any alternate vibration guideline targets to those specified in NV6, NV7 or NV8 deemed necessary and/or appropriate to protect the structural integrity of structures based on pre-construction condition surveys, undertaken in accordance with New CHA, GM4 and NV7 (or as otherwise required to assess the impact of vibration on structures along the alignment) (7) identification of reasonable and feasible 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, NV6 (ii) construction vibration limits for above and below ground utility assets determined in accordance with NV7 (iii) vibration guideline targets for underground infrastructure specified in, or as otherwise determined in accordance with NV8 (8) any management actions to be implemented if predicted vibration levels exceed, for an extended period of time, the guideline targets specified in NV6, NV7, or NV8, or otherwise determined in accordance with NVB*(6) (9) specific heritage measures where relevant in accordance with CH2. **Vibration and Ground-borne Noise: Human Comfort** (10) 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 NV9 (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 NV11 (11) 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 NV9 or NV11 (12) 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. **Vibration and Ground-borne Noise: Sensitive Equipment and Bio-resources** (13) identification of reasonable and practicable measures, to be determined following consultation with the Parkville Precinct Reference Group and RMIT, 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 NV10 (ii) bio-resource guideline targets specified in, or as otherwise determined in accordance with NV13 (14) 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 NV10 or NV13 **Blasting** (15) 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 NV12 (16) any measures to be implemented in accordance with the Residential Impact Mitigation Guidelines **Community Consultation**		<table><tr><td>Friday 7am-1pm Saturdays</td><td>75dBA Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td></tr><tr><td>6pm -10pm Monday to Friday 1pm-10pm Saturdays 7am-10pm Sundays and public holidays</td><td>Noise level at any residential premises not to exceed background noise by: - 10 dB(A) or more for up to 18 months after project commencement - 5 dB(A) or more after 18 months Source: EPA 1254 Section 2</td></tr><tr><td>10pm-7am Monday to Sunday</td><td>Noise inaudible within a habitable room of any residential premises Source: EPA 1254 Section 2</td></tr></table> Notes: The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable 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 The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) 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 II. The management levels specified for airborne noise at other sensitive land uses in Part 4.1.23 NSW ICNG and shown in EPR NV5 are to be adopted III. For other sensitive commercial and industrial uses not listed in for other NSW ICNG Part 4.1.2, the methodology provided in NSW ICNG Part 4.1.3 must be adopted to identify and determine targets affected uses **Mitigation Measures** (3) 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 and excluding Part 8, Appendix A) (4) any management actions to be implemented if predicted noise levels exceed the guideline targets specified in NV1 or NV5 (or any additional guideline targets specified in accordance with subclause 3 above); (5) any measures to be implemented in accordance with the MMRA 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. 6) include quantitative assessment methods and work practices as identified in NSW ICNG and TfNSW Construction Noise Strategy **Vibration: Structures** (7) Identification of any alternate vibration guideline targets to those specified in NV6, NV7 or NV8 deemed necessary and/or appropriate to protect the structural integrity of structures based on pre-construction condition surveys, undertaken in accordance with New CHA, GM4 and NV7 (or as otherwise required to assess the impact of vibration on structures along the alignment) (8) identification of reasonable and feasible measures to be implemented to manage construction vibration impacts in accordance with the:	

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	(17) details of all community consultation measures to be implemented in accordance with NV4 and SC2 including: (i) any precinct-specific community consultation measures; and (ii) the establishment of measures concerning complaints management. **Haulage** (18) 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 practical, select different 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 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 as vehicles leave construction sites (particularly at night). **Monitoring** (19) mechanisms to ensure effective monitoring of noise and vibration associated with construction in accordance with NV3, 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, parameters to be recorded, 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); (iv) how the results of monitoring would be recorded, reported, and interpreted.		(i) vibration guideline targets for structures specified in, or otherwise determined in accordance with, NV6\ (ii) (construction vibration limits for above and below ground utility assets determined in accordance with NV7 (iii) vibration guideline targets for below ground infrastructure specified in, or as otherwise determined in accordance with NV8 (9) any management actions to be implemented if predicted vibration levels exceed, for an extended period of time, the guideline targets specified in NV6, NV7, or NV8, or otherwise determined in accordance with NVB*(6) (10) specific heritage measures where relevant in accordance with CH2. **Vibration and Ground-borne Noise: Human Comfort** (11) 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 NV9 (which may be expressed as peak particle velocity rates for the purposes of the CNVMP) (ii) ground-borne (internal) noise guideline targets for amenity specified in NV11 (12) 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 NV9 or NV11 (13) 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. **Vibration and Ground-borne Noise: Sensitive Equipment and Bio-resources** (14) identification of reasonable and practicable measures, to be determined following consultation with the Parkville Precinct Reference Group and RMIT, 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 NV10 (ii) bio-resource guideline targets specified in, or as otherwise determined in accordance with NV13 (15) 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 NV10 or NV13 **Blasting** (16) 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 NV12 (17) any measures to be implemented in accordance with the Residential Impact Mitigation Guidelines **Community Consultation** (18) details of all community consultation measures to be implemented in accordance with NV4 and SC2 including: (i) any precinct-specific community consultation measures; and (ii) the establishment of measures concerning complaints management. **Haulage** (19) 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 practical, select different 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;	

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			(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 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). **Monitoring** (20) mechanisms to ensure effective monitoring of noise and vibration associated with construction in accordance with NV3, 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, parameters to be recorded, 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); (iv) how the results of monitoring would be recorded, reported, and interpreted. **Unavoidable work** (21) For unavoidable work: I. Approval for unavoidable works can only be granted by the environmental auditor Details of unavoidable works including the type of work, equipment to be used and duration of works must be made publicly available	
Social and Community (SC)				
SC1	Reduce the disruption to residences from direct acquisition or temporary occupation through measures such as: • Using a case-management approach for all project interactions with affected landowners • Appointing a social worker, buyers' advocate or equivalent to assist households with special needs manage the transition • Taking into account relative vulnerability and special needs of occupants • Purchasing properties early when supported by the landowner.	SC1	Reduce as far as is practicable the disruption to residences from direct acquisition or temporary occupation through measures such as: • Using a case-management approach for all Project interactions with affected landowners • Appointing a social worker, buyers' advocate or equivalent to assist households with special needs to manage the transition • Taking into account relative vulnerability and special needs of occupants • Purchasing properties early when supported by the landowner.	IAC recommendation supported
SC2	Prior to main works and shaft construction in areas affected, develop a relocation management framework that responds to the Residential Impact Mitigation Guidelines to ensure a uniform approach across the project for the voluntary (temporary) relocation of households subject to: • Construction activities likely to unduly affect their amenity (e.g. out of hours works or sustained loss of amenity during the day for residences with special circumstances such as shift workers) • Loss of access.		IAC recommends no change.	MMRA draft supported.
SC3	Prior to main works and shaft construction, develop and implement a Community and Stakeholder Engagement Management Plan to engage potentially affected stakeholders and advise them of the planned construction activities, project progress, mitigation measures and intended reinstatement measures where applicable. This plan should integrate all project activities that potentially impact on community and business operations and provide for a well-coordinated communication and engagement process. The plan must include:	SC3	Community and Stakeholder Engagement Management Plan Develop and implement a Community and Stakeholder Engagement Management Plan prior to main works and shaft construction, to engage potentially affected stakeholders individually or through groups such as the Parkville Precinct Reference Group and advise them of the planned construction activities, Project progress, mitigation measures and intended reinstatement measures where applicable. This plan should integrate all Project	IAC recommendation supported with the amendment: • The Plan must be approved by the Minister for Planning. • That the release of early works and development plans for public review are part of the notification component of SC3.

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	• 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 • 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 • Measures for communicating the design and results from environmental monitoring programs (e.g. vibration, noise, dust, ground movement). • Process for informing landowners about pre-condition property survey (as stated in GM4) • Process for registering, managing and resolving complaints consistent with Australian Standard AS/NSZ 10002:2014 Guidelines for Complaint Management in Organisations. • Measures to address any other matters which are of concern to potentially affected stakeholders through the construction of the project. 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 (but are not limited to): • Local councils • Land managers • Potentially affected residents • Potentially affected businesses • Recreation, sporting and community groups and facilities • Royal Melbourne Hospital, Victorian Comprehensive Cancer Centre, Peter Doherty Institute and other health and medical facilities • The University of Melbourne • RMIT University • Melbourne Grammar School • Other public facilities in proximity.		activities that potentially impact on community and business operations as well as to provide for and direct a well-coordinated communication and engagement process. The plan must include: • 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 • 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 • Measures for communicating the design and results from environmental monitoring programs (e.g. vibration, noise, dust, ground movement). • Process for informing landowners about pre-condition property survey (as stated in GM4) • Process for registering, managing and resolving complaints consistent with Australian Standard AS/NSZ 10002:2014 Guidelines for Complaint Management in Organisations. • Measures to address any other matters which are of concern to potentially affected stakeholders through the construction of the Project. 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 • Local councils • Land managers • Potentially affected residents • Potentially affected businesses • Recreation, sporting and community groups and facilities • Royal Melbourne Hospital, Victorian Comprehensive Cancer Centre, Peter Doherty Institute and other health and medical facilities • The University of Melbourne • RMIT University • Melbourne Grammar School • Other public facilities in proximity. Any interested stakeholder must be able to register their contact details to the Project webpage through the Community and Stakeholder Engagement Management Plan to ensure they are included and automatically advised of planned construction activities, Project progress, mitigation measures and intended reinstatement measures where applicable.	
SC4	Prior to main works and shaft construction commencing, work with the City of Melbourne to identify and implement any suitable areas for use as alternate public open space, incorporating vegetation, for community use during the construction phase to minimise the impacts of loss of the City Square		IAC recommends no change.	MMRA draft supported.
SC5	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: • Timely provision of construction schedules to allow for appropriate event planning • Timely notification of schedule changes that may impact upon major public events • Consideration of appropriate alternative sites and routes for events and parades		IAC recommends no change.	MMRA draft supported.
SC6	In consultation with the City of Melbourne, 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.		IAC recommends no change.	MMRA draft supported with amendment to include consultation with all local councils.
SC7	In consultation with key stakeholders including local councils 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	SC7	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	IAC recommendation supported

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	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 open space master plans, including (but not limited to): • Childers Street, Kensington • JJ Holland Park • Royal Parade and Grattan Street, Parkville • City Square • Federation Square • The south western entrance of the proposed CBD South station • St Kilda Road boulevard • Edmund Herring Oval • Osborne Street Reserve • South Yarra Siding Reserve • Lovers Walk • The South African Soldiers Memorial. (See Environmental Performance Requirement LV2 and LU2.)		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): • Childers Street, Kensington • JJ Holland Park • Royal Parade and Grattan Street, Parkville • City Square • Federation Square • The south western entrance of the proposed CBD South station • St Kilda Road boulevard • Edmund Herring Oval • Osborne Street Reserve • South Yarra Sidings Reserve • Lovers Walk • A'Beckett Street open space • The South African Soldiers Memorial. (See Environmental Performance Requirement LV2 and LU2.)	
SC8	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.		IAC recommends no change.	MMRA draft supported.
		SC9	Provide written notice to adjoining landholders of any early 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 a contact name and number for further information.	IAC recommendation supported
Surface Water (SW)				
SW1	For all precincts (with the exception of the western turnback) design permanent and temporary works and, if necessary, develop and implement emergency flood management measures for the tunnels, tunnel portals, access shafts, station entrances and Arden electrical substation to provide appropriate protection against floodwaters and overland stormwater flows. This would be informed by a flood immunity risk assessment that considers a range of events, and to the requirements and satisfaction of Melbourne Water and/or the relevant council.	SW1	For all Precincts (with the exception of the western turnback) design permanent and temporary works and, if necessary, develop and implement emergency flood management measures for the tunnels, tunnel portals, access shafts, station entrances and Arden electrical substation to provide appropriate protection against floodwaters and overland stormwater flows. 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. 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.	IAC recommendation supported
SW2	For all precincts: • Maintain existing flood plain storage capacity potentially impacted by the project, to the requirements and satisfaction of the responsible waterway management authority • Permanent and associated temporary construction works must not increase flood levels that result in an additional flood risk to the requirements and satisfaction of the responsible waterway management authority • Ensure permanent and associated temporary works do not increase flow velocities that would potentially affect the stability of property, structures or assets, and/or result in erosion during operation or construction, to the requirements and satisfaction of the responsible waterway management authority • Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile to the satisfaction of the responsible waterway management authority • Ensure that the stormwater design associated with the project is undertaken to the requirements and satisfaction of the responsible waterway management authority • Adopt WSUD and integrated water management principles, as required through the	SW2	For all precincts: • Maintain existing flood plain storage capacity potentially impacted by the Project, to the requirements and satisfaction of the responsible waterway management authority • Permanent and associated temporary construction works must not increase flood levels to a degree that would result in an additional flood risk to the requirements and satisfaction of the responsible waterway management authority • Ensure permanent and associated temporary works do not increase flow velocities that would potentially affect the stability of property, structures or assets, and/or result in erosion during operation or construction, to the requirements and satisfaction of the responsible waterway management authority • Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile to the satisfaction of the responsible waterway management authority • Ensure that the stormwater design associated with the Project is undertaken to the requirements and satisfaction of the responsible waterway management authority • For all Precincts, prior to commencement, a stormwater drainage system	IAC version generally accepted, with minor changes in wording for clarity: For all precincts, to the satisfaction of the responsible waterway management authority: • Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile. • Maintain existing flood plain storage capacity potentially impacted by the Project. • Ensure that permanent and associated temporary construction works do not increase flood levels to result in additional flood risk. • 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. • Undertake stormwater modelling of the design of permanent and temporary works to demonstrate the resultant stormwater response to the project. For all Precincts: • Prior to commencement of construction, submit to the relevant local council a stormwater drainage system incorporating integrated management design principles.

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	Melbourne Metro Urban Design Strategy.		incorporating integrated management design principles must be submitted to, and approved by the relevant local council • Adopt WSUD and integrated water cycle management principles, as required through the Melbourne Metro Urban Design Strategy.	• Adopt WSUD and integrated water cycle management principles, as required through the Melbourne Metro Urban Design Strategy.
Transport (T)				
New TA*	**Traffic and Transport Working Group** MMRA to establish the Traffic and Transport Working Group comprising of relevant representatives from MMRA, PTV, road management authorities, relevant councils, relevant public transport providers and other relevant agencies as required. The Traffic and Transport Working Group will be responsible for reviewing and providing feedback on: • Transport management plans • Relevant designs and methodologies for monitoring implementation of Transport Management Plans • Transport modelling and proposed transport network upgrades to mitigate the transport effects of constructing the project. The Group must also: • Invite other key affected stakeholders to present or attend where matters specific to those stakeholders in the relevant precincts are being discussed or addressed; and • Advise those key affected stakeholders of potential impacts and proposed traffic and transport mitigations, and consider stakeholders' responses on these matters for in providing feedback on the transport management plan(s) required under EPR T1.	T1	**Traffic and Transport Working Group** MMRA to establish the Traffic and Transport Working Group (TTWG) comprising of an independent chairperson, relevant representatives from MMRA, PTV, road management authorities, relevant councils, relevant public transport providers and other relevant agencies as required. The TTWG will be responsible for reviewing and providing feedback on: • Transport management plans • Relevant designs and methodologies for monitoring implementation of Transport Management Plans • Transport modelling and proposed transport network upgrades to mitigate the transport effects of constructing the Project. The Group must also: • Invite other key affected stakeholders to present or attend where matters specific to those stakeholders in the relevant precincts are being discussed or addressed; • Advise those key affected stakeholders of potential impacts and proposed traffic and transport mitigations, and consider stakeholders' responses on these matters for in providing feedback on the transport management plan(s) required under EPR T2.	IAC recommendation generally supported however amend to require the TTWG incorporate stakeholder responses in providing feedback on the TMPs. This will strengthen the transparency and ability for stakeholders to contribute to the TMPs required under T2. The TTWG should operate under terms of reference and with an independent chair, consistent with that established for the other project committees.. It would be helpful to cross-reference T1 to EPR SC3, which requires the preparation of a Community and Stakeholder Engagement Plan, to ensure that all communications and engagement planning is consistent and complementary.
T1	**Road Transport (Construction Phase)** 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. 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. The transport management plan(s) must be informed and supported by an appropriate level of transport modelling, as agreed by the Traffic and Transport Working Group, and must include, but not be limited, to: • Management of any temporary or permanent full or partial closure of traffic lanes including (but not limited to): - Childers Street, Tennyson Street and Lloyd Street Kensington - Arden Street, Langford Street and Laurens Street, North Melbourne - Royal Parade, Grattan Street and Barry Street, Parkville - Franklin Street, A'Beckett Street and Little La Trobe Street at CBD North - Flinders Street, Flinders Lane and Swanston Street at CBD South - Linlithgow Avenue, Melbourne - St Kilda Road, Domain Road, Albert Road at Domain - 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 - Osborne Street, William Street in South Yarra • A monitoring methodology and a program for monitoring results of the implementation of Transport Management Plans to be reported to the Traffic and Transport Working Group. If unanticipated adverse effects are further identified, practicable mitigation measures must be developed and implemented. • Monitoring of: - Travel behaviour changes caused by construction works, including pre-construction baseline data and periodic reporting on behaviour change. Use this data as an input to the design of transport networks following construction and for review of the transport management plan(s), which should occur at least annually. - Traffic, public transport, pedestrian and bicycle movements throughout the	T2	**Road Transport (Construction Phase)** 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: • Management of any temporary or permanent full or partial closure of traffic lanes including (but not limited to): - Childers Street, Tennyson Street and Lloyd Street, Kensington - Arden Street, Langford Street and Laurens Street, North Melbourne - Royal Parade, Grattan Street, Barry Street and Leicester Street, Parkville - Franklin Street, A'Beckett Street and Little La Trobe Street, at CBD North - Flinders Street, Flinders Lane and Swanston Street, at CBD South - Linlithgow Avenue, Melbourne - St Kilda Road, Domain Road, Albert Road, Bowen Crescent and Bowen Lane, at Domain - 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 - Osborne Street and William Street, South Yarra • 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. • Monitoring of: - Travel behaviour changes caused by construction works, including pre-construction baseline data and periodic reporting on behaviour change. Use this data as an input to the design of transport networks following construction and for review of the transport management plan(s), which should occur at least annually - Traffic, public transport, pedestrian and bicycle movements throughout the construction period • 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 • Provision for two-way traffic on St Kilda Road through the construction period within the Domain station precinct	IAC recommendation generally supported with the following amendments: • It appears that the first 2 paragraphs of EPR T2 have been deleted within the IAC report in error. These paragraphs should be reinstated as per MMRA's V4 of the EPRs. • Consideration should be given to splitting EPR T2 into several discrete EPRs

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	construction period • Provision of car parking for construction workers where practicable and in this regard: - Use of off-street car parks for construction workers should be by prior agreement with the relevant management body; and - 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. • 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. • Provision of suitable routes for cyclists and pedestrians to maintain connectivity and safety for roads and shared paths to provide continued access, including (but not limited to): Childers Street, JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Swanston Street, Franklin Street, Flinders Street, St Kilda Road, Albert Road, Domain Road, Toorak Road and Fawkner Park • Develop and implement network enhancement projects (NEPs) in consultation with the Traffic and Transport Working Group for locations including, but not limited, to: - 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. - Kings Way, Canterbury Road and other roads and intersections to accommodate additional traffic that may use these roads and to assist traffic flow, including public transport priority treatments for affected bus and tram routes, for the duration of the works 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. • Domain Road should be kept open from the east up to the existing entrance of Edmund Herring Oval, with provision for a local turnaround, • In consultation with emergency services, develop suitable measures to ensure emergency service access is not inhibited as a result of Melbourne Metro construction worksites • Special arrangements for delivery or removal of large loads.		• 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 NEW NV23 Approved truck routes in the Arden precinct must not include the use of Miller Street • 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 • Provision of alternative routes for trucks accessing the 50 Lloyd Street Business Estate, Kensington • Provision of construction vehicle staging areas and/or construction methodologies to minimise the potential impacts of truck call-forward options on residents and businesses • Provision of alternate 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 • Minimisation of the loss of public parking and replace or reinstate parking at the earliest opportunity • Provision of suitable alternate 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 • 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: – include parking controls to support other relevant EPR requirements – maintain Police Only parking bays in Swanston Street and Flinders Lane to the satisfaction of Victoria Police – minimise impacts on existing users, particularly those with special needs – provide a suitable level of accessibility to loading zones • Provision of car parking for construction workers where practicable and in this regard: – Use of off-street car parks for construction workers must be by prior agreement with the relevant management body and • 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 • 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 • Provision of suitable routes for cyclists and pedestrians to maintain connectivity and safety for roads and shared paths to provide continued access, including (but not limited to): Childers Street, JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Swanston Street, Franklin Street, Flinders Street, St Kilda Road, Albert Road, Domain Road, Toorak Road and Fawkner Park • Develop and implement network enhancement projects (NEPs) in consultation with the TTWG for locations including, but not limited, to: – 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. – Kings Way, Canterbury Road and other roads and intersections to accommodate additional traffic that may use these roads and to assist traffic flow, including public transport priority treatments for affected bus and tram routes, for the duration of the works 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 • Domain Road should be kept open from the east up to the existing entrance of Edmund Herring Oval, with provision for a local turnaround	

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			• In consultation with emergency services, develop suitable measures to ensure emergency service access is not inhibited as a result of Melbourne Metro construction worksites • Special arrangements for delivery or removal of large loads.	
T2	**Public Transport (Construction Phase)** • Develop and implement a plan for occupying railway land and tracks at the western portal, eastern portal and western turnback that minimises the disruption to railway services during construction. Plan to be developed to the satisfaction of VicTrack, PTV and MTM. • Provide suitable routes for pedestrians to maintain connectivity where access is altered, 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 • In consultation with PTV, VicRoads or the relevant road management authorities, investigate and implement intersection modifications where practicable, including public transport priority treatments for affected bus and tram routes • Develop and implement measures to minimise disruption to the tram and bus networks resulting from the construction of Melbourne Metro in consultation with the relevant road management authorities and to the satisfaction of PTV, including (but not limited to): - Options to divert the 401, 402, 403, 505 and 546 bus services - Tram routes on La Trobe Street and Swanston Street - Tram routes on Flinders Street and Swanston Street - Tram operations on Toorak Road and the diversion of the No. 8 tram route - Periodic closures of Royal Parade tram route - Tram routes on St Kilda Road - Disruption to other tram routes through Domain tram stop - Bus replacement services for disrupted rail passengers.	T3	**Public Transport (Construction Phase)** • Develop and implement a plan for occupying railway land and tracks at the western portal, eastern portal and western turnback that minimises the disruption to railway services during construction. Plan to be developed to the satisfaction of VicTrack, PTV and MTM. • In consultation with the TTWG, provide suitable routes for pedestrians to maintain connectivity where access is altered, 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. • In consultation with the TTWG, investigate and implement intersection modifications where practicable, including public transport priority treatments for affected bus and tram routes. • Develop and implement measures to minimise disruption to the tram and bus networks resulting from the construction of Melbourne Metro in consultation with the relevant road management. authorities and to the satisfaction of PTV, including (but not limited to): - Options to divert the 401, 402, 403, 505 and 546 bus services - Tram routes on La Trobe Street and Swanston Street - Tram routes on Flinders Street and Swanston Street - Tram operations on Toorak Road and the diversion of the No. 8 tram route - Periodic closures of Royal Parade tram route - Tram routes on St Kilda Road - Disruption to other tram routes through Domain tram stop - Bus replacement services for disrupted rail passengers.	IAC recommendation supported.
T3	**Active Transport (Construction Phase)** • Develop and implement transport management measures in consultation with the TTWG and relevant authorities for cyclists and pedestrians to maintain connectivity and 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 • Implement active control and wayfinding information at construction work site access points to maintain safety by avoiding potential conflicts between trucks, pedestrians and cyclists • In consultation with the City of Melbourne, provide suitable routes for cyclists and pedestrians throughout construction to and maintain connectivity for road and shared path users around JJ Holland Park and South Kensington station. • 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. • 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. • Maintain appropriate pedestrian access to public car parks adjacent to or within construction areas including the car park beneath University Square	T4	**Active Transport (Construction Phase)** • 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. • Implement active control and wayfinding information at construction work site access points to maintain safety by avoiding potential conflicts between trucks, pedestrians and cyclists. • In consultation with the City of Melbourne, provide a suitable route for pedestrians to maintain connectivity and connection between Domain Road and the diverted number 8 tram on Toorak Road • 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. • 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. • Maintain appropriate pedestrian access to public car parks and adjoining properties adjacent to or within construction areas including the car park beneath University Square.	IAC recommendation supported.
T4	**Travel Demand Management Strategy** • In advance of construction works, MMRA to develop and implement a Travel Demand Management Strategy and appropriate tools to promote specific transport behaviour	T5	**Travel Demand Management Strategy** • In advance of construction works, MMRA to develop and implement a Travel Demand Management Strategy and appropriate tools to promote specific transport behaviour	IAC recommendation supported.

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	changes in response to road, bicycle and pedestrian paths closures/modifications and to reduce traffic congestion around construction sites, particularly in the vicinity of the Parkville and Domain precincts where road closures and restrictions are proposed. The strategy must be consistent with the MMRA Community and Stakeholder Engagement Plan 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 would be used where ever possible. • 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.		changes in response to road, bicycle and pedestrian paths closures/modifications and to reduce traffic congestion around construction sites, particularly in the vicinity of the Parkville and Domain precincts where road closures and restrictions are proposed. The strategy must be consistent with the MMRA Community and Stakeholder Engagement Plan 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 would be used where ever possible. • 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.	
T5	**Road Transport (Operational Phase)** • Design all roadworks and shared path works to relevant design standards to maintain safety of movement in consultation with the relevant road management authorities and TTWG, as required. Designs should be underpinned by appropriate transport modelling and have an objective to facilitate public transport and to minimise carpark loss to the extent practicable. • Develop and implement a plan to reinstate car parking on Childers Street, Kensington and Laurens Street, North Melbourne in consultation with the relevant road management authorities that: - Minimises the permanent loss of parking where possible - Ensures re-instated car parking does not encroach on JJ Holland Park - Considers opportunities for replacement of any net loss of parking at nearby locations - Reduces the risk of overflow parking in local streets from South Kensington station and activities at JJ Holland Park - Replaces loading zones to service the needs of the existing businesses in the precinct where disrupted during construction • Develop and implement a plan for the reinstatement of Grattan Street, Parkville in consultation with the relevant road management authorities that includes: - Optimal replacement of car parking spaces along Grattan Street to service the needs of the hospitals and the university, including the retention or replacement of specific short-term and DDA compliant parking - Optimal design of the road network around Grattan Street associated with the changed demands and network changes on Grattan Street and Royal Parade/Elizabeth Street • Develop and implement a plan for the future use of the Franklin Street road reserve in consultation with the relevant road management authorities that includes: - Optimising the design of Franklin Street in the project area - Regard to the future function of Franklin Street envisaged in the Queen Victoria Market Precinct Renewal Master Plan - Monitoring the change in travel patterns around the area associated with the revised design of Franklin Street • Develop and implement a plan for the design of A'Beckett street in consultation with relevant road management authorities that includes: - Optimising the design of A'Beckett Street and location of station infrastructure - Consideration of pedestrian and vehicle movements on Swanston Street between Latrobe and A'Beckett Streets and on Little La Trobe Street • Optimise the design of the reinstated St Kilda Road and apply the road users hierarchy in consultation with the relevant road management authorities to: - Align with the conceptual design for St Kilda Road as prepared for the TAC by VicRoads, City of Melbourne and City of Port Phillip - Reduce delays and congestion - Maintain safe operations through the precinct - Determine the optimal parking provision in the area and replace any lost parking where possible. • Where vehicle and pedestrian access are altered during construction, ensure that	T6	**Road Transport (Operational Phase)** • Design all roadworks and shared path works to relevant design standards to maintain safety of movement in consultation with the relevant road management authorities 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. • Develop and implement a plan to reinstate car parking on Childers Street, Kensington and Laurens Street, North Melbourne in consultation with the relevant road management authorities that: - Minimises the permanent loss of parking where possible - Ensures re-instated car parking does not encroach on JJ Holland Park - Considers opportunities for replacement of any net loss of parking at nearby locations - Reduces the risk of overflow parking in local streets from South Kensington station and activities at JJ Holland Park - Replaces loading zones to service the needs of the existing businesses in the precinct where disrupted during construction • Develop and implement a plan for the Arden Precinct in consultation with the relevant road management authorities to manage parking generated by the new Arden Station • Develop and implement a plan for the reinstatement of Grattan Street, Parkville in consultation with the relevant road management authorities that includes: - Optimal replacement of car parking spaces along Grattan Street to service the needs of the hospitals and the university, including the retention or replacement of specific short-term and DDA compliant parking - Optimal design of the road network around Grattan Street associated with the changed demands and network changes on Grattan Street and Royal Parade/Elizabeth Street • Develop and implement a plan for the future use of the Franklin Street road reserve in consultation with the relevant road management authorities that includes: - Optimising the design of Franklin Street in the Project area - Regard to the future function of Franklin Street envisaged in the Queen Victoria Market Precinct Renewal Master Plan - Monitoring the change in travel patterns around the area associated with the revised design of Franklin Street • Develop and implement a plan for the design of A'Beckett Street in consultation with relevant road management authorities that includes: - Optimising the design of A'Beckett Street and location of station infrastructure - Consideration of pedestrian and vehicle movements on Swanston Street between La Trobe and A'Beckett Streets and on Little La Trobe Street • Optimise the design of the reinstated St Kilda Road and apply the road users hierarchy in consultation with the relevant road management authorities to: - - Reduce delays and congestion - Maintain safe operations through the precinct - Determine the optimal parking provision in the area and replace any lost parking where possible	IAC recommendation supported.

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	vehicle and pedestrian access is reinstated appropriately, in accordance with relevant road design standards, so adjacent land is not compromised.		• 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.	
T6	**Public Transport (Operational Phase)** • Review, with PTV, the bus services in the areas around Arden, Parkville, CBD North, CBD South and Domain stations including a review of the route 401 bus frequency that will have reduced demand following implementation of Melbourne Metro • In consultation with PTV, optimise the design of Melbourne Metro stations to ensure integration with existing and planned future uses and so that they will provide connections: - Between the new Parkville station and the new tram stop on Royal Parade - For interchange between the new CBD North station and the existing tram and bus services along La Trobe Street and Swanston Street - For interchange between the new CBD South station and the existing tram services along Flinders Street, Swanston Street and Collins Street - Between the new Domain station and the new island platform trams stop in the centre of St Kilda Road and connections to the tram network • Implement measures to address pedestrian congestion at and around station entrances where they interface with the Precincts, to the extent practicable • Provide adequate wayfinding to facilitate passenger transfers (Refer to EPR LU4) • Review, with PTV 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.	T7	**Public Transport (Operational Phase)** • Review, with PTV, the bus services in the areas around Arden, Parkville, CBD North, CBD South and Domain stations including a review of the route 401 bus frequency that will have reduced demand following implementation of Melbourne Metro. • In consultation with PTV, optimise the design of Melbourne Metro stations to ensure integration with existing and planned future uses and so that they will provide connections: - Between the new Parkville station and the new tram stop on Royal Parade - For interchange between the new CBD North station and the existing tram and bus services along La Trobe Street and Swanston Street - For interchange between the new CBD South station and the existing tram services along Flinders Street, Swanston Street and Collins Street - Between the new Domain station and the new island platform trams stop in the centre of St Kilda Road and connections to the tram network. • 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. • Provide adequate wayfinding to facilitate passenger transfers (Refer to EPR LU4). • Review, with PTV 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.	IAC recommendation supported.
T7	**Active Transport (Operational phase)** • Develop and implement a permanent pedestrian footpath and on-road bicycle design for Childers Street, Kensington with the relevant road management authority, local council, and the land manager prior to the removal of the shared use path on the southern side of the street • 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 Provide appropriate bicycle parking at each station adopting a flexible design that would allow for future expansion of capacity, if required. • 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 road authority and the local council • Provide wayfinding information to enhance connectivity for pedestrians and public transport users including (but not limited to) the following locations: - Between Melbourne Central Station and the new CBD North Station - The underground connection between Flinders Street Station and the new CBD South Station. - At modal interchanges between new Melbourne Metro stations and other transport modes • Consult with the TTWG on active transport, where required.	T8	**Active Transport (Operational phase)** • 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. • 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. • In consultation with relevant local councils undertake a study of bicycle parking demands for the new stations • 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. • 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. • 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: - Between Melbourne Central Station and the new CBD North Station - The underground connection between Flinders Street Station and the new CBD South Station. - At modal interchanges between new Melbourne Metro stations and other transport modes • Consult with the TTWG on active transport, where required.	IAC recommendation generally supported however include an additional requirement to undertake further investigation into future pedestrian movement and conditions at the Parkville Precinct in order to optimise the number and location of station entries and the surrounding foot path environment, in consultation with the Parkville Precinct Group.
New TB*	**Waste collection** Develop and implement a plan in consultation with local councils and private waste collection services to manage changes to waste collection and waste storage in the construction area. The plans should include, but not be limited to: • Providing access for existing waste collection services from existing educational facilities, businesses and residential properties considering the extent of the construction areas and road network changes,	T9	**Waste collection** Develop and implement a plan 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 plans should include, but not be limited to: • Providing for minimal change in waste collection times where the change might affect the capacity of residents to sleep • Providing access for existing waste collection services from existing properties considering the extent of the construction areas and road network changes	IAC recommendation supported.

MMRA Version 4		IAC Recommendations		Minister for Planning comment
No.	**Environmental performance requirement**	**No.**	**Environmental performance requirement**	
	• Providing access to alternative waste collection locations for businesses during project construction and operation where existing waste disposal location are removed • Design for re-instatement of appropriate access for existing waste services during project operation • Consultation with affected businesses, land owners and residents to be undertaken jointly with local councils to encourage alternative waste management options to be adopted.		• Providing access to alternative waste collection locations for properties during Project construction and operation where existing waste disposal locations are removed or obstructed • Design for re-instatement of appropriate access for existing waste services during Project operation • Consultation with affected businesses, land owners and residents to be undertaken jointly with local councils to encourage alternative waste management options to be adopted.	
		T10	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). The legacy design is to be implemented at the earliest opportunity.	IAC recommendation supported, however move to the Business EPRs.