

**IN THE MATTER OF THE *ENVIRONMENT EFFECTS ACT 1978***

**IN THE MATTER OF THE MELBOURNE METRO RAIL PROJECT**

**SUBMISSIONS IN REPLY**

**ON BEHALF OF THE MELBOURNE METRO RAIL AUTHORITY**

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## **GLOSSARY**

<b>CNVMP</b>	Construction Noise and Vibration Management Plan to be prepared pursuant to EPR NVB.
<b>CSEMP</b>	Community and Stakeholder Engagement Management Plan to be prepared pursuant to EPR SC3.
<b>Concept Design</b>	The Concept Design as described in the EES.
<b>Committee</b>	The Inquiry and Assessment Committee established under the Terms of Reference.
<b>EAS</b>	Emergency Access Shaft.
<b>EEA</b>	<i>Environment Effects Act 1978 (Vic)</i>
<b>EES</b>	The Melbourne Metro Environment Effects Statement.
<b>EMF</b>	Environmental Management Framework.
<b>EPRs</b>	Environmental Performance Requirements.
<b>Independent Environmental Auditor</b>	The independent third party auditor appointed pursuant to the EMF.
<b>Independent Reviewer</b>	The independent third party reviewer appointed pursuant to the EMF.
<b>LACA</b>	<i>Land Acquisition and Compensation Act 1986.</i>
<b>Map Book</b>	The map book which forms part of the EES.
<b>Melbourne Metro</b>	The project as declared pursuant to the Order made by the Minister for Planning pursuant to section 3 of the EEA on 3 September 2015 and as amended on 24 November 2015.
<b>MMRA</b>	The Melbourne Metro Rail Authority.
<b>MTPFA</b>	<i>Major Transport Projects Facilitation Act 2009 (Vic).</i>
<b>OVGA</b>	Office of the Victorian Government Architect.
<b>PPRG</b>	Parkville Precinct Reference Group.
<b>P &amp; E Act</b>	<i>Planning and Environment Act 1987 (Vic).</i>

<b>PPP</b>	Public Private Partnership.
<b>Project</b>	The project as declared pursuant to the Order made by the Minister for Planning pursuant to section 3 of the EEA on 3 September 2015 and as amended on 24 November 2015.
<b>Project Boundary</b>	The project boundary defined in section 1.4.6 of Chapter 1 of the EES and as delineated in the Map Book.
<b>PSA</b>	Draft Planning Scheme Amendment GC45.
<b>PTV</b>	Public Transport Victoria
<b>RCS</b>	Respirable Crystalline Silica.
<b>RIMG</b>	Residential Impact Mitigation Guidelines.
<b>Scoping Requirements</b>	The scoping requirements for the EES published by the Minister for Planning in November 2015.
<b>SEPP</b>	State Environment Protection Policy.
<b>TDM</b>	Travel Demand Management.
<b>Terms of Reference</b>	The terms of reference issued by the Planning Minister to the Committee on 23 May 2016.
<b>TI Act</b>	<i>Transport Integration Act 2010</i> (Vic).
<b>TMP</b>	Transport Management Plan(s) to be prepared pursuant to EPR T1.
<b>TRG</b>	Technical Reference Group.
<b>TSP</b>	Total Suspended Particulates
<b>TTWG</b>	Traffic and Transport Working Group.
<b>VPA</b>	Victorian Planning Authority.
<b>UDS</b>	Urban Design Strategy.
<b>VPPs</b>	Victoria Planning Provisions.

## **A. STRUCTURE OF SUBMISSIONS IN REPLY**

1. As noted by MMRA in its opening outline of submissions,<sup>1</sup> this hearing concerns two separate (albeit related) statutory processes:
  - (a) the first being the inquiry by the Committee into the EES pursuant to s. 9(1) of the EEA;
  - (b) the second being the assessment by the Committee of the PSA pursuant to s. 151 of the P&E Act.
2. Both processes must be undertaken in accordance with the Terms of Reference.
3. Those Terms of Reference relevantly require:
  - (a) In respect of the EES Inquiry, that the Committee report on the following matters:<sup>2</sup>
    - i. The likelihood and significance of environmental effects (impacts) of the project including any design and construction options documented in the EES.
    - ii. Whether the project is capable of achieving acceptable environmental outcomes in the context of applicable legislation, policy, strategies and guidelines.
    - iii. Having regard to the draft evaluation objectives in the EES Scoping Requirements, the Inquiry's own conclusions on the effects of the project and relevant public submissions, what design and construction options for the various project components are the most suitable for meeting the project outcomes and at the same time delivering an appropriate balance of environmental, economic and social outcomes.
    - iv. Any modifications to the project that are needed to prevent or minimise adverse environmental effects of the Project, having regard to any standards, objectives and guidelines established under relevant legislation.
    - v. Any conditions which might need to be imposed on any approval given for the Project under Victorian law which are necessary to achieve acceptable environmental outcomes under the applicable legislation and/or policy.
    - vi. The proposed framework for environmental management of the Project, including any Environment Management Plan(s) required in association with an approval given under Victorian law.

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<sup>1</sup> Document 20 at [3.1].

<sup>2</sup> At 14(d)(i)–(viii).

- vii. The effectiveness of proposed mitigation measures in reducing identified risks to residual levels presented in the EES.
  - viii. The extent to which the analysis in the EES demonstrates whether relevant proposed Environmental Performance Requirements can be met.
- (b) In respect of the PSA, that the Committee report on the following matters:<sup>3</sup>

... [T]he Advisory Committee's advice as to whether the draft PSA is an appropriate means by which to facilitate and implement the Project, and any recommendations it might have in relation to the statutory framework to be established for the Project.

4. As a means of assisting the Committee respond to its Terms of Reference, MMRA's submissions in reply address the following matters:
- (a) First, they respond to a number of general matters and themes that arose during the course of the hearing and that were common to a number of submissions (Part B).
  - (b) Second, they identify the various modifications that MMRA has made to the Concept Design during the course of the hearing, to assist in the assessment of environmental impacts associated with the Project (Part C).
  - (c) Third, they address the environmental effects of Melbourne Metro, including an assessment of the adequacy of the framework of EPRs proposed to be established in respect of Melbourne Metro (Part D).
  - (d) Fourth, they address matters relevant to the PSA, including (but not limited to) an assessment of the governance measures to be introduced pursuant to the PSA, and the suitability of the proposed planning instruments (Part E).
  - (e) Fifth, they respond to proposed modifications to the Concept Design, identified by submitters throughout the course of the hearing (Part F).
  - (f) Sixth, they respond to proposed changes to the Project as declared by the Minister for Planning pursuant to s.3 of the EEA, including the

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<sup>3</sup>

At 16(c).

proposal by the City of Stonnington that provision be made for a second station to be located at South Yarra (Part G).

(g) Seventh, they set out key conclusions and recommendations that MMRA submits should be made by the Committee to the Planning Minister pursuant to its Terms of Reference (Part H).

5. MMRA has prepared 79 Technical Notes during the course of the hearing which contain supplementary information in respect of aspects of the Project and in respect of the assessment of the Project undertaken pursuant to the EES.
6. MMRA relies on that material and has not sought to replicate it for the purposes of these submissions. For ease of reference it has endeavoured to cross-reference that material where relevant to the submissions that follow.



## **B. GENERAL MATTERS**

### **B.1 The Suitability of the EPRs**

7. At the time of making these submissions the EPRs have been through a number of iterations in response to internal reviews conducted by MMRA and in response to submissions and evidence presented to the Committee. In general, the latest versions of the EPRs build upon the organisation and subject matter of the exhibited version.
8. The EPRs are performance-based and, where appropriate, specify the limits to be met and processes to be followed to achieve acceptable environmental outcomes. The contractors that build Melbourne Metro will be required to carry out a comprehensive assessment of risks associated with the detailed design of the Project and the specific work methods adopted to meet the EPRs. The contractors will also be required to comply with the EPRs which will form part of the EMF to be approved by the Minister for Planning. Compliance with the EPRs will also be required under the relevant contracts.
9. The EPRs will allow for the flexible application of mitigation measures to respond to the varying conditions that may be encountered along the alignment and to allow for tailored responses to be implemented in response to the particular sensitivities of different receivers.
10. While building on other project examples, the EPRs formulated by MMRA are unquestionably (and appropriately) project-specific. As aspects of the Concept Design have been refined over the course of the assessment process, so too have the EPRs. These refinements have included the identification of particular matters for ongoing consideration and consultation.
11. The Committee should conclude that the EPRs contained within Version 3 possess the following attributes:
  - (a) The EPRs are well-organised according to identifiable impacts, respond coherently to the prescribed evaluation objectives, and are properly cross-referenced to other relevant EPRs;

- (b) The outcomes to be achieved pursuant to the EPRs are expressed to an appropriate degree of specificity in each case. In some cases the outcome remains in descriptive terms (such as, in the case of EPR T1, the over-riding objective “to minimise disruption to affected local land uses, traffic, car parking, on-road public transport, pedestrian and bicycle movements, and existing public facilities”). In other cases the outcome is more prescriptive (such as requirements, elsewhere within EPR T1, to implement measures to address impacts at particular locations and intersections). This approach is appropriate for a Project of this scale where much of the impact will be relatively temporary in nature, will differ from precinct to precinct, and will manifest in different ways throughout the course of the construction program;
- (c) Where EPRs set compliance levels or guideline targets, they do so in clear terms, and adopt best-practice and commonly accessible measures;
- (d) The EPRs are properly linked to the Incorporated Document;
- (e) The EPRs (and in turn the EMF) include strong checks and balances, including requirements in respect of reporting, independent auditing, independent review, monitoring and supervision;
- (f) The EPRs include a clear and strong emphasis on consultation with relevant agencies, key stakeholders, the affected community, and the broader community; and
- (g) The EPRs make provision for significant stakeholder engagement including relevant public agencies and councils plus the purpose-built reference groups for transport (the TTWG) and Parkville institutions (the PPRG).

12. In its opening outline of submissions MMRA posed a set of questions relevant to the assessment of the appropriateness of EPRs. Those questions are set out at paragraph 2.11 of the opening outline and are reproduced below for ease of reference:

- (a) Do the EPRs properly respond to the environmental impact that is to be managed?
  - (b) Do the EPRs establish an appropriate benchmark in respect of delivery of the Project?
  - (c) Do the EPRs properly provide for the preparation and implementation of appropriate management plans where necessary?
  - (d) Do the EPRs properly provide for (or sit within a framework which properly provides for) consultation with stakeholders and affected persons?
  - (e) Are the EPRs sufficiently robust to account for changes from the Concept Design and within the Project Boundary?
  - (f) Do the EPRs properly acknowledge their relationship with other EPRs?
13. MMRA responds to these questions in the context of its assessment of the environmental effects of Melbourne Metro pursuant to each of the relevant evaluation objectives (as set out in Part D of these submissions). That analysis demonstrates that the EPRs proposed in respect of Melbourne Metro respond positively to each measure.

## **B.2 MMRA's Approach in Preparing the EPRs and their relationship to the Incorporated Document**

14. A number of submissions have been made in respect of the proper approach to be adopted in drafting EPRs and how the EPRs should be linked to or incorporated within the Incorporated Document.
15. MMRA first notes, in these respects, that the proper approach to both issues will necessarily differ depending on the nature of the project under consideration and the basis upon which it has been assessed. It is not appropriate to simply take the approach adopted in respect of one project and apply it without further critical evaluation to another. Differences in the

nature of the impacts generated by different projects (including the stage of the project during which the majority of impacts will arise), and the legislative basis pursuant to which the projects have being assessed, are some (but not all) of the relevant considerations in this respect.

16. Furthermore, in framing EPRs for any major infrastructure project, it is necessary to strike an appropriate balance between competing factors. These include, but are not limited to, the need to provide an adequate level of assurance that appropriate environmental standards will be achieved without unnecessarily limiting innovation in design or implementation.
17. It is for this reason that MMRA contends, as a matter of broad principle, that EPRs should generally describe the outcomes to be achieved without prescribing the manner in which they are to be achieved. Exceptions to this principle arise in circumstances where particular outcomes can only be achieved in particular ways or where a particular process is integral to the realisation of project objectives.
18. The question of whether EPRs should be incorporated within or linked to an Incorporated Document is similarly nuanced. Whereas the incorporation of EPRs within an Incorporated Document may be argued to provide greater certainty in respect of outcomes – given the constraints of the planning scheme amendment process – it constitutes a less flexible planning mechanism than the alternative model wherein the EPRs are linked to (but not incorporated within) the Incorporated Document.
19. Importantly, however, any assessment of the relative merits of the two approaches in any given context cannot be undertaken without regard to the subject matter of the EPRs in question. Where those EPRs are framed only on high-level terms, their incorporation as part of the Incorporated Document may be more appropriate. Where, however, those EPRs prescribe both high-level objectives and more detailed and specific outcomes/implementation measures, they are better suited to being linked to the Incorporated Document rather than incorporated within it.

20. MMRA contends that the regime established in respect of Melbourne Metro strikes the right balance between clarity and flexibility and address all of the key impacts of Melbourne Metro. In particular, MMRA submits that:
- (a) Because many (but not all) of the most significant environmental impacts of Melbourne Metro will be generated during the construction phase of the project, the EPRs should appropriately be directed principally toward the management and mitigation of impacts during this period;
  - (b) The EPRs include an appropriate level of detail to guide the construction process, including detailed consultation requirements and day-to-day measures, but are not so specific as to inhibit design excellence or innovation in implementation; and
  - (c) The EPRs in this case should not be incorporated within the Scheme and are instead well-suited to being linked with the Incorporated Document in the manner proposed.
21. These points are expanded upon below.

#### **B.2.1 The Nature of the Project and the Generation of Impacts**

22. Melbourne Metro can be immediately contrasted, in terms of its environmental impacts, with a number of the other major infrastructure projects recently proposed or completed within this State and which primarily generate impacts during operation:
- (a) The Victorian Desalination Plant, for example, involves potential impacts to the environment; and
  - (b) The East West Link (Eastern Section) would have given rise to substantially greater permanent and significant surface impacts (be that in respect of traffic, urban character, or land use) during operation.
23. While Melbourne Metro has long-term operational implications these are substantially addressed by existing operational requirements and policies or are otherwise ameliorated by being underground.

24. This is relevant to the formulation of the EPRs because it directs that they be primarily (although not exclusively) directed toward managing and mitigating impacts over the course of the construction period.

### **B.2.2 The Appropriate Degree of Specificity**

25. A pervading theme throughout the submissions has been the desire for a substantial number of the EPRs to identify particular methods or requirements to respond to the interests of particular submitters. For example:
- (a) the Owners' Corporation of the Westin sought specific EPRs to deal with ownership of land in the legacy phase;<sup>4</sup>
  - (b) the Owners' Corporation of the Botanica sought particular outcomes in respect of the reinstatement of its vehicle access in a specified manner;<sup>5</sup> and
  - (c) a number of traders in the CBD (such as the operator of Young & Jackson Hotel, ALH Holdings)<sup>6</sup> sought greater certainty for delivery and access;
26. Melbourne Grammar School proposed a suite of detailed conditions prescribing day-to-day management considerations relating to the School. For the reasons outlined above, MMRA contends that it is not necessary or appropriate for the EPRs to descend to this degree of specificity.
27. Taking, as an example, the position advanced by the Owners Corporation of the Botanica in respect of the reconfiguration of its access, MMRA contends that it is appropriate that the relevant EPR be framed in more general terms such that *any* access to *any* property altered during the course of

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<sup>4</sup> See for example EPR New TC proposed on behalf of the Owners' Corporation of the Westin. Document 252.

<sup>5</sup> Such as, for instance, the submission made on behalf of the Owners' Corporation of the Botanica (and as described in the evidence of Mr Kiriakidis).

<sup>6</sup> Document 294.

construction should be properly reinstated in accordance with relevant road design standards.<sup>7</sup> One risk, in singling out some properties that will be affected by Melbourne Metro for particular attention but not others, is that it skews the consideration of impacts in favour of named land-owners by comparison with other equally affected (but unnamed) land-owners.

28. Again, whilst MMRA recognises that in some circumstances it may be appropriate for a particular property to be singled out for particular attention, it submits that issues that are likely to be of common application across Melbourne Metro's alignment should properly be expressed in general terms in the EPRs. Where measures are critical to the successful implementation of the management response, or where critical outcomes cannot be adequately described in general terms, a greater degree of specification may be justified.<sup>8</sup>
29. A further common theme in submissions and in evidence was the call for certain management measures to be introduced over public infrastructure or assets managed by Councils or other statutory entities (during either construction or operation). For example, in the context of transport planning, submissions were made about the need for car park management plans to be put in place in respect of public car spaces in and around the proposed stations.
30. In MMRA's submission, where matters (arising either during the construction or legacy phases of Melbourne Metro) properly fall within the statutory responsibilities of government agencies (such as PTV), or under the auspices of a separate statutory process (such as the *Heritage Act 1995*), it is inappropriate to attempt to supplant or to replicate these processes by the EPRs. It is also inappropriate to seek to fetter the statutory powers of responsible government agencies via the EPRs.

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See for example the EPRs regarding heritage places including Royal Parade (CH12), the Burke and Wills Monument (CH15) and the design of the Domain Station entry so as to minimise impacts on the Shrine of Remembrance (CH18).

31. Simply put, while various municipal councils and statutory agencies will be informed about, and will participate in, strategies designed to mitigate impacts, their functions should not be inappropriately constrained by the operation of the outcomes of this statutory process.
32. It is clearly a question of judgement as to where one should draw the line in each of these respects. MMRA has been conscious, in preparing the EPRs, to not descend to an inappropriate degree of specificity and to ensure that the EPRs do not advantage one group unjustifiably over another. It has also sought to limit the EPRs to matters that relate directly to Melbourne Metro and to not inappropriately constrain the manner in which government agencies exercise their statutory functions.

### **B.2.3 Linking of the EPRs to the Incorporated Document**

33. The terms and structure of the Incorporated Document are addressed in detail in Part E.1 of these submissions. Relevantly for present purposes, however, it is noted that pursuant to the Incorporated Document:
- (a) The commencement of substantive works in respect of Melbourne Metro is specifically linked to the preparation and approval of the EMF (which must include the relevant EPRs);<sup>9</sup>
  - (b) There is an express obligation that the use and development of land associated with Melbourne Metro be carried out in accordance with the approved EMF (and in turn the EPRs);<sup>10</sup> and
  - (c) Provision is made for public inspection and comment on the Development Plan prior to its the approval.<sup>11</sup>
34. Some submitters have cited the approach adopted by the East West Link Advisory Committee in support of the proposition that a different model

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<sup>9</sup> Clause 5.2.

<sup>10</sup> Clause 5.2.7.

<sup>11</sup> Clauses 5.1.3-5.1.5.



should be adopted under the Incorporated Document wherein the EPRs are specifically incorporated into the Planning Scheme.

35. MMRA submits that this comparison is overly simplistic. In this case, for the reasons that follow, the Committee should conclude that it is preferable for the EPRs to be linked to the Incorporated Document in the manner proposed rather than being incorporated within it:

- (a) The passages of the East West Link Advisory Committee Report relied upon by these submitters do not state that EPRs must be incorporated within the scheme. The suggested preference is for EPRs to be “include[d] or link[ed]”<sup>12</sup> to the relevant planning scheme. The proposal for this Project, wherein the EPRs are to be directly linked to the Scheme, accordingly responds directly to the Assessment Committee’s approach. This fact was not the subject of comment by any submitter. A comparison with the draft Incorporated Document in the Comprehensive Impact Statement for the East West Link shows a fundamentally different approach to preparing the EPRs for Melbourne Metro;
- (b) Melbourne Metro is not, in any event, “on all fours” with the East West Link as contended on behalf of Melbourne Grammar School. There are material differences between the projects. The East West Link Project included substantial surface works with major permanent visual and traffic ramifications. The surface impact of Melbourne Metro is of a substantially lesser magnitude;
- (c) The Advisory Committee had in that case also contemplated substantial revision to the Reference Design of East West Link and had concluded that matters of potentially high impact were not resolved in the context of that proposal;
- (d) Unlike East West Link, this project lends to targeted consultation with the most-affected stakeholders. Those stakeholders are

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<sup>12</sup>

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relatively readily identifiable along the alignment. The model for the proposed Melbourne Metro EPRs is heavily influenced by this fact, and the EPRs are more detailed than the East West Link EPRs in this regard;

- (e) Unlike the East West Link this project has widespread community support (even without the need for a detailed design to be in place). The East West Link (Eastern Section) faced considerable opposition, and modifications to the design of that project could have been relevant to factors which had been informed by the public process;
- (f) The culmination of the East West Link assessment process was the grant of all relevant permissions required in respect of that project. That assessment process was necessarily premised on a more certain design outcome, or permission, than is the case at this stage for Melbourne Metro;
- (g) The process proposed in respect of Melbourne Metro includes, at the recommendation of Mr Milner, a public display and submissions process prior to the approval of the relevant development plans. A comparable process was not proposed in respect of the East West Link; and
- (h) Critically, no submitter compared the nature of the EPRs in East West Link with those proposed here. In East West Link the EPRs were relatively high-level and outcomes-oriented. In the case of Melbourne Metro, while this principle is honoured in the main, it has been qualified *inter alia* to provide clearer direction in respect of ongoing direct consultation and, in some cases, to reflect relatively specific matters of agreement with stakeholders.

36. Indeed, bearing these matters in mind, if the EPRs relating to Melbourne Metro were to be incorporated into the scheme in the manner proposed by some of the submitters, they would need to be rewritten to:

- (a) reflect higher-level outcomes; and

- (b) address substantially fewer matters of detail argued for by submitters before the Committee.
- 37. Ultimately, the reliance on further planning processes in respect of possible changes to EPRs runs counter to the rationale that supports the exemption of Melbourne Metro from planning approvals pursuant to the Incorporated Document. Such an outcome should be avoided unless deemed necessary to achieve acceptable outcomes.
- 38. For the reasons identified above, MMRA contends that the proposed Incorporated Document responds to the sentiments expressed by the East West Link Advisory Committee and strikes the right balance in respect of Melbourne Metro.
- 39. The Committee's attention is drawn to the table prepared by MMRA which neatly summarises the fundamental differences in approach between the East West Link Performance Requirements and the EPRs for this Project.

### **B.3 Potential Compensation Claims**

- 40. Some submitters approached the hearing speculating as to potential compensation claims under the LACA or MTPFA.
- 41. The nature of these submissions was in effect:
  - (a) to assert that the submitter's land had particular development potential;
  - (b) to allege that potential development intentions would be thwarted or impeded by Melbourne Metro; and
  - (c) to foreshadow financial loss to the submitter if development intentions were thwarted or impeded.

42. Examples of submissions of this type include (but are not limited to) those made by Hobson's Pty Ltd and Karaoke Pty Ltd,<sup>13</sup> HRG Investments Pty Ltd,<sup>14</sup> Rydges on Swanston,<sup>15</sup> and the University of Melbourne.<sup>16</sup>
43. Other submitters, for example Osgard Pty Ltd (21 and 25 Swanston Street)<sup>17</sup> and McDonalds and North-West Investments Pty Ltd (9-11 Swanston Street), have made submissions opposing the acquisition of their properties and have sought to have part or all of their property returned to them for their use post construction of the Project.<sup>18</sup>
44. The approach of MMRA to these submissions is to refrain from speculation or to express opinions on matters that would properly be the subject of a separate legal process. If land is compulsorily acquired to facilitate the delivery of Melbourne Metro, the provisions of the relevant legislative regime will apply.<sup>19</sup>
45. It is unnecessary and of no utility to identify or speculate as part of this process about the extent to which particular impacts may be relevant to entitlements for compensation. The LACA provides broad compensation entitlements, and compensation is payable for disturbance losses. In all land acquisition scenarios, compensation is offered on the basis of the 'highest and best use' of the land.
46. It is further submitted that it is not this Committee's role to comment or advise upon compensation or the desirability of returning land to particular landholders. Whether or not this will be possible will be determined when the detailed design of the Project has been completed. To do so before then would be premature because there may be operational requirements,

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<sup>13</sup> MM261 and Document 163.

<sup>14</sup> MM13 and Document 242.

<sup>15</sup> MM287.

<sup>16</sup> MM318.

<sup>17</sup> Document 288.

<sup>18</sup> Document 290.

<sup>19</sup> The Committee has been provided with a list of the properties which are likely to be acquired for the Project, Document 314.

protection requirements or design elements in the detailed design which may make such an option unviable.

47. MMRA submits that the Committee's report should specifically comment that it is not endorsing or lending weight to submissions or evidence directed toward lost development potential or any potential financial loss that may be assessed under the LACA or MTPFA.
48. Commentary about the operation or adequacy of the LACA is outside the scope of this inquiry.

#### **B.4 Stakeholder Recognition**

49. A number of submitters seek to be afforded greater or 'special' status in respect of consultation and/or decision-making undertaken in respect of Melbourne Metro. A common refrain of these submissions is that the submitter should be afforded 'key stakeholder' status under the EPRs or Incorporated Document.
50. These submitters generally fall into one of three categories:
  - (a) First, municipal councils (Melbourne, Port Philip and Stonnington);
  - (b) Secondly, submitters that are quasi-public entities, or educational institutions (such as *inter alia* RMIT, the University of Melbourne, Graduate House of the University of Melbourne, St Paul's Cathedral (MATC), and Melbourne Grammar School); and
  - (c) Thirdly, individual submitters (both private individuals and businesses) who are located along the alignment, and who claim special status on account of particular project impacts or effects (such as *inter alia* George Weston Foods Pty Ltd, Citywide Services Pty Ltd, and the Owners Corporation of the Botanica).
51. In relation to the first category of submitters, and in particular the City of Melbourne (being the municipality most affected by Melbourne Metro), MMRA has ensured that the councils have been closely involved with the

preparation of the EES, consideration of the Concept Design, and development of the EPRs and UDS.

52. MMRA considers the ongoing involvement of the Councils in the development and implementation of Melbourne Metro to be important. This has accordingly been provided for within the EPRs and the Incorporated Document including *inter alia* in respect of key matters such as community and stakeholder engagement, the development of business disruption plans, and in respect of transport and traffic management via the TTWG.
53. In general, the regime proposed by MMRA promotes ongoing council participation in a consultative (rather than determinative) capacity.<sup>20</sup> This in MMRA's submission is appropriate because:
- (a) Melbourne Metro is a project of State significance;
  - (b) The Minister for Planning and the State Government have ultimate responsibility for approval and enforcement of the management and delivery of Melbourne Metro – not the municipal councils;
  - (c) The Concept Design and construction methodology for Melbourne Metro has been informed by the very considerable comments of the affected Councils; and
  - (d) The PPP project delivery process is robust and provides an additional level of control over and above the Planning Scheme.
54. MMRA contends that it is appropriate that a different approach be adopted in respect of the other categories of submitters.
55. In doing so it recognises that further consultation with a wide range of stakeholders will be important in the successful delivery of Melbourne Metro. It opposes, however, singling out private entities as being entitled to

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For example further consultation is required in respect of the preparation of the Environmental Management System and embedded in the Environmental Management Plan (EPR EM1); Councils are members of the Traffic and Transport Working Group (EPR TA) and are to be consulted in relation to the TDM Strategy (EPR T4); Waste Collection (New TB); the development of the Community and Stakeholder Engagement Plan (**CSEMP**) (EPR SC3) and during major events (EPR SC5); replacement trees (EPR AR3) and re-establishing public open space (EPR LV2) to name a few.

a specific level of mandatory consultation in circumstances where other (equally deserving) entities have not been identified.

56. Instead, MMRA contends that the priority should be to ensure that the EPRs establish a robust framework pursuant to which an appropriate level of consultation can take place, and that the EPRs facilitate that consultation through the creation of particular forums in respect of key issues (such as the TTWG and PPRG).
57. It is notable that with very few exceptions, the institutional submitters have praised the MMRA in its approach to consultation as part of the EES process, and have been supportive (even effusive in some cases) in relation to the benefits that Melbourne Metro will deliver to their own interests.<sup>21</sup> All have accepted that the community at large will benefit significantly from the Project.
58. The range of views expressed by individual submitters in respect of these matters varied. Many, however, were similarly complimentary of the consultation process undertaken by MMRA to date.
59. This should not be lightly dismissed by the Committee. It demonstrates that the MMRA is committed to consultation and community participation and that it has established effective systems to implement that commitment.
60. It is also important to recognise that the level of further consultation sought by these parties extends well beyond what could reasonably be expected in relation to projects undertaken outside of the EES process. Their desire for further participation to the extent that they seek is excessive and is wholly inconsistent with the scope of third party 'rights' and participation that these parties are currently entitled to under the existing planning scheme regime.
61. In this regard MMRA notes that while the objectives of the P&E Act include an objective to ensure that those affected by proposals for the use or

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Though in the case of Melbourne Grammar School, their submissions refuse to accept any benefit, notwithstanding their witness taking a different view.

development of land receive appropriate notice,<sup>22</sup> the public policy objective of providing for third party participation in planning processes is not universal or unqualified. Section 6 of the P&E Act provides that the matters a planning scheme may contain include the power to specifically exclude third party notice and review rights.<sup>23</sup> This power has been regularly exercised throughout the planning schemes which are affected by the Project.

62. No submitter complained that the Incorporated Document as proposed is an improper tool to be utilised in the circumstances of this Project. Having proposed an Incorporated Document as the planning control for Melbourne Metro it would seem counter-productive to create a planning control (which has at its core a more efficient and effective mechanism) which would in fact provide greater third party rights than those enjoyed by these entities under the current planning controls which apply. The Incorporated Document is the most efficient and appropriate planning mechanism.
63. This is starkly so with respect to RMIT and University of Melbourne. Both of these entities seek to have not only special status in terms of consultation written into the Incorporated Document and the EPRs, but in effect, a quasi-statutory role in decision making and in the approval of certain decisions.
64. The claim for such entitlement with which they press their case belies their status under existing planning controls if the ordinary planning processes were adopted in relation to this Project.
65. The Melbourne Planning scheme is of particular relevance and provides:
  - (a) In the Capital City Zone Schedule 1 (CCZ1) (which applies to part of the RMIT campus and to St Paul's Cathedral) railway and railway station are as of right uses. Works for these uses require a permit - but there are no third party notice and appeal rights.

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<sup>22</sup> Section 4(2)(i).

<sup>23</sup> Sections 6(2)(kc)-(kda).



- (b) In the Capital City Zone Schedule 2 (CCZ 2) (which applies to part of the RMIT campus and to St Paul's Cathedral) railway is as of right<sup>24</sup> and there is an exemption from third party notice and appeal rights for buildings and works.
  - (c) In the Capital City Zone Schedule 5 (CCZ5) (which applies to Grattan Street, to all of the land south of Grattan Street within Melbourne University's campus, and to Graduate House) railway and railway station are as of right and no third party notice or appeal rights exist for buildings and works.
  - (d) In the Public Use Zone Schedule 2 (Education) (which applies to Melbourne University north of Grattan Street and parts of the RMIT campus) no permit is required for railway, railway station or for education purposes. No third party notice or appeal rights exist for buildings and works.
66. What is argued by these parties is that the Project is of such a scale and duration that a different and more onerous third party approach ought be taken in this case. This position does not place sufficient weight upon the fact that the EPRs have been developed to manage the environmental effects of the Project to an acceptable level and, notwithstanding the attempted comparisons with the East West Link Project (Eastern Section), have been the subject of very significant third party input through the EES process and are significantly more detailed than the EPRs relied upon in that project approval.
67. There is also a marked disparity in the position adopted by these institutions in respect of Melbourne Metro and the applicable planning controls that apply to the University and RMIT in relation to significant building works within their campuses.
68. Both the University of Melbourne and RMIT have had, and propose further, very substantial building projects. For example, RMIT is in the midst of

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Railway station is innominate.

construction of its New Academic Street Project. In the last 5 years, the University of Melbourne has embarked on significant building works throughout its campus including redevelopment of Leicester Street Student Accommodation, Newman College, the Library building in 2011, the New Melbourne School of Design (completed 2014) and the Arts West redevelopment, completed in July 2016. Material provided by the University's solicitors in response to the request made during the cross examination of Professor Davis by the MMRA estimates that between 2011 and 2016 the University undertook building works valued at \$1,161,563,946 (56 projects which were valued at more than \$5 million and 1081 projects valued at less than \$5 million). A review of the material provided by the University reveals that the duration of most of the key projects exceed 3 years with some up to 6 or 7 years.<sup>25</sup> In the next ten years the University states that major redevelopment of its Parkville campus is expected to exceed \$3 billion.<sup>26</sup>

69. These current or past projects have proceeded, and the significant redevelopment foreshadowed in the future will proceed notwithstanding their proximity to the operation of their lecture theatres, library, offices, classrooms and laboratories. All of these projects have been or will be disruptive, but they have proceeded because the institutions have recognised the importance of improving and upgrading their facilities to meet the needs of their students.
70. The distinction urged by the University of Melbourne and RMIT that this Project is different to their substantial building projects because this Project is outside their control lacks substance. A review of the extracts of the contracts provided by the University of Melbourne and RMIT reveals that they did not seek to impose special controls on the appointed contractor, and noise or vibration limits were not applied in a restrictive fashion to those contracts by the University of Melbourne or by RMIT.

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<sup>25</sup> Part of Document 308.

<sup>26</sup> Statement of Professor Davis at [47].

## **B.5 The Extent and Significance of Community Support**

71. The level and extent of community support for Melbourne Metro is significant. It is almost unprecedented in the assessment of major infrastructure projects in this State for there to be such a firm consensus in submissions and in evidence that the Project is highly meritorious.
72. This, in MMRA's submission, should inform not just the assessment of the environmental effects of the Project, but also the preparation and structure of the EPRs and EMF.
73. For instance, the general approach to construction standards within Victoria and within other jurisdictions, is to acknowledge that civil infrastructure projects constitute a special category of works. As one example, the City of Melbourne Noise and Vibration Management Guidelines specifically exclude such works from the operation of the guidelines. Adopting a different (and more proactive) model, the NSW Interim Construction Guidelines identify the level of community support for public infrastructure projects as a relevant consideration in formulating mitigation measures in respect of the project. It specifically establishes an approach that encourages construction to occur over longer hours where that would shorten the overall program of works and where there is a strong level of community support for the project and for this approach.
74. It is submitted that it is correct to approach the formulation of EPRs for this project in this way. This is not just a case in which the project under consideration has overwhelming public support. The more pertinent point is that the Project can objectively be assessed as deserving that high level of community support on account of the benefits that it will deliver to the community. It is an objective fact, also, that a significant benefit will accrue to those institutions, businesses and residents situated near a new station.
75. This fact was generally accepted by the submitters. The one jarring submission in this regard was that made by Melbourne Grammar School

(albeit that it was not consistent with MMRA's experience in direct consultation with this institution). It was expressed on behalf of the school that it would receive "no particular benefit" from the Project<sup>27</sup> despite its own traffic and transport expert describing the transport benefits to the school as "considerable". The explanation later provided to Mr Pitt QC – that it made no difference to the school because of the strength of its waiting lists is unfounded by the expert evidence, counter-intuitive and should not be accepted by the Committee. The improved efficiency and accessibility in student and staff movements to and from the School will unquestionably be of 'particular benefit' to MGS. Those benefits will persist for as long as the Melbourne Metro is in operation.

76. It is submitted that the Committee should conclude that on an objective basis:
- (a) There are substantial and long lasting community benefits to be derived from the Project; and
  - (b) There are particular substantial and long lasting benefits of the Project to be derived by those landowners and occupiers near the proposed stations;
  - (c) These factors support a combination of EPRs that encourage consultation and co-operation through the construction phase; and
  - (d) It is unreasonable for submitters in this situation to expect that there be no impact or disruption to their occupation of land.
77. For example, Professor Davis, the Vice Chancellor of the University of Melbourne, after speaking generously about the benefits the University will derive from the Project, expressed no doubt whatsoever that consultation with the University would occur and that its concerns were capable of resolution. He also commended the MMRA for the consultation that it has undertaken to date.

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Submissions on behalf of Melbourne Grammar School at paragraph 1.1.7.

78. Notwithstanding this evidence, the submissions put on behalf of the University criticised the approach adopted by MMRA on the basis that it was too heavily reliant on consultation. The tenor of the University's submission was not only at odds with the evidence of the Vice Chancellor, but also with the attitude that should be expected of an institution of its standing. The University is in an ideal position to engage in co-operative consultation with both MMRA and the contractor throughout the construction phase of the Project. The Committee should reject submissions that it should assume that consultation will not be taken seriously by the contractor or by MMRA.
79. It is not correct, in any event, to contend that MMRA's ongoing management of impacts relies wholly or predominantly on consultation. Whilst ongoing consultation is undoubtedly very important it forms but one part of the management regime proposed in respect of the Project. Indeed, for the reasons addressed in greater detail in Part D of these submissions, the Committee should conclude that the management and mitigation regime proposed pursuant to the EPRs is the most comprehensive that has been formulated in respect of any major infrastructure project undertaken in this state.

## **C. CONCEPT DESIGN REFINEMENTS AND CONSTRUCTION METHODOLOGY**

80. There are a number of refinements which have been made to the Concept Design and construction methodology which have been assessed through the EES process, and the information provided to the Committee during the hearing through the following Technical Notes:

- (a) TN9: Western Portal Option A - Construction of a temporary access ramp for the Lloyd Street Business Park between Tennyson Street and McClure Road;<sup>28</sup>
- (b) TN10: Additional construction area in Franklin Street (east) between Swanston Street and Victoria Street;<sup>29</sup>
- (c) TN11: Provision for electrical adit between Franklin Street and Swanston Street;<sup>30</sup>
- (d) TN12: Franklin Street Legacy Condition; Franklin Street (east of Swanston Street) to be re-opened to traffic post-construction (in response to City of Melbourne request);<sup>31</sup>
- (e) TN13: Additional Construction Areas in Flinders Street and Federation Square;<sup>32</sup>
- (f) TN14: CBD South Station Entrance: Properties located at 65 and 67-73 Swanston Street no longer required as potential station entrance;<sup>33</sup>

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28 Document 3 (in part).

29 Document 3 (in part).

30 Document 3 (in part).

31 Document 3 (in part).

32 Document 3 (in part).

33 Document 3 (in part).

- (g) TN15: Additional Construction Areas in Domain; Albert Road, Bowen Lane, Bowen Crescent and Bromby Street;<sup>34</sup>
- (h) TN16: Modification - Removal of the Fawkner Park TBM southern launch site;<sup>35</sup>
- (i) TN17: Service Structures Within Albert Road;<sup>36</sup>
- (j) TN22: Transmission Line Relocation Options;<sup>37</sup>
- (k) TN24: Revised station cavern construction methodology;<sup>38</sup>
- (l) TN55: Emergency Access Shafts;<sup>39</sup>
- (m) TN65: Domain Parklands and St Kilda Road Boulevard.<sup>40</sup>

81. Of the greatest import and significance for the task of assessment of the environmental effects of the Project to be undertaken by the Committee are the following modifications:

- (a) TN 16 Modification – Removal of Fawkner Park TBM Southern Launch Site.<sup>41</sup> This TN advised that the use of a location in part of Fawkner Park which impacted the tennis courts and community centre, including the Fawkner Park Children’s Centre and Kindergarten, for the TBM launch site and associated construction lay down was removed from the Melbourne Metro.
- (b) TN 55 Emergency Access Shafts - this TN identified that the permanent structures for an Emergency Access Shaft at Fawkner

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34 Document 3 (in part).

35 Document 3 (in part).

36 Document 3 (in part).

37 Document 7 (in part).

38 Document 7 (in part).

39 Document 81.

40 Document 254.

41 Document 3 (in part).

Park and in the Domain (either at Tom's Block or at Linlithgow Avenue) were no longer required. This modification removed all construction works from the surface level at Fawkner Park. While there may be a need for a temporary shaft and associated works in the Domain Parkland (possibly at Tom's Block), this modification to the Concept Design removes the need for a permanent structure within this sensitive location.<sup>42</sup>

- (c) TN65 – Domain Parklands and St Kilda Road Boulevard. This TN advised that the under CityLink rail tunnel alignment was the only option to be assessed by the Committee, and that the MMRA no longer pursued an over CityLink tunnels option for the vertical alignment beneath Tom's Block.<sup>43</sup>

82. Consequently, the submissions which follow in Part D regarding the environmental effects of the Project, proceed on the basis that the modifications outlined in TNs 16, 55 and 65 are confirmed modifications to the Concept Design.

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42 Document 81.

43 Document 254.



## **D. ENVIRONMENTAL EFFECTS**

### **D.1 MMRA's Approach**

83. In addressing the environmental effects of Melbourne Metro, this outline of submissions will adopt the following approach:

- (a) The environmental effects of Melbourne Metro will be assessed having regard to the evaluation objectives identified in the Scoping Requirements;
- (b) In doing so the MMRA will:
  - i. respond to key issues raised in submissions to the Committee identified in respect of each evaluation objective; and
  - ii. evaluate the adequacy of the proposed EPRs in respect of each relevant type of environmental impact.

84. These submissions have not been prepared as a specific response to each submission made in respect of the EES. They instead seek to respond to the key issues and themes that have been raised by submissions as relevant to the evaluation objectives identified in the Scoping Requirements for the Melbourne Metro EES.

### **D.2 Transport Connectivity**

*To enable a significant increase in the capacity of the metropolitan rail network and provide multimodal connections, while adequately managing effects of the works on the broader transport network, both during and after the construction of the project.*

#### **D.2.1 Environmental Effects**

85. The environmental evaluation objective concerning transport connectivity addresses two distinct matters:

- (a) The first calls for an assessment of the network capacity uplift to be delivered by Melbourne Metro and its provision of multimodal connections;

- (b) The second calls for an assessment of the capacity to manage the effects of the works on the transport network during the construction and legacy phases of Melbourne Metro.
86. The wholesale support for Melbourne Metro pursuant to the first of these measures has been a striking aspect of this assessment process.
87. Very few, if any, submitters have sought to challenge or contest the benefits of the Project as described by PTV on the second day of the hearing (and as documented in Chapter 2 of the EES and in the Business Case).<sup>44</sup> There has similarly been a firm consensus in expert opinion that Melbourne Metro will deliver considerable benefits to network operation and multi-modal connections.
88. MMRA's response to the propositions that a different project – involving an additional station at South Yarra or an alignment that does not involve a station at Domain – would deliver superior outcomes are addressed further in Part G below.
89. The starting point in the Committee's analysis pursuant to this evaluation objective should accordingly be that Melbourne Metro is a project that will:
- (a) deliver substantial benefits to the metropolitan passenger rail network;
  - (b) substantially improve multi-modal connections; and
  - (c) enable the realisation of a wide range of further network enhancements in the future.
90. The Committee should also recognise that, in transport connectivity terms, Melbourne Metro will deliver substantial benefits to many of those land-owners that will be most directly impacted during construction.
91. Indeed, it should be an uncontroversial proposition that properties located in close proximity to the various stations, will benefit substantially from the operation of Melbourne Metro. This was explicitly recognised, for instance,

by Professor Davis (who acknowledged the “huge benefits” that Melbourne Metro would deliver to the University of Melbourne).

92. In light of the clear support for the proposal in transport connectivity terms – both as between the experts and as between the submitters – these submissions will accordingly focus on the second aspect of the evaluation objective; namely, whether adequate measures will be put in place to manage the effects of Melbourne Metro during construction and operation.

#### **D.2.1.1 The Scale and Nature of the Anticipated Impacts**

93. It is first important to recognise that the extent and duration of impacts will vary between precincts and between modes of transport. Impacts will arise both as a consequence of additional vehicle movements (including truck movements) associated with construction and as a consequence of temporary and permanent road occupations and closures. These impacts will clearly be most substantial during the construction phase of Melbourne Metro.
94. Detailed micro-simulation modelling has been undertaken in respect of those precincts within which it is anticipated that traffic impacts will be most pronounced. That modelling demonstrates that at times during the construction phase of Melbourne Metro there will be marked changes in traffic conditions within parts of the road network.
95. Road closures in the Domain, CBD South, and Parkville Precincts, in particular, will have the potential to give rise to increased levels of traffic congestion in and around those precincts. Pressure will necessarily be placed on the surrounding road network to accommodate greater levels of traffic as a consequence.
96. However, as Mr Poulson described, challenges of a comparable magnitude have arisen in the course of Melbourne’s history from time to time. An

example given by Mr Poulson was the closure of Swanston Street (and the resultant diversion and redistribution of 28,000 vehicles per day).<sup>45</sup>

97. Indeed, because over the course of the past decade the CBD has essentially operated as an “intensive high-rise development zone” (in Mr Poulson’s words), the transport networks in and around the CBD are frequently subject to periods of stress and disruption. The relevant road management authorities (all of which are members of the TTWG) are accordingly skilled and experienced in implementing measures to mitigate and respond to periods of disruption.
98. This is not to suggest that the impacts of Melbourne Metro on the transport network will not be significant. For periods during the construction phase the impacts will clearly be very substantial (resulting in travel time delays and inconvenience to motorists and other modes of travel).
99. It is instead important to recognise, as did Mr Poulson, that impacts of these types should be expected in a dynamic city environment such as that encountered along Melbourne Metro’s alignment, and that they are warranted in this instance given the very substantial and lasting benefits that Melbourne Metro will deliver to Metropolitan Melbourne.
100. MMRA has undertaken a substantial amount of additional modelling and analysis (to that documented in the Transport Impact Assessment) as part of this assessment process in response to queries raised by the Committee and by Mr Smedley (in his capacity as independent peer-reviewer).
101. That analysis is contained principally in the following Technical Notes:
  - (a) Technical Note 20 (concerning, amongst other matters, the impact of the closure of Grattan Street, the impact of cut and cover works on Flinders Street, and sensitivity analysis undertaken in respect of the proposed reduction of St Kilda Road to one lane in each direction);<sup>46</sup>

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<sup>45</sup> See Mr Poulson’s witness statement at page 5.

<sup>46</sup> Document 7 (in part).

- (b) Technical Note 21 (concerning the closure of Flinders Street in accordance with the proposed construction arrangements for the Federation Square entrance to the CBD South Station);<sup>47</sup>
  - (c) Technical Note 27 (which responds to the transport-related aspects of the Committee’s ‘Preliminary Matters and Further Information’ request made on 25 July 2016);<sup>48</sup> and
  - (d) Technical Note 63 (concerning aspects of the modelling undertaken in respect of the Domain Precinct).<sup>49</sup>
102. MMRA relies on that analysis, along with the analysis documented in the Transport Impact Assessment, and contends that it constitutes a sound basis to:
- (a) evaluate the scale and extent of the impacts that will likely arise during the construction and operation of Melbourne Metro; and
  - (b) assess the regime of EPRs that has been designed to respond to that anticipated impact.
103. It is notable, again, that there has been little (if any) contest in the evidence before the Committee concerning the basis upon which that modelling was undertaken or the interpretation of the modelled outputs. Whilst Mr Kiriakidis called for further modelling to be undertaken in respect of the Arden Precinct, a matter in respect of which MMRA agrees and which is addressed further below, none of the experts criticised the modelling that had been undertaken in respect of those precincts that will likely be subject to the greatest impact. Indeed, Mr Sellars specifically recognised (in respect of the Parkville Precinct) that “meaningful investigations have been

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<sup>47</sup> *Ibid.*

<sup>48</sup> Document 21 (in part).

<sup>49</sup> Document 227.

undertaken to determine the potential impacts of the Project during the construction and legacy phases.”<sup>50</sup>

104. That said, whilst the modelling undertaken to date provides a sound basis upon which to evaluate the environmental effects of Melbourne Metro, MMRA recognises that it will be necessary for additional modelling to be undertaken as a means of (amongst other things) informing the preparation and implementation of detailed mitigation measures as part of the Transport Management Plan(s).
105. This requirement is contained in clear terms in EPR T1. However, rather than specifying the nature and extent of further modelling that should be undertaken at this stage in the process (as was recommended for instance by Mr Kiriakidis in respect of the Arden Precinct),<sup>51</sup> MMRA contends that this is a matter that should properly be determined through the TTWG and in the context of the detailed design.

#### **D.2.1.2 The Proposed Management Framework**

106. As Mr Smedley explained, the modelling undertaken to date demonstrates the need for a detailed and comprehensive package of mitigation measures to be implemented as a means of managing the anticipated impacts on the transport network (both in respect of construction and operation). That package will necessarily include:
- (a) a wide range of measures directed toward the optimisation of network performance (to be developed and implemented pursuant to a project-specific TMP);<sup>52</sup>
  - (b) targeted measures directed toward minimising impacts on the public transport network;<sup>53</sup>

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<sup>50</sup> Mr Sellar’s witness statement at page 43.

<sup>51</sup> Appearing on behalf of Citywide Services Pty Ltd.

<sup>52</sup> EPRs T1 and T5.

- (c) targeted measures directed toward maintaining bicycle and pedestrian connectivity;<sup>54</sup> and
  - (d) the development and implementation of a TDM strategy in respect of the Project.<sup>55</sup>
107. As explained during the course of the hearing, a considerable amount of work has been undertaken by MMRA (informed by input from the TTWG which was established some 14 months ago) in respect of the first of these elements. Potential measures have been identified to a high degree of detail on a precinct-by-precinct basis. MMRA again notes that this material could be provided to the Committee if deemed desirable. It was not produced during the course of the hearing, however, because it is voluminous and descends to a level of detail that MMRA contends is not necessary to properly evaluate the environmental effects of Melbourne Metro.
108. The regular meetings of the TTWG, which have taken place prior to and during the hearing, have provided an efficient forum in which to explore potential issues in respect of the second and third elements identified above. Some of those issues will clearly need to be informed by input from other government agencies. The supplementary submissions made by PTV to the Committee, for instance, canvassed a number of potential issues in this respect.<sup>56</sup> The successful implementation of mitigation measures in response to these issues will necessarily be dependent on high levels of inter-agency cooperation and coordination. As discussed further below, this firmly supports the formalisation and continued operation of the TTWG.
109. Ms McArthur, a world-leader in travel demand management and the consultant responsible for delivering the TDM strategy in respect of the

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<sup>53</sup> EPRs T2 and T6.

<sup>54</sup> EPRs T3 and T7.

<sup>55</sup> EPR T4.

<sup>56</sup> Document 161.

Sydney Light Rail Project,<sup>57</sup> described how the last component of the proposed package of mitigation measures should be implemented in the context of Melbourne Metro.

110. The implementation of a tailored TDM strategy constitutes a further basis upon which Melbourne Metro can be distinguished from other major infrastructure projects undertaken in this state. It constitutes best practice in the management of impacts and recognises that behavioural change will necessarily form an important component of any successful response to the disruptions that will arise during the construction of Melbourne Metro.
111. As Ms McArthur explained, aspects of the approach adopted by MMRA to date – such as the formation of the TTWG and the early identification of the need for TDM measures – are important in ensuring that a successful strategy can be designed and implemented in respect of Melbourne Metro. The behavioural change that will be delivered by the implementation of the TDM strategy will be lasting, and will constitute an on-going benefit of the Project (in addition to the direct benefits that Melbourne Metro will deliver during operation).

### **D.2.1.3 The Conclave**

112. It is not feasible, as part of these submissions, to respond to each and every matter of detail raised in evidence or in submissions during the course of the hearing.
113. The expert witness conclave conducted in respect of transport was, however, particularly successful in identifying the extent of those issues, and in recording matters that were in dispute (at least between the experts).
114. It reveals, most importantly, the very substantial degree of consensus between the expert witnesses concerning the adequacy of the management regime proposed under the EPRs.

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The Sydney Light Rail Project is a substantial infrastructure project being undertaken in the heart of Sydney's CBD.



115. It is particularly telling in this respect that, subject to matters of detailed drafting, *all* of the expert witnesses that have appeared before the Committee expressed the view that the regime proposed under the EPRs will prove effective in managing and mitigating project impacts.
116. Indeed, it is apparent that in many respects the differences between the experts (and to some extent the parties) concerning the management of transport impacts, are properly characterised as differences in form rather than substance.
117. A pervading theme in the evidence, and explored in cross-examination, was a desire to introduce a greater degree of specificity into the EPRs in respect of particular outcomes to be achieved at particular properties. As noted in Part B of these submissions, whilst MMRA recognises that this may be appropriate in certain circumstances, it contends as a matter of broader principle that issues that are likely to be of common application across Melbourne Metro's alignment should be expressed in general terms in the EPRs.
118. Where, however, measures are critical to the successful implementation of the management response, or where critical matters cannot be adequately described in general terms, additional specificity may be warranted.
119. A further common theme in the evidence was the call for certain management measures to be introduced over public infrastructure or assets during the operation of Melbourne Metro. Both Mr Kiriakidis and Mr Sellars, for instance, recommended the implementation of car parking management plans during operation in respect of public car spaces in and around the Arden and Parkville stations respectively. Separately, a number of submitters sought that particular arrangements be mandated under the EPRs, in respect of the ongoing configuration of particular public transport routes.
120. MMRA again states its position that, where matters (arising either during the construction or legacy phases of Melbourne Metro) properly fall within the

statutory responsibilities of government agencies, they should not be the subject of EPRs.

121. Because the responsible government agencies are members of the TTWG there can be no doubt that they will be adequately informed about Melbourne Metro. They should not be inappropriately constrained in performing their statutory functions by the outcomes of this statutory process.
122. It is clearly a question of judgement as to where one should draw the line in each of these respects. MMRA has been conscious, in preparing the EPRs, to not descend to an inappropriate degree of specificity and to ensure that the EPRs do not advantage one group unjustifiably relative to another. It has also sought to limit the EPRs to matters that relate directly to Melbourne Metro and to not inappropriately constrain the manner in which government agencies exercise their statutory functions.
123. It submits that the Version 3 EPRs strike an appropriate balance in these respects.
124. Where MMRA has not incorporated proposed amendments to the EPRs documented in the conclave report, it has generally relied on the evidence of Mr Smedley (both as given orally before the Committee and as recorded in his witness statement and in the conclave report).
125. Mr Smedley was independent of the preparation of the Transport Impact Assessment and has undertaken a thorough and detailed review of that material. With exception of Mr Poulson, he was the only expert appearing before the Committee that had undertaken a global review of the transport related impacts of Melbourne Metro. The fact that both he and Mr Poulson were unequivocally supportive of Melbourne Metro, and of the regime that has been prepared as a means of managing impacts, should be accorded considerable weight by the Committee.

#### **D.2.1.4 The TTWG**

126. As noted above, MMRA recognises that the successful implementation of the proposed mitigation measures will depend on a co-ordinated response between relevant state and local government agencies. It will also need to be co-ordinated with the delivery of other infrastructure projects undertaken concurrently with Melbourne Metro.
127. To this end the TTWG, which was established 14 months ago, will continue to play a vital role in the delivery of the project. The positive assessment of the group provided by Mr Poulson, who has been a regular participant in the TTWG on behalf of the City of Melbourne, should provide the Committee with confidence that the group will function effectively in the manner proposed.
128. The operation of the TTWG is described in Technical Note 25. Questions of the Committee have explored whether it is desirable that an independent chair be appointed to the TTWG. In MMRA's opinion this is not necessary:
- (a) The TTWG has successfully engaged and consulted with key project stakeholders on surface transport design and planning issues for the past 14 months. As contractors are appointed in respect of the Project they will be represented on the TTWG.
  - (b) The TTWG is a consultative body, not a decision making body. Whilst decision-makers (such as VicRoads) are included in the TTWG, they exercise their statutory authority outside of the TTWG, having benefited from the consultation process facilitated by the TTWG in the course of the development of specific transport plans or measures.
  - (c) MMRA's precinct teams are represented at the TTWG and raise precinct-specific transport issues. This will continue during construction. These teams have established relationships with stakeholders in their respective precincts. This process has and will ensure engagement with stakeholders (such as education and health facilities) during development of transport plans and specific measures.

129. Recommendations have also been made in respect of the need for the TTWG to undertake mandatory consultation to inform its deliberations, and for key stakeholders to be identified in this respect pursuant to EPR TA. For reasons addressed in Part B above, however, MMRA submits that neither recommendation should be endorsed by the Committee.
130. The EPR should instead facilitate consultation that the members of the TTWG deem necessary and desirable. MMRA anticipates that it will be widespread. The composition of the TTWG is, however, such that the members will be best placed to determine which stakeholders need be consulted and to what degree. The EPR should not simply list those entities that were represented at the expert witness conclave.
131. It is noted, furthermore, that many of the statutory authorities that form part of the TTWG already face statutory obligations under the TI Act to undertake stakeholder engagement and promote community participation in the exercise of their duties.<sup>58</sup>

#### **D.2.1.5 Particular Impacts**

132. Mr Smedley compiled a detailed list of the issues raised by individual submissions at Appendix C to his witness statement. MMRA is generally content to rely on those responses as a record of its position in response.
133. MMRA does, however, note the following in response to common themes raised during the course of the hearing:
- (a) A number of submitters raised concerns in respect of the impacts associated with truck movements to and from construction sites (and particularly through residential streets).<sup>59</sup> Both Mr Smedley and Mr Anderson made specific recommendations concerning how impacts of this type could be further addressed in the EPRs. Those

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<sup>58</sup> See, in particular, the principle set out in s. 20 of the TIA.

<sup>59</sup> See, for instance, MM115, MM230, and MM354.

recommendations, which amongst other things would seek to minimise haulage through residential streets (particularly during the night) and implement operational procedures and controls to minimise truck noise, are supported by MMRA and have been addressed in the EPRs.<sup>60</sup>

- (b) A number of submitters (including both local residents and traders) raised concerns in respect of the potential loss of on-street parking (particularly during the construction phase of Melbourne Metro).<sup>61</sup> The EPRs seek to limit impacts of this type in the following ways:

- i. First, EPR T1 identifies the need to “minimise disruption on ... car parking” as an over-arching objective of the proposed Transport Management Plan(s);
- ii. Second, in an attempt to limit any net impacts on car park supply, EPR T1 requires the provision of alternate parking where possible to replace public parking lost during construction; and
- iii. Third, in an attempt to limit any increase in demand for on-street car spaces, EPR T1 seeks where practicable to prevent construction workers parking on-street (unless it can be demonstrated by car-parking surveys that there is adequate on-street supply).<sup>62</sup>

- (c) A number of submitters raised concerns in respect of impacts on access (including emergency vehicle access) to properties during the

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<sup>60</sup> See, in particular, T1 and NVB(18).

<sup>61</sup> See, for instance, MM122-A, MM157, MM254, MM294, MM295, MM310, MM349, MM356, MM367.

<sup>62</sup> This, in MMRA’s submission, is a reasonable response to the evidence of Mr Kiriakidis and Mr Sellars, both of which called for more specific analysis to be undertaken in respect of the availability of on-street car parking in and around the various construction work sites.

course of construction and in the legacy phase of the Project.<sup>63</sup> MMRA notes that these matters are specifically addressed pursuant to:

- i. EPR T1 which relevantly requires, in respect of emergency access, that suitable measures be developed in consultation with emergency services to ensure that emergency service access is not inhibited as a result of Melbourne Metro construction worksites; and
  - ii. EPR T5 which relevantly requires, in respect of the legacy phase of the project, that any vehicle or pedestrian access altered during construction must be reinstated in accordance with relevant road design standards.
- (d) A number of submitters raised concerns in respect of impacts on bicycle and pedestrian routes. EPRs T2, T3, T6 and T7 are specifically directed towards these issues.
- (e) A number of submitters indicated preferences for particular road layout and functionality outcomes in the legacy phase of the Project. A case in point was the submission made by the University of Melbourne that Grattan Street should be closed to vehicle traffic (other than emergency vehicles).<sup>64</sup> MMRA submits that whether this (or any other) change should ultimately occur during the legacy phase of Melbourne Metro is properly a matter for the relevant road management authorities. The Concept Design demonstrates that, in the case of Grattan Street, the physical infrastructure of Melbourne Metro can be delivered in such a way that would not necessitate – from a road layout perspective – the full closures of Grattan Street. Whether it is nevertheless a desirable outcome should be informed principally by input from the City of Melbourne and VicRoads.

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<sup>63</sup> See, for instance, MM240, MM315, MM339, MM343, MM346, MM349.

<sup>64</sup> As explained by Professor Davis, this has been an outcome promoted by the University of Melbourne for the past decade.

- (f) A number of similar submissions were made in respect of the alignment and operation of different public transport routes (such as, for instance, the ultimate alignment of the Route 8 Tram). MMRA again contends that these are properly matters for PTV.

### **D.2.2 The Proposed EPRs**

134. Version 3 records a number of modifications to the Transport EPRs proposed by MMRA. They include matters agreed at the expert witness conclave and matters identified in response to other issues raised in evidence and in submissions.

135. The MMRA contends that the regime proposed under EPRs TA – TB responds positively to the principles identified by MMRA at paragraph 2.11 of its opening submissions:

(a) *Do the EPRs properly respond to the environmental impact that is to be managed?*

- i. Yes, the EPRs respond specifically to the potential impacts of Melbourne Metro on road transport, public transport and active transport, during both the construction and operation of Melbourne Metro.

(b) *Do the EPRs establish an appropriate benchmark in respect of delivery of the Project?*

- i. Yes, as the Traffic Impact Assessment demonstrates, the levels of impact and the scope and type of mitigation measures to be implemented in response, will vary from precinct to precinct.
- ii. The EPRs respond appropriately by making provision for the creation of the TTWG which will play an important role in identifying required performance levels and benchmarks to be achieved within different precincts. The EPRs allow for an appropriate degree of flexibility such that mitigations measures can be revised and refined in response to changing conditions.

- (c) *Do the EPRs properly provide for the preparation and implementation of appropriate management plans where necessary?*
  - i. Yes, the Transport Management Plan(s) to be prepared pursuant to EPR T1 will play a critical role in the effective mitigation of impacts.
- (d) *Do the EPRs properly provide for (or sit within a framework which properly provides for) consultation with stakeholders and affected persons?*
  - i. Yes, as discussed above, ongoing consultation will necessarily form an important part in informing the mitigation responses to be implemented. This, in the manner discussed above, is expressly promoted under EPR TA.
  - ii. Furthermore, the successful implementation of the TDM strategy pursuant to EPR T4, will necessarily promote high levels of stakeholder engagement and participation.
- (e) *Are the EPRs sufficiently robust to account for changes from the Concept Design and within the Project Boundary?*
  - i. Yes, the regime is designed to be flexible, so that it can respond appropriately to changes in conditions, including any modifications in the ultimate design and alignment of Melbourne Metro.
- (f) *Do the EPRs properly acknowledge their relationship with other EPRs?*
  - i. Yes. The Transport EPRs will necessarily inform the implementation of a range of other EPRs.
  - ii. EPR SC3, for instance, requires that the Stakeholder Engagement Management Plan must specifically address *inter alia* measures designed to provide advance notice of significant changes in traffic conditions or changed access and parking conditions.



136. It is noted, finally, that each of these matters is also relevant to the principles identified pursuant to the TI Act (which must be taken into account by the Planning Minister in the context of the assessment of the PSA). A detailed assessment of the Project pursuant to the relevant provisions of the *Transport Integration Act 2010* is set out in Chapter 24.4 of the EES. MMRA relies on that assessment for the purposes of these submissions. It notes, further, that the refinements that have been made to the Concept Design, the analysis contained within the various Technical Notes, and the MMRA's commitment to ongoing consultation and the establishment of the TTWG, are all matters that are consistent with those principles as they apply to Melbourne Metro.

### **D.3 Built Environment**

*To protect and enhance the character of the built form and urban environment within the project alignment, and particularly in the vicinity of project surface structures, having regard to the existing and evolving urban context.*

#### **D.3.1 Urban design**

137. Issues of built form are dealt with at Chapter 9 – Land Use Planning and in Chapter 16 – Landscape and Visual of the EES. The MMRA relies on the expert evidence of Mr Ronald Jones in relation to matters of urban design.
138. The Incorporated Document requires the submission of an Urban Design Strategy (**UDS**) to the Minister for Planning for approval.
139. The UDS was commissioned to support the delivery of a consistently high quality approach to architectural, landscape and visual design across the Project. The urban design vision for the Project seeks to leave a legacy of outstanding rail stations and public spaces that put people first, contribute to Melbourne's reputation for design excellence and delivers an overall substantial benefit in terms of urban design quality for Melbourne.
140. The UDS, when submitted to the Minister for approval, is to be accompanied by a statement which identifies differences between the

submitted UDS and the UDS which has been considered by the Committee as part of the EES process. The use and development of the Project, and all Development Plans, are required to be in accordance with the approved UDS.<sup>65</sup> The exhibited UDS is Appendix M to the EES.

141. The following Technical Notes are relevant to the issue of urban design:
- (a) TN 57 (MMRA's response to recommended UDS Amendments from the Urban Design Conclave);<sup>66</sup>
  - (b) TN 67 - Urban design/heritage;<sup>67</sup>
  - (c) TN 73: Creative Strategy.<sup>68</sup>
142. A number of EPRs require the implementation of the Project in accordance with the UDS. Specifically:
- (a) EPR LU4 which requires the development and implementation of a plan to ensure the design meets the UDS;
  - (b) EPR SC7 which requires improved community access to open or recreational space and the re-establishment of sites impacted by construction works in accordance with the UDS;
  - (c) EPR LV1 which requires the implementation of a plan for the design of permanent and temporary works to comply with the UDS; and
  - (d) EPR LV2 which requires the development and implementation of a plan which is to comply with the UDS to re-establish and where appropriate to enhance public open space and other valued places disturbed by temporary works.
143. Whilst most of the Melbourne Metro alignment and works will be located underground, there will be station entrances and other associated above

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<sup>65</sup> Melbourne Metro Rail Project Incorporated Document, clause 5.3, Document 208.

<sup>66</sup> Document 140.

<sup>67</sup> Document 324.

<sup>68</sup> Document 327.

ground infrastructure which will need to be carefully and appropriately designed for the individual precincts in which the five new underground stations are located.

144. As noted in the expert witness statement of Mr Ron Jones, who was the lead author of the UDS, it is desirable that the elements which at ground level may be intrusions, albeit of the everyday kind, “are at worst neat and unobtrusive and, at best handsomely designed.”<sup>69</sup>
145. A hierarchy of design principles, objectives and guidelines are set out in the UDS:
  - (a) High level principles of good urban design – requirements which apply to the Project but which are widely applicable to many projects and therefore relatively universal;
  - (b) Key design themes that inform the approach to the Project as a whole – reflecting concerns specific to the Project but relevant to the variety of sites involved; and
  - (c) Design guidelines specific to individual precincts in order to provide a cohesive approach to the urban design intent of the Project.
146. The UDS includes a mix of flexible and prescriptive design criteria depending on the variety of issues which present themselves in this Project such as the site and type of element being addressed, maintenance requirements, sensitivity of location, existence of site specific plans and established design standards to name but some.
147. The UDS is not a set of designs for public spaces affected by the Project. It sets out what those designs should achieve. To support this intent, design requirements can be set out by prescribing either specific solutions or performance criteria that may be met through a number of solutions.
148. There has been effective and keen collaboration throughout the preparation of the UDS in particular with and the Office of the Victorian Government

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Expert witness statement of Mr Ron Jones, dated 4 August 2016, at 2.1.2.

Architect (OVGA) and the City of Melbourne, the municipality through which most of the Project traverses.

149. The expert conclave in this discipline provided a very productive and largely consistent and positive report card on the UDS.
150. Whilst the evidence of Mr Moore, Mr McGauran and Mr Schutt was not in total agreement with every detail of the UDS as presented by Mr Jones, their agreement as to the aims and objectives of the UDS was unanimous. Mr Moore, on behalf of the City of Melbourne, was effusive in his praise of the commitment to good design which was embodied in the UDS.
151. Where there were points of difference they were minor and confined to some refinements of wording, some variance on the degree of prescription and some variance on views as to the Project scope.
152. In the cases of Mr McGauran and Mr Schutt, they sought outcomes or specific design inclusions which were beyond the scope of the Project, or were matters being pursued by their clients. For example, Mr Schutt's endorsement of a specific design and design solutions for the re-establishment of the South Yarra Siding Reserve. In Mr McGauran's case his evidence canvassed and advocated a number of urban design outcomes which were in fact the opposite to the outcomes sought by his client, namely relocation of the entrance to the Parkville Station south of Grattan Street instead of north of Grattan Street on University land, and contrary to the University's desire for integration of station entrances into their own plans for the future development of the south west corner of the campus.
153. The expert witnesses all agreed on the importance of the detailed design process. The delivery of the final design of the Project in consultation with the Councils as well as significantly, the oversight of the OVGA, is important.
154. The Committee may recall the comment made by Mr Shinkfield of the Institute of Landscape Architects,<sup>70</sup> who is part of the OVGA Panel, that in

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Submitter 255.

practice there is a collaboration of the relevant key specialists in the process to ensure the highest quality outcome.

155. As TN57 records, the MMRA has accepted almost every text recommendation arising from the urban design conclave. Where there is non-acceptance<sup>71</sup> it is submitted that whilst such an outcome may well be an excellent one, it is premature to direct such an outcome prior to the design response being received from the PPP bidders.
156. A great number of submissions were concerned about the built form intrusion and works into parkland, in particular Fawkner Park and Tom's Block. As these locations are no longer required for permanent works, these issues have been resolved and are not addressed in these submissions.

### **D.3.2 Third party input into the final design**

157. The EES has assessed the Concept Design and not a specific detailed design. That there have been no prepared architectural designs as part of the EES documentation has been a source of concern to some submitters.
158. The requirement in the Incorporated Document that the UDS be submitted to approval by the Minister and that it be accompanied by an explanation for any difference between the version of the UDS which has been the subject of consideration by the Committee will ensure a high level of consistency between the document (as refined through the EES process) and the final approved form of the UDS. Further, the Incorporated Document requires that the use and development of the Project must be carried out in accordance with the approved UDS (Clause 5.3.3).
159. These provisions should provide a high level of confidence that the quality of the work undertaken as part of this process is capitalised on in the delivery of the Project. The Incorporated Document provides for the right

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For example the MMRA does not accept or adopt the City of Stonnington's Public Realm Improvement Concept, Appendix A to Mr Schutt's evidence.

balance between certainty of expectation and the flexibility to design the Project.

160. Given the evidence of the expert witnesses who have given evidence before the Committee, in particular Mr. Moore on behalf of the City of Melbourne, the key principles and objectives of the UDS are supported and the level of consultation in regard to dealing with the issues which have emerged thus far has been positive. Given the requirements for consultation directed by the EPRs, the oversight of the process for the final designs by a design review panel incorporating the OVGA, and the experts' endorsement of these mechanisms, it is submitted there should be comfort that a poor design outcome will be avoided.

### **D.3.3 Western Portal Options**

161. Many submitters and the City of Melbourne have expressed strong preference for Option B which includes an improved legacy option for Childers Street as compared to Option A.
162. As noted in TN 57, the decision on the options will be made after consideration of the Committee's recommendations and the Minister for Planning's assessment of those recommendations.

### **D.3.4 Guideline for replacement of shared path on Childers Street.**

163. The Concept Design proposes that a shared path between Childers Street and the railway would be displaced into JJ Holland Park.
164. The UDS Guideline 4.2.2.6 referred to the extending and widening of the shared path. It is clear that such a guideline is in fact too prescriptive and the provision of a cycle route connecting Kensington Road and Ormond Street designed to minimise conflicts with park users, cyclists and vehicles is a more appropriate (and less prescriptive) guideline. EPR LU1 requires that the plan for the implementation of the UDS is to minimise impacts to the

operation of existing land use which would encompass minimising impacts to JJ Holland Park.

### **D.3.5 Implications on urban design of flood measures required at Arden**

165. TN 67 provided a response to the Committee's query regarding an automated floodgate for the Arden station and the urban design implications of such an option. As advised in TN 78, automatic or manual floodgates at Arden are an option in order to achieve the design requirement to protect against a flood level of 0.1% AEP plus a freeboard of 0.6m. To achieve an excellent urban design outcome at Arden station (including any floodgate that may be encompassed in the design for the station), the combined effect of:

- (a) consultation with relevant agencies including the VPA including consideration of the objectives of the *Vision and Framework Plan for Arden*), the OVGA, Melbourne Water and the City of Melbourne; and
- (b) the implementation of the requirements and strategies outlined below will ensure an excellent outcome is achieved:
  - i. the EPRs (particularly EPRs SW2, LU3 and LU4);
  - ii. the UDS including the key directions and specific guidelines regarding Arden Station at 4.3(e) of the UDS<sup>72</sup>

### **D.3.6 Parkville Station - location of entrances**

166. The Concept Design indicates the location of station entrances at Parkville at locations outside the VCCC, on the eastern side of Royal Parade north of Grattan Street, and on the north side of Grattan Street.

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<sup>72</sup> UDS, Technical Appendix M at 4.3 pages 52 to 54.

167. Of these entrances, the only controversy appears to be whether the station entrance ought to be north or south of Grattan Street.
168. The location north of Grattan Street is supported by the University of Melbourne and it has plans to integrate the station entrance with the redevelopment of the south east corner of the campus.
169. However, this location is not supported by the expert witness called by University of Melbourne, Mr McGauran, who supports relocation of the entrance to University Square.
170. Ultimately, the final design of the entrance and locations will be undertaken in consultation with the University of Melbourne and the City of Melbourne as well as the hospitals, so that the respective interests and objectives can be accommodated. The UDS Guidelines at 4.4.3e at page 59 provides guidance as to the location of station entries and seeks that they be designed as parts of key entries to the campus, while being respectful to the heritage context.

#### **D.3.7 Federation Square station entrance**

171. The Concept Design indicated the location of the station entrance between the eastern and western most shards. This location is opposed by City of Melbourne and St Paul's Cathedral, National Trust and others.
172. Work has been undertaken to demonstrate the viability of a rebuilt western shard as a station entry. The acceptability of the outcome of the station entrance will depend on the detailed design. The UDS provides sufficient guidance as to the factors that must be considered at the detailed design stage. In relation to views of St Paul's Cathedral, this issue is addressed at D.6.1.7.

#### **D.3.8 Domain Station entry**

173. There were a number of submitters who suggested locations for the Domain Station entries both on the Shrine and the Albert Road Reserve locations.



174. The UDS Guidelines at 4.7 provide direction to the resolution of the final design of these entries. They are to be as unobtrusive as possible respecting the sensitive heritage and parkland location. The submissions regarding the alternative location on the Shrine Reserve are further addressed at D.6.1.9.

### **D.3.9 Eastern Portal**

175. The key area of dispute in this location is the extent of prescription in the legacy condition of the South Yarra Siding Reserve and the Osborne Street Reserve, including Lover's Walk and connection between Toorak Road and Chapel Street.
176. Whilst Mr Schutt's Public Realm Improvement concept design may improve from the present state for the open space for Stonnington Council and the residents of the area, the extent of works is well beyond the requirements of the Project.
177. It is noted that Stonnington Council has highlighted in its submissions the dire need for public open space in its municipality, particularly to provide for the needs of residents in the Forrest Hill precinct. However, Stonnington Council has not seen fit to implement appropriate policies and planning controls to achieve the funding of the urban design outcomes it seeks for the Osborne Street Reserve. For example, Stonnington Council has not implemented a development contributions scheme on land within the Forrest Hill precinct or the area within the *Chapel reVision 2013-2031 and Chapel revision Structure Plan*. The pursuit of Mr Schutt's concept design for the Osborne Street Reserve is best characterised as an opportunistic attempt to fund the Council's wish list in respect of open space.
178. That said, it is open to a PPP bidder to include some or all of those works in its bid, and as such the design would be assessed against the UDS. However, the decision as to whether that bid would be successful will be dependent on a number of factors, including value for money and ongoing railway operational efficiency.

### **D.3.10 Design of hoardings and temporary structures**

179. Concern has been raised by many submitters about the appearance and amenity of the construction sites over the period of the works. EPR LU4 provides that the design of both permanent and temporary structures must meet the UDS as well as other considerations such as the “Growing Green Guide” and MMRA’s proposed Creative Strategy.<sup>73</sup>
180. The strategies to deal with construction impacts are to be developed in consultation with the relevant local councils and land managers. The UDS provides guidance for temporary impacts during construction at clause 3.5. A number of innovative examples were provided by Mr Jones in his evidence, and such an approach is now an accepted and commonplace expectation for major construction projects in Australia and around the world.
181. Whether the design of hoardings might reference the locations such as suggested by St Paul’s Cathedral is a matter which is open to the contractor to adopt when providing a solution that complies with the UDS.

### **D.3.11 Eastern Portal issues raised by submitters**

182. The Committee has requested an explanation of the draft urban design plan presented to residents at an information session provided by representatives of MMRA on 13 September 2016.
183. Two issues have been raised with the draft plan:
- (a) the genesis of the annotation of "reinstatement and relocation of 12 existing car parks" (raised by resident submitters 28 September 2016); and
  - (b) the location of ventilation structures.<sup>74</sup>

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<sup>73</sup> TN 73 - Creative Strategy, Document 327.

<sup>74</sup> Further submission on behalf of J. Forbes and K. Dalton, Document 293.

184. In response, MMRA confirms that MMRA representatives made a presentation to a number of residents on 13 September 2016.<sup>75</sup>
185. In relation to the relocation of the car park:
- (a) the Urban Design section of the presentation included an indicative illustration of how the legacy conditions of the eastern portal could be developed. The illustration is clearly annotated "Indicative Only";
  - (b) the illustration was an iteration prepared by Urbis in earlier urban design work undertaken by the MMRA prior to the preparation of the EES. As the Committee is aware, the urban design consultant who has the lead consultant on the UDS and presented evidence to the Committee is Mr Ron Jones. The UDS presented to the Committee remains the relevant design strategy for the Project and has not been superseded;
  - (c) the indicative illustration appears nowhere in the published EES material. The indicative illustration appears to have been included erroneously in the presentation for lack of any other "design" available at this point. The purpose of providing the indicative illustration was to provide an illustration of how the landscaped open space could be configured and designed. It was not intended, and was not presented that the indicative illustration was the final urban design outcome for the Eastern Portal;
  - (d) the final design of the legacy landscape for the Eastern Portal will be prepared in consultation with the City of Stonnington and in accordance with the UDS (EPR LU4 and SC7);
  - (e) the arrangements for the car park on Arthur Street are complicated. The existing car parking in Arthur Street is on land owned by VicTrack. It is subject to a long term lease (minimum 50 years at a peppercorn rent). The arrangement was entered into in the mid 1980's when the land over Chapel Street bridge was sold by

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A copy of the power point presentation made to the residents is Document 313.

VicTrack's predecessor to allow development of the retail premises which are located over the rail tracks facing Chapel Street. A permit requirement for 12 car spaces necessitated an accommodation to be reached to facilitate the development;

- (f) the Project requires the resumption of the Arthur Street car park land to widen the cutting to facilitate additional tracks;
- (g) the initial approach undertaken by MMRA where land is resumed is to attempt to relocate facilities which are lost, in this case car parking spaces. One way in which this could be achieved is to slide the existing car park to the west onto the acquired land. The final decision of how the Arthur Street land will be used (be it for landscaped areas or replacement car parking) is dependent on a number of "moving parts" including whether there is an obligation or desire to reinstate the car parking.
- (h) the final design of the overall landscape and open spaces at the eastern portal is yet to be designed taking into account a range of considerations including any obligation to reinstate car parking either in Arthur Street or elsewhere, and the design of the landscaping overall.

186. In relation to ventilation and other structures at the Eastern Portal:

- (a) The illustration included in the presentation on the 13th September included some "boxes" in Osborne Street which were explained as an indicative location for ventilation structures. Also indicated on the illustration is the location of the TBM launch site and an emergency egress. Initially, the design has been assumed to be 5 metres high;
- (b) Currently, as the Project continues to be refined, the aim is to design the structure as a consolidated structure at 3 m high and to co-locate it at the site of the TBM retrieval site in Osborne Street; and
- (c) Again, as noted above, the indicative illustration is annotated as "Indicative Only". The final design will be subject to a detailed

design, and part of an approved Development Plan which is to be prepared taking into account the views of the City of Stonnington and also made available for public inspection and comment under Clause 5.1.4 of the draft Incorporated Document.

#### **D.3.11 The EPRs**

187. The MMRA contends that the regime proposed under EPRs responds positively to the principles identified by MMRA at paragraph 2.11 of its opening submissions. Specifically:

- (a) The EPRs properly respond to the potential environmental impacts of Melbourne Metro on built form.
- (b) Establish appropriate benchmarks in respect of delivery of the Project and for the preparation and implementation of appropriate management plans. The EPRs respond appropriately by making provision for the development and implementation of a plan for the design of permanent and temporary works (LV1) and a plan to comply with the UDS. The EPRs allow for an appropriate degree of flexibility such that mitigations measures can be revised and refined as appropriate.
- (c) The EPRs properly provide for consultation with stakeholders and affected persons. Ongoing consultation will necessarily form an important part in informing the mitigation responses to be implemented. Ongoing consultation with the OVGA, councils, land managers and key stakeholders is expressly provided by EPRs LV1 and LV2.
- (d) The EPRs are sufficiently robust to account for changes from the Concept Design and within the Project Boundary. The UDS provides detailed design guidelines and objectives while being sufficiently flexible to respond appropriately to changes in conditions, including any modifications in the ultimate design and alignment of Melbourne Metro.

- (e) The EPRs properly acknowledge their relationship with other EPRs. The implementation of the UDS (EPR 4) and the UDS are referenced in numerous other EPRs including EPR SC7, EPR LV1 and EPR LV2.

#### **D.4 Social, Community, Land Use and Business**

*To manage the effects on the social fabric of the community in the area of the project, including with regard to land use changes, community cohesion, business functionality and access to services and facilities, especially during the construction phase.*

##### **D.4.1 Business Impacts**

- 188. Business impacts are addressed at Chapter 11 and Technical Appendix G to the EES the Melbourne Metro Business Impact Assessment, April 2016 (**the BIA**) and the evidence of Mr Terry Rawnsley.
- 189. The following Technical Notes are relevant to consideration of business impacts associated with the Project:
  - (a) TN30 Business - Response to Section 5 of the 'Preliminary Matters and Further Information' Request;
  - (b) TN45 – Business Support Plan;
  - (c) TN66 - Business Disruption which includes as Attachment A revised Business Support Guidelines (**Guidelines**).
- 190. Melbourne Metro will deliver significant benefits to Melbourne, and in particular to business, by improving connectivity and accessibility. This in turn will help to drive economic development and jobs growth and lift levels of productivity. In particular Melbourne Metro will:
  - (a) Improve connectivity and accessibility of Melbourne's main growth areas, catalysing urban renewal and opening up opportunities for businesses and for commercial development and jobs close to the city centre.
  - (b) Improve accessibility to jobs, education and other social and economic opportunities by enabling the growth and more effective use of land in Melbourne.

- (c) Improve access to and within the CBD for businesses, workers and students. Expanding the footprint of the rail network in central Melbourne beyond the limits of the existing five CBD stations will allow more people to travel to and from the CBD during the busiest travel periods.
  - (d) Improve the accessibility of four out of Melbourne's six national employment clusters: Parkville, Monash, Dandenong South and Sunshine. In particular, improving access to the Parkville education and biomedical precinct will support Australia's trajectory as a knowledge-based employment economy.
  - (e) Catalyse urban renewal in Arden–Macaulay and development by providing high quality transport connections to support planned urban renewal precincts and building new stations at Arden, Parkville and Domain. This will open up opportunities for significant commercial and residential uplift and creating opportunities to strengthen and expand Melbourne's knowledge economy.
  - (f) Improving efficiencies longer term throughout Melbourne and Victoria's regions by linking the labour force and employment growth areas to increase business profitability and draw new business investment into Melbourne and Victoria, further boosting employment and incomes.
191. While Melbourne Metro will deliver numerous benefits to businesses and catalyse urban renewal in inner city areas, construction of the Project may result in impacts to businesses, particularly businesses in close proximity to the new stations and construction sites required for the Project.
192. The EES has assessed the Project's impacts on businesses and recommended EPRs and mitigation measures to support and assist businesses during construction. Submitters have concentrated on the impacts of construction activities on their operations, and in particular have raised issues with traffic disruption and congestion, construction noise and vibration, and access to compensation.

193. When considering impacts to businesses the following should be noted:
- (a) With most construction activity taking place underground or within enclosed station boxes and acoustic sheds, the impacts on individual businesses will be primarily related to surface construction and access changes, as well as acquisition and temporary occupation of land.
  - (b) The key strategy to managing disruption to businesses will be to minimise the extent of disruption to businesses in the first place. This will be achieved by implementing the measures identified in a number of EPRs from other disciplines. Key EPRs relate to transport management, managing noise and vibration and air quality impacts. The successful implementation of the measures identified in the EPRs will minimise the impacts of construction on traffic, access and amenity and thereby minimise impacts to business.
194. As Mr Rawnsley explained, the implementation of EPR B2 will be vital in managing impacts to businesses. EPR B2 will require the preparation of a Business Disruption Plan to manage the impacts to non-acquired businesses, commercial property owners and engagement with businesses and property owners throughout the construction period. Implementing the plan will require timely communication with businesses regarding key project milestones, changes to traffic conditions and measures to ensure access is maintained.
195. MMRA recognises that it is imperative that early active engagement with businesses occur both before and during the Project to ensure that the specific operational requirements of business are understood, and that mitigation measures are appropriately targeted to minimise impacts. That work is already well under way.
196. As part of the ongoing preparation for the Project, MMRA will undertake surveys and interviews with businesses in proximity to the proposed construction sites with a view to better understanding their individual circumstances, identifying opportunities to reduce the impact of



construction, and identifying support measures that best suit their business needs. This information will also be communicated to the appointed construction contractors to inform their CSEMP.

197. Prior to commencing the relevant work, contractors will also assess the businesses that are likely to experience impacts during construction. This assessment will be based on an analysis of the proposed construction works and methodology, time of day and duration of works. The contractor will engage with businesses in the area in advance of the works commencing to outline the works and expected impacts, and offer support in accordance with the Guidelines. Businesses will also be notified about the works and expected impacts in advance of works commencing in line with specified notification timeframes.
198. The Business Disruption Plan and Guidelines will not be stand alone documents used to address business impacts, but its requirements will overlap with, or support, the measures identified in a number of other EPRs which are referred to below which will ensure the approach is multi-faceted and addresses all potential impacts. Some, but by no means all, of the potentially relevant EPRs in this regard are referred to below when responding to the various issues raised in submissions.

#### **D.4.1.1 The impacts of changed accessibility and pedestrian foot traffic arising from construction activities, particularly for businesses reliant on passing trade<sup>76</sup>**

199. As a result of construction works and altered traffic and pedestrian access routes, businesses may be affected particularly where those businesses are reliant on passing trade.

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<sup>76</sup> MM003, MM022, MM037, MM038, MM157, MM357, MM186, MM178, MM147, MM166, MM182, MM186, MM221, MM195, MM224, MM326, MM372.

200. This impact will be principally addressed through EPR B2 and the Business Disruption Plan and the Guidelines. The specific measures to be included in the Business Disruption Plan include plans for notifying customers of proposed changes to business operations and measures to ensure access to business is maintained, with recommended mitigation measures including the development of way finding programs to establish pedestrian access patterns. EPR T1 is also relevant here, and requires the preparation of Transport Management Plan(s) (TMPs) that will minimise disruptions to pedestrian movements during construction. The TMP(s) will be required to provide suitable routes for pedestrians to maintain connectivity and safety for roads and shared paths.

#### **D.4.1.2 The impacts of increased traffic due to construction traffic and changes to the road network<sup>77</sup>**

201. The impacts of increased traffic on business operations was raised by submitters in a number of precincts, particularly in Parkville and Domain where closures of roads in whole or part and restrictions to access are proposed.
202. The TMP(s) required by EPR T1 will be crucial for minimising traffic changes during construction and will seek to manage full or partial closure of traffic lanes and identify potential routes for construction vehicles, recognising sensitive receptors. The TMP(s) will also require measures to address parking for construction workers where practicable, including measures to prevent to the extent practicable construction workers parking in on street spaces unless it can be demonstrated there is adequate on-street supply.
203. EPR T4 will require the development and implementation of the TDM Strategy to promote transport behaviour changes in response to road

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<sup>77</sup> MM308, MM318, MM335, MM231, MM166, MM365, MM061, MM260, MM367, MM277, MM357.

modifications and to reduce traffic congestion around construction sites. As described in the expert witness statement of Ms McArthur, TDM has been successfully deployed in numerous major construction projects and during major events, thereby minimising travel demand impacts during periods where there has been disruption.

204. In addition to these transport-specific EPRs, the Business Disruption Plan and the operation of the Guidelines required by EPR B2 will ensure that businesses are given timely notification of altered traffic conditions, and provided with a project construction schedule developed in consultation with businesses and transport authorities. This will provide businesses with the opportunity to plan their activities so as to minimise disruption to their business by activities which are likely to be particularly disruptive.

**D.4.1.3 The impacts of changed amenity, including noise and vibration and dust as a result of proximate construction activities<sup>78</sup>**

205. Submitters have expressed concern regarding the impacts of changed amenity on business operations, particularly for those in close proximity to construction work sites in Parkville, CBD North and CBD South.
206. These impacts will principally be addressed through the EPRs that address noise and vibration and air quality. Key requirements in this regard include the development and implementation of dust management and monitoring plans (EPR AQ1), obligations to manage construction activities to minimise dust and emissions (EPR AQ2) and the requirement to develop and implement a CNVMP to identify sensitive receivers and the measures to manage impacts (EPR NV1) and EPR NVB. These submissions at D5 address amenity considerations.
207. EPR B3 requires consultation with potentially impacted businesses prior to construction and the preparation of management plans to minimise dust,

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<sup>78</sup> MM037, MM038, MM237, MM357, MM186, MM224, MM236, MM281, MM297, MM317, MM365, MM186, MM104, MM325, MM339, MM264, MM104.

noise and vibration in accordance with the above EPRs. Communication plans with affected community stakeholders and land owners regarding potential noise and vibration impacts (including a complaints management process) is required by EPR NV4.

208. The Business Disruption Plan required by EPR B2 will also manage the impacts of construction on non-acquired businesses.

#### **D.4.1.4 Impacts of construction on public events<sup>79</sup>**

209. As explained in Mr Rawnsley's expert witness statement, public events will be managed during the course of construction in accordance with the combined effects of a number of EPRs:

- (a) EPR T4 requiring the development and implementation of a TDM strategy. This Strategy will include consideration of demand for various transport options including road, bicycle, pedestrian and public transport and be the tool for managing travel behaviour for major public events. Engagement with Councils, educational facilities and other key stakeholders during the development, implementation and monitoring of the TDM Strategy is a requirement of EPR T4. This will ensure that issues such as key public events are taken into account during the development and implementation of the TDM Strategy.
- (b) EPR SC3 requiring the preparation of the CSEMP.
- (c) EPR SC5 requiring specific attention to coordination with local councils and key stakeholders during major public events, including the timely provision of construction schedules and any changes to schedules that may impact upon public events, and the consideration of appropriate alternative sites and routes for events and parades.

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<sup>79</sup>

MM178, MM180, MM365 and MM367.

- (d) EPR LU1 which requires the preparation of a plan for the construction and operation of Melbourne Metro that has the purpose of minimising impacts to the operation of existing land uses, including minimising impacts to existing public open space and recreational facilities and users of those facilities. These facilities include key tourist and recreational areas such as Federation Square and the Shrine of Remembrance.

210. It was the evidence of Mr Nagle, the City of Melbourne's Business and Tourism Manager, that the EPRs were consistent with his expectations of the types of actions and activities that would be of assistance to business within the City of Melbourne, and that it was sensible for MMRA to partner with the Council and other existing entities to provide relevant business support.

**D.4.1.5 The impacts of construction activities for the Parkville medical and research precinct, including potential impacts on emergency access, specialised research and sensitive equipment.<sup>80</sup>**

211. There are a number of EPRs directed to these issues including EPR NV10, which establishes Guideline Targets for vibration-sensitive equipment, EPR B4, requiring vehicle and pedestrian access to hospital emergency departures to be maintained at all times and EPR B3, requiring consultation with potentially impacted businesses in preparing management plans to minimise dust, noise and vibration.

212. In recognition of the specialised nature of the facilities in the Parkville precinct, the BIA proposed a management measure to establish a consultation group including all major health care and research institutions to meet at regular intervals.

213. Since the publication of the EES, the PPRG has been established and has held two meetings.<sup>81</sup> Members of the PPRG include the Royal Melbourne

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<sup>80</sup> MM308, MM191, MM318.

<sup>81</sup> See TN44: Parkville Precinct Reference Group, part of Document 21.

Hospital and the University of Melbourne. It is envisaged that the PPRG will perform a number of roles, most importantly providing a forum for information sharing, advice from those institutions to contractors about proposed mitigation measures to achieve the EPR, and information from contractors to the institutions about construction works and timing. However, the PPRG will not detract from the ongoing consultation and information sharing between affected stakeholders (such as University of Melbourne and Graduate House).

214. In relation to specific mitigation measures for addressing the impacts of noise and vibration in this precinct and in particular the impacts on sensitive equipment, this is a matter addressed in the submissions on noise and vibration at D.5.3.

#### **D.4.1.6 Impacts related to acquisition and relocation<sup>82</sup>**

215. Numerous submissions have raised issues regarding potential acquisition of businesses and relocation of businesses.
216. As a starting point, EPR B1 requires that the disruption to businesses from direct acquisition or temporary disruption of land should be reduced and that there should be work with businesses and landowners to endeavour to reach agreement on the terms for possession of acquired land.
217. Businesses which are located on land in respect of which an interest in land has been compulsorily acquired for the purpose of the Project have statutory entitlements to compensation under the LACA.
218. Where Melbourne Metro requires land acquisition, temporary occupation or affects physical access to a property with the result that there is no longer adequate access to the property, compensation will be provided in accordance with the LACA and the MTPFA.

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<sup>82</sup>

MM084, MM130, MM131, MM132, MM163, MM186

219. Losses which are the natural, direct and reasonable consequence of an acquisition of, or diminishment of or divestment of an acquisition of an interest in land, are typically compensable under the compensation category of ‘loss attributable to disturbance’.<sup>83</sup>
220. In relation to mitigating the impacts on non-acquired businesses,<sup>84</sup> this is a matter which will be managed through EPR B2 by implementation of the Business Disruption Plan described above.

#### **D.4.1.7 Compensation for businesses affected by construction activity<sup>85</sup>**

221. A number of submitters have submitted that there should be compensation made available to businesses who suffer impacts to their business during the course of construction of the Project.
222. The following points are made in response to these submissions:
- (a) A compensation regime for businesses that suffer loss as a result construction works associated with the Project, but are not acquired, does not exist in Victoria. Such a scheme has not been implemented on previous major construction projects in Australia, and would be a matter of public policy – to be determined by the Victorian Government.
  - (b) The CBD construction sites proposed for Melbourne Metro are considered akin to large private CBD developments or the development of major projects in recent times, such as Myer Emporium and the Victorian Comprehensive Cancer Centre. Each of these projects has involved construction over a lengthy period, with

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<sup>83</sup> See ss 40 and 41(1)(d) of the LACA.

<sup>84</sup> In the Arden precinct, submitters have submitted that displaced businesses provide services that are crucial to the operation of a non-acquired business (see for example MM357). In CBD South, the acquisition of adjoining properties between the Young & Jackson and the Nicholas building could impact on pedestrian flows impacting retail tenants (see for example submission MM186).

<sup>85</sup> See for example MM003.

impacts on surrounding businesses and educational facilities including from noise, dust and traffic disruption. However, none of those projects have implemented compensation regimes for affected businesses. That is not surprising because major construction sites are expected to be encountered in a major city as it evolves and renews over time. MMRA is not aware of any other major construction project (whether private or undertaken by the State) which has contemplated, let alone prepared and implemented, a compensation regime for potentially affected businesses.

- (c) EPRs B1 to B5, in combination with a number of other EPRs directed to mitigating noise, vibration, transport and air quality impacts, are directed to minimising disruption to businesses in close proximity to construction sites and activities. Contractors delivering works on behalf of MMRA will be required to minimise disruption to the community, including businesses located in proximity to the works. Contractors will be required to prepare a suite of plans prior to main works and shaft construction to advise how they will manage disruption including TMP (s) (EPR T1), Business Disruption Plans (EPR B2), and the CSEMP (EPR SC3).
- (d) The Guidelines provide strategies which may be applied to specific businesses include such things as ‘open for business’ signage, local advertising and encouraging contractor staff to ‘shop local’. Other strategies to support impacted businesses may be offered such as small business mentoring, upskilling and commercial advice, website and other advertising development and advice.

#### **D.4.1.8 Industrial businesses in the Arden precinct expressed concern about their long-term operation in light of the changing land uses<sup>86</sup>**



223. A number of submitters expressed concerns regarding their long-term operation in light of surrounding changes to land use in the Arden area. This is a matter which is not related entirely to the Project given the changing land use in the Arden-Macaulay area in recent years.
224. Mr Rawnsley recommended, and the MMRA accepted, a change to EPR LU3 to ensure that a plan will be developed and implemented for the design and construction of Arden Station which will adopt an integrated approach to urban design and planning of the station that is generally in accordance with the draft Vision and Framework Plan for Arden (prepared by VPA). The implementation of this measure will ensure that the planning for Arden Station is generally in accord with the urban design aspirations and planning for this major urban renewal area.

#### **D.4.1.9 The Business Support Guidelines for Construction**

225. Technical Note 45 - Business Support Plan outlines the approach that will be adopted by the MMRA to address impacts on businesses, and includes as an Appendix the Draft Guidelines. TN 66 provides an updated version of the draft Guidelines as Attachment A.<sup>87</sup>
226. The Guidelines outline the proactive measures and support services that may be delivered to support businesses that experience impacts during construction of the Project. The Guidelines apply to businesses which are identified as being adversely impacted due to the proximity of construction works. ▽
227. The Guidelines do not create entitlements for businesses affected by the Project. Rather, their intended purpose is to provide a framework for the Project's contractors to address residual impacts on businesses so far as is reasonably practicable. That framework includes the complementary

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<sup>87</sup>

TN 66: 'Response to the matters for further consideration and/or clarification request dated 12 September 2016 (xi) Technical Notes', Document 255.

Construction Management Plans, TMP(s) and other mitigation measures developed by the appointed contractors.

228. The Appendix to the Guidelines describes the process for implementing the Guidelines. Responsibility for implementation of the Guidelines will rest with the contractors with oversight by MMRA. The contractors will be required to develop and implement a Business Disruption Plan which includes measures to support businesses during construction and engage with businesses throughout construction of the Project in accordance with the Guidelines.
229. The contractors will be expected by MMRA to undertake regular inspections of works to assess the effectiveness of mitigation measures in place and determine whether further mitigation or support measures are required for affected businesses.
230. Key aspects of the Guidelines and MMRA's approach to business support include:
  - (a) Specification of the eligibility criteria for support measures provided under the Guidelines.
  - (b) An outline of available support measures for businesses including:
    - i. Engagement measures including works notifications providing early warning of high impact activities.
    - ii. Promotion and marketing activities to encourage awareness and patronage of businesses located in proximity to construction sites.
    - iii. Activation of areas affected by construction activity. This measure could be co-ordinated with the implementation of the MMRA's Creative Strategy<sup>88</sup> and the implementation of the Urban Design Strategy.

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<sup>88</sup>

TN73 – Creative Strategy, Document 327.

- iv. The formation of partnerships between the appointed contractor, local councils, events, festivals and tourism organisations.
- v. Opportunities to participate in educational programs directed to upskilling of businesses.
- vi. Identified communication channels between the MMRA, case management support workers and businesses.
- vii. Dispute resolution procedures.<sup>89</sup>

#### **D.4.2.1 Social Impact**

- 231. It is inevitable that a project of the scale, nature and duration of Melbourne Metro will impact upon communities in proximity to construction areas in a range of ways. These impacts will largely be experienced during the construction period, but nonetheless they need to be carefully managed so as to mitigate impacts on the community during construction.
- 232. It is worth noting that although there will be social and community impacts experienced throughout the construction phase of the Project, the majority of the submissions received commented that they supported the Project. It has been accepted by submitters that the Melbourne Metro would offer benefits to the wider users of the transport network through the increase in rail capacity enabling the community to continue accessing employment, social infrastructure, recreational facilities and social networks and improving the public transport network.
- 233. A further matter which bears emphasis relates to modifications to the Concept Design. Subsequent to the exhibition of the EES a number of modifications to the Concept Design have occurred which have the effect of substantially reducing the social impacts associated with the Project. Key modifications in this regard include:

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<sup>89</sup> TN 66 – Business Disruption, Document 252.

- (a) The removal of the TBM launch site from Fawkner Park. This has significant positive social impact benefits. Significant impacts associated with the location of the TBM launch site and construction activities on the Fawkner Park Child Care Centre as well as loss of public open space and tree removal will now be avoided;
  - (b) Removal of the Emergency Access Shafts from the Concept Design at Fawkner Park. This will ensure there will be no surface intrusions into, and loss of vegetation within, Fawkner Park. This also has significant social impact benefits, as the park is a landscape which has significant value to the community;
  - (c) Removal of permanent infrastructure associated with the Linlithgow EAS (only a temporary access shaft during construction will now be required); and
  - (d) Removal of the 'over CityLink' tunnel option.<sup>90</sup>
234. The EES has assessed the social and community impacts of the Project. The Social and Community Impact Assessment for the Project can be found in Chapter 10 and Technical Appendix F 'Social and Community Impact Assessment' to the EES.
235. The MMRA relies upon the expert evidence of Mr Tim Offor and Mr Owen Boushel in support of its submissions on this issue.
236. The following Technical Notes are relevant to the assessment of social and community impact:
- (a) TN2 - Public Off-Street Parking Facilities within the Parkville Precinct;<sup>91</sup>
  - (b) TN7 - Structures at which protective measures may be required;<sup>92</sup>

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<sup>90</sup> TN 65 – Domain Parklands St Kilda, Document 254.

<sup>91</sup> Part of Document 3.

<sup>92</sup> Part of Document 3.

- (c) TN9 - Western Portal Option A - Construction of a temporary access ramp for the Lloyd Street Business Park between Tennyson Street and McClure Road;<sup>93</sup>
- (d) TN10 - Additional construction area in Franklin Street (East) between Swanston Street and Victoria Street;<sup>94</sup>
- (e) TN 12 - Franklin Street Legacy Condition;<sup>95</sup>
- (f) TN13 - Additional Construction Areas in Flinders Street and Federation Square;<sup>96</sup>
- (g) TN14 - CBD South Station Entrance: Properties located at 65 and 67-73 Swanston Street no longer required as potential station entrance;<sup>97</sup>
- (h) TN 15 - Additional Construction Areas in Domain;<sup>98</sup>
- (i) TN16 - Modification - Removal of the Fawkner Park TBM southern launch site;<sup>99</sup>
- (j) TN17 - Service Structures Within Albert Road;<sup>100</sup>
- (k) TN18 - Clarification of Construction Timeframes at the Eastern Portal;<sup>101</sup>
- (l) TN24 - Revised station cavern construction methodology.<sup>102</sup>

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<sup>93</sup> Part of Document 3.

<sup>94</sup> Part of Document 3.

<sup>95</sup> Part of Document 3.

<sup>96</sup> Part of Document 3.

<sup>97</sup> Part of Document 3.

<sup>98</sup> Part of Document 3.

<sup>99</sup> Part of Document 3.

<sup>100</sup> Part of Document 3.

<sup>101</sup> Part of Document 3.

<sup>102</sup> Document 7.

237. The impact assessment considered amenity impact during construction due to noise, vibration, and dust as well as changes to landscape. The Project also has a potential to affect existing community access patterns and networks via changes to the road network, pedestrian movements, car parking and truck movements through the community. Communities will be directly affected by construction work and permanent and temporary acquisition of residential and community land (such as parklands and city spaces).
238. The key social impacts of Melbourne Metro will arise during construction and are associated with:
- (a) the disruption and fragmentation of communities during the construction of the Project, particularly as a result of the acquisition of residential and commercial properties;
  - (b) the closure of Grattan and Franklin Streets and reducing the lanes on St Kilda Road and diverting public transport services around construction areas; and
  - (c) the occupation of public open space at Domain Parklands, University Square, City Square and Federation Square. Some people would also be disturbed for limited periods of time by ground-borne noise and vibration from tunnelling activities and the excavation of stations in the Parkville, CBD North and CBD South station precincts.
239. The proposed measures to address the identified impacts are set out in the recommended EPRs during the course of the Committee's hearings.
240. The key EPR in this regard which will provide the overarching framework for community and stakeholder engagement is SC3. EPR SC3 will require the development and implementation of the CSEMP which will identify the manner in which affected stakeholders including residents, educational institutions and businesses will be kept informed of planned construction activities, progress of the Project, mitigation measures and reinstatement measures (as applicable).

241. Continued access to services and facilities during the construction phase would be managed through the traffic management, business disruption and community and business involvement plans required by the recommended Environmental Performance Requirements. The need to maintain access to emergency and medical services in the Parkville precinct has been a key input to the development and design of Melbourne Metro.
242. Melbourne Metro's Sustainability Vision and Sustainability Policy which will guide the implementation of sustainability in the delivery of Melbourne Metro is relevant to social impact. MMRA has developed a Sustainability Strategy (the Strategy) which details commitments under three broad themes; environmental, social and economic. Details of the Strategy are outlined in TN77 Melbourne Metro Sustainability Targets.
243. The Strategy includes nine key Sustainability Targets that will be delivered by MMRA and contractors which address the key sustainability focus areas of social, economic and environmental themes. Melbourne Metro's Sustainability Targets will be implemented by EPR G1.
244. In relation to the target relating to communities, the Strategy seeks to positively influence communities through targeted programs designed to achieve positive social outcomes and ensuring impacted stakeholders and the broader public have opportunities to be involved in the Project. In doing so, a holistic approach will be taken to improving community interfaces by placing greater focus on urban design, culture, community resilience and wellbeing, the supply chain and engagement.
245. To implement the Strategy a number of measures and initiatives are identified including:
- (a) Implement initiatives that generate positive social outcomes to strengthen the economic, social and environmental well-being of the community.
  - (b) Support the State's commitment to social procurement by implementing strategic procurement practices to generate social benefits beyond the products and services required.

- (c) Identify places of historical and cultural significance and minimise adverse impacts during construction and operation, develop and implement an interpretation plan that details initiatives to celebrate cultural connections and local identity.
  - (d) Implement an independent design review process that enables technical experts to address key urban design aspects of connectivity, accessibility, safety and identity.
  - (e) Provide timely and relevant information to the community on milestones, Project designs and construction impacts, proactively identify and communicate opportunities for the community to participate in Project planning and delivery.
246. Relevant EPRs for the delivery of these targets include LU4, CH6, CH7, NV4 and SC3. The implementation of the Sustainability Targets and Sustainability Strategy will achieve positive social outcomes and will assist in mitigation impacts of the Project on stakeholders and the broader public.
247. Submissions relating to social and community impacts have focussed on the following key issues which are addressed below.

#### **D.4.2.2 Stress and anxiety**

248. Submissions by residents and business owners have included statements about stress and anxiety which they attributed to their concerns about the impacts of the Project, for themselves and for others.<sup>103</sup> There have been further submissions made to the Committee which have conveyed the emotional impacts experienced by submitters associated with the Project. Some, but by no means all, of the submissions to the Committee canvassing the emotional impact of the Project include the submissions made by: residents in the vicinity of the Eastern Portal including Mr Forbes and Ms

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<sup>103</sup> MM330, MM309, MM265, MM190, MM156, MM117. See also, as examples, submissions by residents in Documents 198 (N and R Hutchins); 219 (M and R Mordaunt) and 191 (F. Reed).



Dalton,<sup>104</sup> Mr and Mrs Hutchins,<sup>105</sup> Mr N Thomas<sup>106</sup> and Mr and Mrs Allgood;<sup>107</sup> residents in the Domain precinct including Ms F Reed<sup>108</sup> and Mr J. Hayton;<sup>109</sup> in the Tunnel Precinct and in particular in North Melbourne: Mr and Mrs Mordaunt,<sup>110</sup> Ms A. Williams<sup>111</sup> and the Dusanovic family<sup>112</sup> and at the Western Portal: the South Kensington Residents' Group and others.<sup>113</sup> The MMRA does not dismiss or seek to downplay the concerns conveyed by these submitters and accepts the submissions for what they are – the often heartfelt concerns of community members and an expression of their fears and feelings as to the impact that the Project will have on their lives.

249. MMRA recognises that some communities may be experiencing the cumulative effects associated with multiple infrastructure projects and planning processes affecting their community. The North Melbourne area is particularly noteworthy in this context, with residents whose interests have been affected by the following infrastructure projects and processes in the last 4 years: the East West Link Comprehensive Impact Assessment; Amendment C190: Arden Macaulay Structure Plan; Amendment C196: the City-North Structure Plan; Amendment C198: City North Heritage Review; Amendment C207: Arden-Macaulay Heritage Review; the consultation regarding the Inner Melbourne Action Plan, Consultation regarding the Queen Victoria Market Precinct consultation and the forthcoming Western

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<sup>104</sup> Documents 115 and 116.

<sup>105</sup> Document 209.

<sup>106</sup> Document 200.

<sup>107</sup> Document 201.

<sup>108</sup> Document 191.

<sup>109</sup> Document 188.

<sup>110</sup> Submitter 203, Document 219.

<sup>111</sup> Document s 220 and 221.

<sup>112</sup> Documents 223 and 224.

<sup>113</sup> See Documents 214, 215, 216.

Distributor Project. Similarly, residents in Kensington have been affected by the East West Link, Melbourne Metro and the Western Distributor Project. Viewed in this context, it is perhaps unsurprising that a number of submitters have expressed anxiety, stress, perceptions of being ‘under siege’ and consultation fatigue.

250. As noted in Mr Offor’s evidence, a person’s internal state (genetic, physiological, psychological, life style) will impact on their sensitivity to environmental stressors. Consequently, the impact of these stressors will not be the same for everyone. This differential response must be taken into account when designing the social mitigation framework, including relocation management, for managing the social impact of the Project.<sup>114</sup>
251. The MMRA accepts that during the project planning and approval stage for the Project it will be essential that those most affected by the Project are kept well informed about matters of interest to them. In particular, MMRA acknowledges that uncertainty about process, progress and dispute resolution procedures will exacerbate people’s stress and anxiety.
252. The Committee has been informed throughout the hearing of the considerable attempts undertaken by MMRA via its precinct managers and communications team to disseminate information and to consult with affected stakeholders. This is not a Project where the MMRA and its representatives could be characterised as having been unresponsive, inattentive or dismissive of the concerns raised by submitters. Viewed objectively, the Committee should be satisfied that while there have been isolated issues raised by a number of submitters, overall the extent of consultation has been pro-active, responsive and professional.
253. Importantly, efforts to engage with stakeholders will not cease once the EES process has been completed. The MMRA has a commitment to ongoing communication with affected stakeholders with a view to lessening the

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<sup>114</sup>

Evidence of Mr Offor at pages 18-19.

impacts of the Project. The MMRA's commitment to ongoing communication will be formalised in the CSEMP (EPR SC3).

254. In response to submissions, particularly those regarding stress and anxiety, and following recommendations made in the evidence of Mr Offor, a number of amendments have been made to the EPRs to make positive contributions to addressing the levels of stress and anxiety experienced by the community during the Project. That is not to say that the EPRs are a panacea for all stress and anxiety that may be experienced by the community during the course of the Project. Rather, it will be the combined effect of the successful implementation of the mitigation measures identified in numerous EPRs which will cumulatively address and mitigate to a reasonable and acceptable level the impacts associated with the Project.
255. Key measures which will be implemented through the EPRs (in addition to those measures directed to addressing technical aspects of the Project such as noise, vibration and traffic) which are directed to mitigating stress and anxiety to stakeholders include:
- (a) The development and implementation of a responsive communication and issues management and resolution process. This will be implemented through the CSEMP required by EPR SC3;
  - (b) Requiring that disruption to residences from direct acquisition or temporary occupation is reduced by measures, including case management and addressing special needs and relative vulnerabilities of residents (EPR SC1);
  - (c) The development of a relocation management framework where households subject to construction activities are likely to unduly affect their amenity and loss of access. The relocation management framework will respond to the RIMG<sup>115</sup> and also contemplates relocation being available in 'special

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<sup>115</sup>

See TN 43 – Draft Residential Impact Mitigation Guidelines for Construction, Document 21.

circumstances' to cover people who are particularly vulnerable to the effects of noise and vibration;

- (d) In relation to impacts to business, the development and implementation of a Business Disruption Plan which will include measures for communicating with affected businesses, measures for supporting affected businesses and a process for registering, management and resolution of complaints (EPR B2).

#### **D.4.2.3 Community cohesion**

- 256. Community impacts associated with compulsory acquisition were referred to by submissions addressing the Western Portal Concept Design<sup>116</sup> with concerns raised that the school community would be affected by any loss of families. Other individual submissions raised similar issues.<sup>117</sup>
- 257. MMRA accepts that community cohesion can be impacted both negatively and positively by a major infrastructure project. For example, in the case of the Fawkner Park Children's Centre the impacts were clearly negative and enduring if the centre were to close and children dispersed to other centres. The social impacts on the community was one of the principle reasons that the TBM launch site in Fawkner Park was removed from the Concept Design.
- 258. MMRA accepts that for the Kensington community, if the Concept Design (Option A) were to be implemented and properties compulsorily acquired – assuming that the families were not re-housed in the same community – there would be negative impacts from the loss of families and the potential for the severing of neighbour relationships.

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<sup>116</sup> MM50, MM93, MM122-A, MM124, MM156, MM230, MM239, MM238

<sup>117</sup> MM15, MM87, MM148, MM355

#### **D.4.2.4 Noise associated with construction and operation of the Project**

259. Construction noise is one of the most challenging social impacts associated with the Project to manage. Individuals react to noise in different ways, and their reactions may differ depending on their circumstances. As Mr Offor noted in his statement:

The experience of noise is highly subjective and modulated by emotions and input from other senses (e.g. sight), whilst the measurement and modelling of noise is very technical and difficult to comprehend for non-specialists. Bringing these two very different elements together in a manner that enables an informed, objective discussion of the expected experience of noise is very challenging.<sup>118</sup>

260. Noise is a very frequently cited issue of concern in submissions. The implications of noise from construction activities,<sup>119</sup> and trucks associated with the Project,<sup>120</sup> particularly the noise from trucks and traffic generally on neighbourhood roads,<sup>121</sup> are raised in submissions relating to all precincts. In relation to specific precincts:

- (a) At the Western Portal, construction noise and vibration were the subject of extensive submissions, and the impacts of noise and vibration on residents has been bundled together and advanced as one of the key reasons by many submitters to select Option B for the Western Portal;<sup>122</sup>
- (b) Operational noise has been raised as a concern by submitters in the Western Portal<sup>123</sup> and Tunnel precincts.<sup>124</sup> In relation to the Western Portal, concerns about operational noise related to increased rail traffic and the possibility of increased noise

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<sup>118</sup> Expert witness statement of Mr Tim Offor at page 10.

<sup>119</sup> MM268, MM135, MM170

<sup>120</sup> MM115, MM230, MM354

<sup>121</sup> MM74, MM124

<sup>122</sup> MM293, MM282, MM179, MM169, MM238

<sup>123</sup> MM122-A, MM239

<sup>124</sup> MM95-A, MM129

associated with trains entering/leaving the tunnel portal and along the rail easement.<sup>125</sup> The potential for increased operating noise is one of a number of arguments (including heritage considerations, fewer residential properties to acquire) advanced by submitters in favour of Option B for the portal location;

- (c) Submissions regarding the Arden precinct raised concerns about construction noise impacts on adjoining properties.<sup>126</sup> In particular residents along truck routes raised concerns about increased noise from trucks;<sup>127</sup>
- (d) Concerns raised in submissions relating to the Tunnel precinct<sup>128</sup> were that there may be operational noise from trains using the tunnels with some submitters, particularly those from the North Melbourne area, proposing the solution of a deeper tunnel having particular regard to a 40-50m deep tunnels, proposed (but not yet approved) at Oran Park, in New South Wales;
- (e) At Parkville, Melbourne Health expressed a view that noise and vibration impacts, in terms of human comfort, may be more significant than specified in the EES given the “acute and complex nature of patients treated across Parkville;”<sup>129</sup>
- (f) For the CBD North and South precincts, residents and commercial operators raised concerns about noise impacts.<sup>130</sup> RMIT raised concerns about the baseline measurements and the

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<sup>125</sup> MM314

<sup>126</sup> MM377, MM170

<sup>127</sup> MM115, MM305, MM49

<sup>128</sup> MM95-A

<sup>129</sup> MM308.

<sup>130</sup> MM304, MM222, MM186, MM178, MM117, MM281, MM372. See also, for example submissions on behalf of ALE Property Group and Australian Leisure and Hospitality Group regarding Young & Jackson Hotel (Document 294); Lailee Pty Ltd (Document 309).

degree to which impacts on amenity and functionality for educational use had been taken into account.<sup>131</sup> The Westin Hotel submitted that they consider the noise and vibration criteria to be appropriate - but that monitoring of performance against these criteria should be undertaken by an independent agent;<sup>132</sup>

(g) In relation to the Domain precinct, most submissions relating to Domain Station works raise noise concerns and the impact that elevated levels of noise will have on their amenity.<sup>133</sup> MGS is concerned that classrooms were not included as sensitive areas, and expresses concerns about the amenity of staff and students during construction.<sup>134</sup> Ramsay Health Care raised specific concerns about the impact that elevated noise levels could have on their patients;<sup>135</sup> and

(h) Submissions regarding the Eastern Portal raise concerns about construction noise and in particular noise from trucks servicing the Project.<sup>136</sup>

261. From a technical perspective the issue of noise mitigation has been addressed in the EES, the expert witness statements of Mr Anderson and Dr Heilig (for construction ground borne noise) and in these submissions at section D.5.3. The noise-related EPRs provide the appropriate regime for addressing the technical performance aspects of the project. However, MMRA acknowledges that successful management of noise impacts will

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<sup>131</sup> MM180.

<sup>132</sup> MM310.

<sup>133</sup> MM343, MM330, MM290, MM267.

<sup>134</sup> MM367; Submission on behalf of Melbourne Grammar School to the Committee Document 237.

<sup>135</sup> MM295.

<sup>136</sup> MM352, MM354, MM266.

require actions to address the factors that may influence levels of annoyance to noise generated by the construction and operation of the Project.

262. From a social impact perspective, the key measures for addressing noise mitigation are:

- (a) EPR SC2 which will require a relocation management framework which is to respond to the RIMG. A number of submissions have questioned the lack of detail regarding the relocation management framework.<sup>137</sup>MMRA acknowledges the desirability of ensuring that a clear framework for managing potential relocation of households is developed at an early stage in the Project. It is for this reason that EPR SC2 requires the development of the framework prior to main works and shaft construction.
- (b) EPR SC3 which will require the contractor to develop and implement a CSEMP which will require engagement with affected stakeholders and measures to minimise impacts of the Project.
- (c) NV3 which will require the contractor to predict construction noise and vibration levels so as to inform the appropriate mitigation measures under the EPRs.
- (d) NV4 which will require a communications plan to liaise with potentially affected community stakeholders and landowner regarding potential noise and vibration impacts.
- (e) NV5 which will establish target internal noise levels and requirements the implementation of management actions if targets are not achieved.

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MM370, MM330, MM290, MM354



- (f) NV11 which will establish ground borne noise guideline targets for amenity and requires the implementation of management actions if the identified targets are not achieved.
- (g) NV14 which will require the preparation of an Operation and Vibration Report which documents predictions regarding noise and vibration and determines appropriate mitigation measures.
- (h) New NVB which will require the preparation of the CNVMP which outlines the processes for modelling, predicting and managing construction noise and vibration.
- (i) The impact of operational noise will be addressed by the implementation of EPR NV17, which proposes ground-borne noise guideline targets and provides that where the operational ground-borne noise target levels are predicted to be exceeded for sensitive occupancies (which include residential land use and schools and educational institutions), the assessment of feasible and reasonable mitigation measures to reduce noise towards the relevant ground-borne noise trigger level will be required.

#### **D.4.2.5 Vibration during construction and operation of the Project**

263. Vibration and noise during construction have typically been referred to in submissions together. Unlike noise, the concerns expressed by submitters regarding vibration relate both to its possible annoyance value<sup>138</sup> and also its possible impact on building integrity.<sup>139</sup> Many submissions have raised concerns regarding the impact of vibration on heritage buildings,<sup>140</sup> and this

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<sup>138</sup> MM370, 371, 372

<sup>139</sup> MM374, MM159

<sup>140</sup> MM365, MM159, MM365, MM274

matter is addressed in these submissions at D.6.1.1. Many submitters have asked for assessments of building integrity before any works commence.<sup>141</sup>

264. Like noise, personal experience of vibration can be highly subjective. The technical assessments addressing vibration may be difficult to understand for many submitters and this is a particularly technical area. To the extent that submitters have raised issues regarding the adequacy of modelling and investigations, the MMRA refers to section D.5.3 of these submissions.
265. The key EPRs for managing the social impacts of construction vibration are:
- (a) NV3 which will require the prediction of construction noise and vibration so as to inform the appropriate mitigation measures under the EPRs;
  - (b) NV4 which will require a communications plan to liaise with potentially affected community stakeholders and landowner regarding potential noise and vibration impacts;
  - (c) NV6 which will establish vibration targets for structures and require the implementation of management actions if targets are not achieved.
  - (d) NV9 which proposes Vibration Dose Values for human comfort and requires the implementation of management actions if the identified targets are not achieved.
  - (e) NV14 which will require the preparation of an Operation Noise and Vibration Report which documents predictions regarding noise and vibration and determines appropriate mitigation measures.
  - (f) A new NVB which will require the preparation of the CNVMP which outlines the processes for modelling, predicting and managing construction noise and vibration.

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MM178, MM356, MM285, MM266, MM240, MM178. See for example submissions to the Committee in Documents 219 (N and R Mordaunt), 246 (Z and M Cassar); 220 (A. Williams).

- (g) GM4 which will require pre-construction conditions surveys for assets predicted to be affected by ground movement (under EPR GM3) and for these to be shared proactively with property owners.

266. In relation to operational vibration, submissions from along the tunnel route raised concerns about feeling vibrations from trains passing below their properties<sup>142</sup> and/or their properties being damaged by operating vibration.<sup>143</sup> These were mostly from the North Melbourne section of the route<sup>144</sup> but also from the Domain Precinct<sup>145</sup> and Eastern Portal.<sup>146</sup> In addition to the EPRs referred to in the preceding paragraph, EPR NV18, which requires operation of the Project to achieve the specified Guideline Targets or background levels (whichever is higher), will ensure that operational vibration is managed appropriately.

#### **D.4.2.6 Potential for the Project to damage property**

267. Many submissions raise concerns about the potential for the Project (through vibration or ground movement) to damage property. The concerns raised by submitters relate to both tunnelling<sup>147</sup> and also station excavation works<sup>148</sup> across most precincts. Concerns relate to both residences and public buildings, some of which are heritage places.

268. Numerous submitters have requested that pre-condition assessments be undertaken of their properties.<sup>149</sup> The procedures for setting limits for vibration and for determining predictions regarding vibration, applicable

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<sup>142</sup> MM370, MM129, MM155, MM228.

<sup>143</sup> MM129, MM135.

<sup>144</sup> MM129, MM299, MM300, MM285; See also the submissions by a number of North Melbourne residents to the Committee: Documents 218-225.

<sup>145</sup> MM370, MM367, MM240, MM135.

<sup>146</sup> MM358.

<sup>147</sup> MM159, MM339, MM348, MM95-A.

<sup>148</sup> MM135, MM370, MM155, MM25, MM325, MM289, MM283, MM186.

<sup>149</sup> MM95-A.

limits and appropriate mitigation measures are identified in EPR NV3, NV6, NV14 and New NVB requiring the development and implementation of a CNVMP. Acceptability criteria for ground movement will be established by the plan specified by EPR GM3. EPR GM4 will require that pre-construction condition surveys for assets predicted to be affected by ground movement will be conducted where properties are identified under GM3 as being in an area susceptible to damage.

269. As recommended by Mr Offor in his evidence, EPR GM4 has been amended to require that these pre-condition surveys be shared with property owners proactively. Mr Offor has recommended, and the MMRA has accepted, an amendment to EPR GM4 to ensure that all stakeholder engagement activities are undertaken within the framework of the CSEMP. The complaints management process which will be included in the CSEMP would encompass property damage complaints.

#### **D.4.2.7 Property acquisition**

270. Many submissions relating to the Western Portal raised concerns about property acquisition directly,<sup>150</sup> and its flow-on impacts on community cohesion.<sup>151</sup> A number of submissions, particularly at the Eastern Portal precinct,<sup>152</sup> have included requests that their property be considered for acquisition due to impacts on their residential amenity during construction of the Project and their concerns that they will be unable to sell their properties.<sup>153</sup>
271. Undoubtedly in circumstances where a property owner wishes to remain in their property, the implementation of the State's powers to compulsorily

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<sup>150</sup> MM230, MM239.

<sup>151</sup> MM122-A, MM124, MM144.

<sup>152</sup> MM266, see also submissions to the Committee made by a number of residents in the Eastern Portal precinct including Documents 202 and 204.

<sup>153</sup> See for example Submissions to the Committee made by Peter and Sharon Robertson (submitter 164) Document 202.

acquire that property can be both disruptive and have negative social impacts on individual landowners and the local community. However, there is a well established process under the LACA for compensating persons whose land is acquired. The MMRA acknowledges that this process may be unfamiliar to most landowners, and that compulsory acquisition of property can be a source of stress and potential conflict.

272. As noted by Mr Offor in his evidence, from a social impact perspective, this conflict exemplifies the difficult trade-offs that sometimes need to be made between individual interests and broader public benefit.<sup>154</sup>
273. The MMRA acknowledges that for the Western Portal, where a Concept Design (Option A) and the alternative proposal Option B have been advanced in the EES, there is almost unanimous response in favour of Option B.<sup>155</sup> That can largely be explained by the fact that Option B would result in the acquisition of one dwelling, compared to nine dwellings being acquired if Option A were to proceed.
274. The impacts associated with acquisition of residences will be addressed through EPR SC1, modified as recommended by Mr Offor and accepted by MMRA. EPR SC1 will require that disruption to residences from direct acquisition or temporary occupation will be reduced. Measures to reduce impacts include using a case-management approach for all Project interactions with affected landowners, taking into account relative vulnerability and the special needs of occupants, and appointing social workers or buyers' advocates to assist households with special needs manage the transition. Another strategy is to purchase properties early when that is supported by the landowner.
275. The Victorian Government is considering implementing a Voluntary Purchase Scheme for Melbourne Metro. A decision on whether a Voluntary

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<sup>154</sup> Expert Witness Statement of Mr Offor at page 15.

<sup>155</sup> MM331, MM293, MM282, MM179, MM156, MM124, MM122, MM101. Submission 261 did oppose the Alternative Proposal, primarily on the basis that it is alleged that the acquisition would constrain future development of that land.

Purchase Scheme will be implemented will be made by the Victorian Government after the finalisation of the EES process.

#### **D.4.2.8 Financial hardship and impost**

276. Commercial operators within the CBD and Domain precincts were concerned about the impact of the Project on the financial viability of their businesses as it may reduce custom<sup>156</sup> or cause tenants to vacate and make the property difficult to re-let.<sup>157</sup>
277. Many submitters have raised in their submissions the fact that their homes are their most valued, and valuable, asset. Submitters have expressed fears regarding the potential impact of the construction and operation of the Project on the value of that asset, and their ability to sell it or to obtain rental income. Submissions on these issues fall into four main groups:
- (a) Property owners concerned about the impact of vibration and noise from tunnel construction and operation or the effect that strata acquisition may have on ease of sale (predominately in the northern section of the tunnel).<sup>158</sup>
  - (b) Owners concerned about the impact of station and/or portal construction on their property value and/or their ability to sell.<sup>159</sup>
  - (c) Owners of rental properties concerned about their ability to let their properties over the duration of construction.<sup>160</sup>
  - (d) Owners whose properties are proposed for acquisition who are concerned about their ability to purchase equivalent property for the statutory purchase price.<sup>161</sup>

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<sup>156</sup> MM117, MM184, MM157, MM288, MM246.

<sup>157</sup> MM186, MM178, MM281.

<sup>158</sup> MM95, MM119, MM228, MM90

<sup>159</sup> MM343, MM330, MM80, MM193, MM196, MM252, MM266, MM352

<sup>160</sup> MM348, MM264. See also submission to the Committee, Document 204 by Mr Ayers.

278. In relation to the social impacts associated with financial issues, MMRA submits that the key strategy for addressing these concerns is to ensure that:
- (a) the mitigation measures identified in EPRs regarding the management of impacts of the Project are implemented effectively;
  - (b) ensure communication with potentially affect businesses and property owners is frequent and clearly articulates the process for responding to issues.
279. This will be implemented by the overarching CSEMP (EPR SC3) and the Business Disruption Plan (EPR BC2), although numerous other EPRs include references to ensuring appropriate levels of communication occurs with affected stakeholders (see for example EPRs AQ1 and NV4).
280. Regarding property owners' concerns about possible damage from tunnelling beneath their properties, this will be addressed through pre-construction condition surveys for properties which are predicted to be affected by ground movement (EPRs GM3 and GM4). Heritage properties potentially affected by ground movements are addressed under by EPRs CH4, CH19 and New CH). In relation to the issue of voluntary purchase of properties, the MMRA refers to the submissions made at paragraph 275.
281. Regarding business impacts, customer and supplier access to business premises are addressed by EPR B2 and the measures to be adopted to mitigate business impacts are addressed in these submissions at D.4.1.

#### **D.4.2.9 Transport impacts**

282. Concerns about traffic congestion were raised in submissions,<sup>162</sup> with some submitters emphasising the implications of increased congestion such as reduced vehicle and pedestrian safety,<sup>163</sup> increased travel times,<sup>164</sup> increased

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<sup>161</sup> MM230, MM239

<sup>162</sup> MM370, MM354, MM190, MM227

<sup>163</sup> MM276, MM59, MM25

<sup>164</sup> MM356, MM343, MM196, MM367

noise and reduced air quality in local streets,<sup>165</sup> increased “rat running” through local streets to avoid the congested traffic,<sup>166</sup> difficulty entering or leaving their property<sup>167</sup> and impeded access for emergency services.<sup>168</sup>

283. MMRA acknowledges that there will be impacts to various users of the transport system including motorists, pedestrians, local residents and businesses associated traffic congestion and disruption associated with the Project. These impacts will be most significant during the construction phase for Melbourne Metro.
284. Mitigating the impacts associated with disruption to traffic and transport will be addressed by the Transport EPRs. Specifically, the EPRs which will require formation of the TTWG, the development and implementation of TMP(s), that disruption to public transport be minimised (EPR T2) and a TDM strategy be implemented (EPR T4).

#### **D.4.2.10 Access**

285. Access to properties is an issue that has been raised in submissions across all precincts.
286. Residents in the Domain precinct have expressed concern about traffic congestion impeding vehicle access/egress from building carparks. Some submitters have expressed particular concern about the inconvenience that this could cause for themselves and their visitors, as well as potential safety issues if access to their buildings by emergency services were impeded.<sup>169</sup> Access issues have also been raised by commercial operators,<sup>170</sup> who have

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<sup>165</sup> MM180, MM74

<sup>166</sup> MM239, MM294

<sup>167</sup> MM276, MM241

<sup>168</sup> MM276, MM241

<sup>169</sup> MM240, MM315, MM330, MM343, MM346, MM349; Submissions to the Committee by Domain residents including on behalf of the Botanica (Document 171), Domain Owners’ Corporation (Document 179) and the G12 (Document 178).

<sup>170</sup> MM288, MM295



expressed concerns regarding restricted vehicle and/or pedestrian access to their properties, and the financial implications of this if customers are deterred.

287. Concerns about pedestrian access and safety were frequently raised, both in terms of access to buildings and movement around the precinct.<sup>171</sup> Specific concerns were raised about the impact that the project could have for elderly and less mobile people (visitors, congregations and residents).<sup>172</sup>
288. A number of submissions relating to the Western Portal concerned the difficulty that the Concept Design would cause for access to Kensington Station and/or for movement around the area generally.<sup>173</sup> Similarly, submissions relating to CBD North and South raised concerns about impacts on custom from impeded access<sup>174</sup> and for public accessibility and movement generally around the precincts.<sup>175</sup>
289. Changed access for pedestrians and vehicles is an inevitable consequence of major works on the scale of the Project. The issues of access have been addressed earlier in these submissions at D.2. The implementation of the TMP(s) (EPR T1) particularly in relation to the management of temporary or permanent full or partial closure of traffic lanes and roads. Where vehicle and pedestrian access has been altered during construction the reinstatement of appropriate access will be required to ensure that adjacent land is not compromised (EPR T5). MMRA also notes that the RIMG applies to loss of access to residential premises.

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<sup>171</sup> MM370, MM367, MM295

<sup>172</sup> MM135, MM290, MM59, MM213, MM189, MM265

<sup>173</sup> MM282, MM293, MM271, MM179

<sup>174</sup> MM184, MM222, MM117

<sup>175</sup> MM178, MM317, MM180

#### **D.4.2.11 Loss of Parking**

290. Submitters expressed concerns about impacts to local residents, visitors<sup>176</sup> and traders<sup>177</sup> from loss of on street parking due to construction works, and competition for car parking due to the influx of construction workers during construction of the Project. Some submitters suggested providing on-site tool storage to limit the number of construction workers requiring transport of tools to construction zones.<sup>178</sup>
291. Managing on-street car parking is a complex issue that will be managed through the proposed TMP(s) required by EPR T1. The TMP(s) respond to the specific parking issues associated with each construction site for the Project, based on the final design. In particular:
- (a) The availability of loading bays and short-term setting-down bays is particularly important for the continued operation of commercial and public facilities in the vicinity of construction sites. It is for this reason that EPR T1 requires TMPs to include measures to minimise disruption to affected local land uses, traffic and car parking during all stages of construction;
  - (b) The TMP(s) will be developed in consultation with the TTWG (see New TA), the members of which include relevant councils and other transport agencies. It can be anticipated that TTWG, and in particular local council representatives, will recognise the need to consider parking concerns in their locality and to ensure sufficient measures are identified to address these issues; and
  - (c) The TMP(s) will specifically consider the provision of car parking for construction workers where practicable and will require measures to prevent, to the extent practicable,

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<sup>176</sup> MM370, MM367, MM356, MM349, MM310, MM295, MM254, MM249, MM294, MM339, MM157, MM122-A

<sup>177</sup> MM157, MM227

<sup>178</sup> MM263

construction workers parking in on-street spaces, unless it can be demonstrated by car-parking surveys that there is adequate on-street supply.

292. EPR SC3 has also been amended to require that the CSEMP include measures to address planned construction activities and advance notice of significant works, changed traffic conditions, access arrangements and parking conditions. Also, although endeavours will be made to ensure Project legacy will restore on-street car parking, there may be fewer spaces in some precincts than is presently the case. This needs to be balanced against the fact the Project provides high frequency, high capacity rail transport to locations that presently don't have them and will increase capacity on other lines.

#### **D.4.2.12 Concerns regarding safety**

293. Concerns regarding issues relating to safety were expressed in a number of submissions. The concerns raised included:
- (a) Risks to pedestrian safety due to increased truck and local road traffic and traffic diversions due to Project works;<sup>179</sup>
  - (b) Risks to student safety due to changed traffic conditions<sup>180</sup> and increased walking distances from tram stops;<sup>181</sup>
  - (c) Safety of cyclists<sup>182</sup> due to changed traffic conditions, especially associated with heavy vehicle movements on the road network, including local streets;<sup>183</sup>

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<sup>179</sup> MM343, MM310, MM295, MM184, MM156, MM227, MM305, MM294, MM180; Submissions on behalf of The Mac Robertson Girls High School, Document 234.

<sup>180</sup> MM61.

<sup>181</sup> MM367.

<sup>182</sup> MM343, MM227, MM294.

<sup>183</sup> MM343, MM356.

- (d) Residents in the Domain Precinct expressed concerns about their personal safety due to the predicted large influx of construction workers<sup>184</sup> and also raised concerns about safety from an influx of people from outside areas once Domain Station was operating;<sup>185</sup>
- (e) Concerns regarding the potential for ambulances accessing buildings due to congestion was also raised as a concern that could impact on personal safety;<sup>186</sup> and
- (f) Healthcare providers raised concerns about safety of patients accessing their facilities and the potential for the project to impact on their ability to provide safe care to their patients and implications of the works for the safety and wellbeing of their staff.<sup>187</sup>

294. In response to these submissions it is noted that issues relating to the safety of cyclists, pedestrians and road users are addressed by the EPRs requiring the continuation of the TTWG (New TA), the implementation of TMP(s) (EPR T1) and the measures identified in EPR T3 to address active transport during the construction phase.

295. As noted by Mr Offor in his evidence, the expressions of fear by submitters relating to concerns about their personal safety posed by an influx of construction workers or ‘strangers,’ including patrons using the new stations, can be linked to the social change or anticipated changes posed by construction of the Project.<sup>188</sup> EPR SC3 has been amended so that the CSEMP will include measures to address any other matters which are of concern to potentially affected stakeholders through the construction of the

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<sup>184</sup> MM266, MM196.

<sup>185</sup> MM196, MM240, MM268.

<sup>186</sup> MM229, MM193.

<sup>187</sup> MM295, MM308.

<sup>188</sup> See Mr Offor’s statement of evidence at pages 17-18.

Project. This would encompass addressing perceptions regarding safety of the public where that issue relates to the construction of the Project.

#### **D.4.2.13 Impacts on visual amenity**

296. The impacts on visual amenity from construction of the Project and the legacy condition was an issue raised in submissions across all precincts.
297. The majority of responses related to the impact of construction works on current views, with most responses relating to Domain Precinct and Western Portal works. Very strong feelings about visual amenity were expressed by some residents adjacent to the Eastern Portal site.<sup>189</sup>
298. Concerns were expressed about the impact of tree removal on the attractiveness of St Kilda Road<sup>190</sup> and views to and within the Osborne Street Reserve.<sup>191</sup> The appearance of construction sites and structures associated with the Project described variously as “ugly” and “obtrusive” such as noise attenuation barriers, hoardings and sheds was mentioned by some.<sup>192</sup>
299. The impact of the Project on visual amenity has been the source of particular concern within the Domain Precinct. This is no doubt exacerbated by the submitter’s belief that the visual impact is largely unnecessary and that the “cut and cover” construction technique selected has not been demonstrated to be optimal.<sup>193</sup> Consequently, many submissions raise the

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<sup>189</sup> See in particular the submissions made to the Committee by Eastern Portal residents including Documents 200 and 201.

<sup>190</sup> MM343, MM336, MM333, MM330, MM284, MM283, MM256, MM241, MM215, MM196, MM190, MM128. See also submissions made to the Committee by Domain residents including Documents 171, 188, 189, 190 and 191.

<sup>191</sup> MM266, MM325, MM352.

<sup>192</sup> MM325, MM333, MM264, MM154, MM124, MM111, MM274.

<sup>193</sup> See MM367 and submissions made to the Committee including Documents 188, 189, 190, 191 and 195.

prospect of an alternative station location on the edge of the Shrine Reserve<sup>194</sup> or an alternative construction technique to allow for a deeper station.<sup>195</sup> The alternative construction technique advanced by submitters is addressed in these submissions at section F.3.

300. The MMRA acknowledges that some temporary structures such as hoardings, sound walls and acoustic sheds may be in place for extended periods of time, and therefore warrant careful attention to their visual appearance. The UDS for the Project directs particular attention to the design of temporary structures and provides guidelines for their design. EPR LV1 and the UDS require permanent and temporary works to be designed to avoid or minimise visual impacts on sensitive receptors, and to maintain broader landscape character values. This requirement will ensure that all elements of the Project are designed in a way that avoids or minimises visual impacts on sensitive receptors and valued landscapes.

#### **D.4.2.14 Loss of access to, or negative impacts on public land and public open space**

301. In developing the Concept Design, MMRA has attempted to minimise property acquisition and permanent changes to land use arising from the Project.
302. In addition to the main construction work site on publicly owned land at Arden, a number of smaller construction work sites would be located in each precinct. These include areas of public open space such as City Square and Edmund Herring Oval, which would be used for relatively long periods during construction. The recommended EPRs set out a process for identifying alternative areas of public open space for community use during the construction period to mitigate these impacts, and require the areas used

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<sup>194</sup> MM349, MM343, MM276, MM265, MM202 and submissions to the Committee including Document 191.

<sup>195</sup> MM133 and submissions made to the Committee including Document 188, 189, 190, 191 and 195.

during construction of the Project to be returned and upgraded as improved public open spaces following construction.

303. Submissions have expressed concern regarding loss of access to, or negative impacts on, public open space. Particular concerns were expressed in relation to impacts on the use and enjoyment of JJ Holland Park,<sup>196</sup> Albert Road Reserve,<sup>197</sup> Osborne Street Reserve<sup>198</sup> and City Square,<sup>199</sup> impacts on the Domain Parklands,<sup>200</sup> Edmund Herring Oval<sup>201</sup> and University Square during the construction of the Project.<sup>202</sup> One submitter to the Committee expressed concern about the loss of the cricket pitches at Edmund Herring Oval during the construction period.<sup>203</sup>
304. Loss of the City Square open space has been raised as a particular concern due to the very limited open space available within the Hoddle Grid. The limitations on open space results in City Square being heavily used at lunch times. Submitters, particularly Melbourne City Council, have emphasised the importance of providing replacement open space during the construction works in City Square.
305. Loss of access to the Albert Road Reserve would clearly be upsetting for some local residents. It is also acknowledged that residents in the vicinity of the Eastern Portal will be negatively affected by the loss of the Osborne Street Reserve during the construction period. Loss of open space associated with the Western Portal has not been assessed as a significant risk although

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<sup>196</sup> MM74, MM77, MM145, MM212, MM106, MM144, MM111

<sup>197</sup> MM196, MM311, MM260, MM190, MM379,

<sup>198</sup> MM354, MM266

<sup>199</sup> MM274, MM317, MM372, MM304, MM365,

<sup>200</sup> MM189

<sup>201</sup> MM367

<sup>202</sup> MM364

<sup>203</sup> See the submission to the Committee by Mr Alec Kahn, Mercantile Cricket Association, Document 231.

there will be some amenity impacts for park users more significantly experienced by the Concept Design.

306. The measures to address these impacts include:

- (a) EPRs SC3 and SC7, which will require the contractor to consult with affected communities and re-establish open space reserves to ensure that no permanent loss of open space is suffered;
- (b) EPR SC6 which will require, in consultation with the City of Melbourne, the development of a relocation strategy for sports clubs (for example the cricket clubs using the Edmund Herring Oval) and other formal users of directly impacted recreational facilities; and
- (c) EPR LV1 which will require permanent and temporary works to maintain the landscape character values of key open space areas including Domain Parklands, Albert Road Reserve and JJ Holland Park.

#### **D.4.2.15 Loss of heritage values**

307. Concerns about the impact of the Project on heritage places including impacts associated with the relocation of the South African Soldiers Memorial, Cockbill Fountain<sup>204</sup> and the Windsor Oak,<sup>205</sup> have been raised in submissions. Concerns were also expressed regarding potential impacts to heritage places from vibration and ground movement. The effects of vibration and ground movement on heritage places are addressed at D.6.1.1.

308. Concerns about impacts on the South African Soldiers Memorial appear to be largely tied together with concerns about the Domain Station's construction zone impacts on the Albert Road Reserve and the proximity of construction site to residences. The EPRs addressing the dismantling of the Memorial, its storage, relocation and reinstatement will address the impacts

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<sup>204</sup> MM370, MM356, MM190 and submissions contained in Documents 194 and 195.

<sup>205</sup> MM267



associated with this issue (see EPR CH19). The impacts to trees and public open space areas are addressed at D.8.1.

#### **D.4.2.16 Tree removal**

309. Concerns about tree removal were raised frequently in submissions, particularly in relation to St Kilda Road,<sup>206</sup> Childers Street,<sup>207</sup> Arden Station precinct,<sup>208</sup> Royal Parade, Grattan Street<sup>209</sup> and City Square.<sup>210</sup> Particular concerns have been expressed by submitters in the Domain precinct who have submitted that the selection of the “deep cavern” construction method for the Domain Station would enable St Kilda and Albert Road trees to be retained.<sup>211</sup>

The MMRA accepts that tree removal can be a highly emotive issue, particularly for residents whose local environment is affected. The MMRA refers to the submissions addressing arboricultural and landscape impacts at D.8.1, which outline the relevant EPRs and strategies that will be implemented to minimise tree loss and replacement of trees as part of Project delivery.

#### **D.4.2.17 Air quality, dust and mud on roads**

310. Dust was raised as an individual issue in many submissions from or on behalf of residents close to project work sites.<sup>212</sup> Concerns related to its

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<sup>206</sup> MM317, MM356, MM349, MM343, MM313, MM240 and see also the submissions made to the Committee by residents within the Domain Precinct including: Documents 171, 178, 188, 189, 190 and 191.

<sup>207</sup> MM239, MM282, MM144

<sup>208</sup> MM365

<sup>209</sup> MM128

<sup>210</sup> MM317

<sup>211</sup> MM292, MM298, MM306, MM172. See also the submissions made to the Committee by residents within the Domain Precinct including: Document 171, 178, 188, 189, 190 and 191.

<sup>212</sup> MM370, MM371, MM367, MM356, MM348, MM343, MM315, MM318, MM179, MM144, MM102, MM97. See also submissions to the Committee in Documents 171, 178, 179, 188-191 and 196.

potential impact on health,<sup>213</sup> amenity and for property maintenance.<sup>214</sup> Dust sources of concern were the major precinct construction sites, spoil storage areas and trucks removing spoil. The potential for impacts on patients with acute respiratory conditions has also been raised in submissions.<sup>215</sup> Mud on roads was raised in a submissions relating to the CBD<sup>216</sup> Eastern Portal<sup>217</sup> and Arden precincts.<sup>218</sup>

311. In relation to the management of air quality impacts, the MMRA refers to the submissions regarding Air Quality at D.5.1. The Air Quality Impact Assessment and the recommended EPRs include detailed dust mitigation measures for the handling, storage and removal of spoil. EPR AQ2 requires construction activity to minimise dust and other emissions and EPR AQ3 requires the control of emissions of smoke, dust, fumes and other pollution into the atmosphere during construction and operation of the Project. These measures will provide an appropriate approach for mitigating air quality impacts associated with the Project.

#### **D.4.2.18 Odour**

312. The possibility of odour from stockpiled soil was an issue raised in submissions.<sup>219</sup> However, references to air quality and pollution associated with Arden truck routes were inferred to refer to odour as well as dust,<sup>220</sup> as were the many Western Portal submissions raising concerns about “traffic in suburban streets.”

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<sup>213</sup> MM371, MM325, MM276

<sup>214</sup> MM274

<sup>215</sup> MM308

<sup>216</sup> MM317

<sup>217</sup> MM352

<sup>218</sup> MM157

<sup>219</sup> MM170, MM 318.

<sup>220</sup> MM25, MM115.

313. Odour will be adequately managed in accordance with the SEPPs for Ambient Air Quality and Air Quality Management and EPRs AQ2 (requiring construction activity to minimise dust and other emissions) and AQ3 (requiring the control of emissions of smoke, dust, fumes and other pollution into the atmosphere during construction and operation of the Project).

#### **D.4.2.19 Lighting**

314. Submissions have raised concerns about the potential for construction area lighting to impact on amenity particularly in the vicinity of the Domain Station<sup>221</sup> and Eastern Portal.<sup>222</sup>
315. This will be addressed by EPR LV3 which requires that prior to construction, measures to minimise light spillage during construction be developed to protect the amenity of adjacent neighbourhoods, parks and community facilities.

#### **D.5 Amenity**

*To minimise adverse air quality, noise or vibration effects on the amenity of nearby residents and local communities, as far as practicable, especially during the construction phase.*

316. This evaluation objective is premised on the assumption that some level of adverse impact is to be expected. It focuses on the minimisation of these adverse impacts, to the extent practicable.
317. The most significant potential for amenity impacts to arise during the construction phase of Melbourne Metro relate to:
- (a) Impacts on air quality (primarily attributable to dust deposition and particulate emissions); and

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<sup>221</sup> MM315, MM267.

<sup>222</sup> MM354.

- (b) Impacts associated with noise and vibration.
318. MMRA recognises that there will also be other impacts, including (but not limited to) impacts on visual amenity in and around the various work sites, impacts associated with the removal of trees, and impacts arising as a consequence of traffic disruption. These other impacts are addressed elsewhere throughout these submissions.
319. There is lesser scope for Melbourne Metro to generate adverse amenity impacts during operation:
- (a) There is, for instance, little potential for Melbourne Metro to adversely impact air quality during operation;
  - (b) Other than at the portals, airborne noise impacts from train movements will be highly attenuated by virtue of being underground (a matter addressed in further detail below);
  - (c) Vibration and ground borne noise impacts associated with train movements have been demonstrated to be capable of being appropriately mitigated by implementation of appropriate track forms (a further matter addressed in greater detail below); and
  - (d) Fixed plant associated with the appearance of Melbourne Metro must comply with SEPP N-1.
320. The predominant (but not exclusive) focus of the Committee's assessment should accordingly be, as the evaluation objective directs, on the construction phase of Melbourne Metro.
321. Much of this hearing has been directed toward an examination of the EPR framework proposed in respect of the management and mitigation of amenity impacts (and, in particular, in respect of noise and vibration impacts). Whilst that framework is examined in detail below, it is contended at the outset that the framework proposed in respect of Melbourne Metro is the most sophisticated that has been prepared in respect of any major infrastructure project within this State.

322. Reference has been made, in the formulation of the EPRs, to applicable Victorian standards and guidelines where relevant and appropriate. Where useful, those standards and guidelines have been supplemented by other Australian and international standards and guidelines. This, it is submitted, is the proper approach when formulating a set of EPRs to govern the construction and operation of a major infrastructure project.
323. Indeed, whilst there has been some debate concerning applicable criteria and their application in this case, MMRA contends that it has developed a comprehensive set of controls and requirements in respect of Melbourne Metro that reflects and implements best practice.
324. Before turning to an assessment of particular impacts that have been raised in submissions, and which have been the subject of evidence before the Committee, it is appropriate to first address the following matters of general principle that MMRA contends should inform the assessment of Melbourne Metro pursuant to the applicable evaluation objective (and the preparation of an appropriate regime of EPRs to manage impacts):
- (a) The first is that the responses required under the EPRs should be “practicable.” The term is synonymous with “feasible”<sup>223</sup> and requires an assessment of both the cost and relative benefit of compliance. It is notable, in these respects, that these concepts are incorporated directly within a number of the standards and guidelines that govern construction activity within Victoria (and elsewhere) and that have informed the preparation of the EPRs:
    - i. EPA Publication 1254, for instance, variously calls for the application of “reasonable” measures and “best practical means” in the context of applicable work requirements;<sup>224</sup>

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<sup>223</sup> The Concise Macquarie Dictionary (Fifth Edition) defines “practicable” to mean “capable of being put into practice, done, or effected, especially with the available means or with reason or prudence; feasible”.

<sup>224</sup> Document 71 (in part), at pages 2 and 3.

- ii. The NSW Interim Construction Noise Guideline similarly calls for measures to be *both* “reasonable” and “feasible” as defined within Part 2.3 of that Guideline.<sup>225</sup>
- (b) The second is that there will necessarily be trade-offs in the implementation of measures designed to protect amenity:
  - i. In some instances these trade-offs will be between a reduction in the level of impact during particular times of the day and a prolongation of the duration of those impacts overall. A limit on the hours of construction activity, for instance, may result in a delay in project delivery and the prolongation of project impacts during those periods when work is permitted to occur. Consideration of this type of trade-off is specifically called up under the NSW Interim Construction Noise Guideline in respect of “public infrastructure works”.<sup>226</sup>
  - ii. Other more direct trade-offs will manifest in circumstances where decisions are made about work restrictions which benefit one group of receptors but which disadvantage another (such as, for instance, the request by RMIT that certain works occur outside of normal working hours (to its benefit but to the potential disbenefit of nearby residents)).

It is accordingly important that the EPRs be framed on suitably flexible terms that allow for an appropriate balance to be struck between competing interests.

- (c) The third is that a successful response across Melbourne Metro’s nine kilometre alignment will necessarily be responsive to the particular requirements of the various precincts. The EPRs should accordingly not be overly prescriptive and must allow for the flexible

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<sup>225</sup> Document 71 (in part), at page 9.

<sup>226</sup> *Ibid.* See, for instance, at page 9. See also Table 2 at page 12 in respect of mitigation measures to be adopted in respect of highly-noise affected areas.

implementation of mitigation measures. It is appropriate, in this regard, that the EPRs be primarily performance-based and that they be designed to ensure maintenance of acceptable environmental standards and outcomes during construction and operation. The MMRA recognises, in this respect, that certain receivers will be more susceptible to impacts at particular times during the day and during the week (such as, for instance, St Paul's Cathedral during times of sermons or ceremonies). Conversely, there may be times when those same receivers have no sensitivity at all (such as, for instance, when the Cathedral is closed). The regime formulated must accordingly allow for specific responses to be tailored to the constraints and opportunities of particular receivers where practicable and appropriate. Consultation between the MMRA, the successful contractors, and sensitive receivers, will accordingly be an important element in the formulation of detailed mitigation strategies.

- (d) The fourth is that measures must be framed having regard to ambient conditions. The alignment of Melbourne Metro traverses a highly urbanised environment wherein (at places) relatively high levels of noise and vibration presently exist. Care must accordingly be taken in establishing criteria that call for management actions to be implemented above certain thresholds in circumstances where those thresholds are presently exceeded (or are close to being exceeded).
- (e) The fifth is that major construction activities in the vicinity of sensitive receivers is common in highly urbanised areas. There should not be 'special' restrictions placed on Melbourne Metro that are more restrictive than what typically apply to large construction projects in Melbourne.

325. This part of the submissions will proceed, in accordance with the applicable evaluation objective, by first addressing impacts associated with air quality, and conclude by addressing impacts associated with noise and vibration.

### **D.5.1 Environmental Effects – Air Quality**

326. As noted above, there is little potential for Melbourne Metro to generate adverse air emissions during operation.<sup>227</sup> This constitutes a marked difference between the potential operational impacts of rail and road tunnels.
327. During the course of construction, however, there will be a need to ensure that appropriate measures are put in place to manage dust emissions from the various construction sites along Melbourne Metro's alignment. This includes in respect of emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, TSP, and (in the event that any emissions arise) Respirable Crystalline Silica (**RCS**), asbestos, and other less prevalent air quality indicators.
328. The EPRs establish an appropriate framework in this regard which will ensure that:<sup>228</sup>
- (a) additional modelling is undertaken as part of detailed design;
  - (b) a robust air quality management system is established to monitor (in real time) and respond to changes in air quality during construction;
  - (c) appropriate dust mitigation and control measures are put in place throughout the course of construction to ensure that dust emissions are limited to within acceptable criteria; and
  - (d) consultation is undertaken with the affected communities.
329. These, it is noted, are the four key elements identified by Dr Bellair in cross-examination as being necessary to properly respond to the risks posed by dust emissions from Melbourne Metro.
330. Air dispersion modelling has been undertaken in respect of the sites at which the greatest volumes of spoil will be handled (and at which there is, as a consequence, the greatest potential for dust emissions to arise). That modelling demonstrates that levels of dust emissions at these locations

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<sup>227</sup> A matter agreed by Dr Bellair in cross-examination.

<sup>228</sup> See, principally, EPR AQ1.



(including in respect of PM<sub>10</sub>, PM<sub>2.5</sub>, and TSP) will be capable of being managed within acceptable levels.

331. As Mr Lakmaker explained, it necessarily follows that the locations at which substantially lesser quantities of spoil are being handled will also comfortably comply with applicable standards.<sup>229</sup>
332. MMRA notes that the Air Quality Impact Assessment was the subject of technical review by members from within AJM (including Mr Lakmaker) and independent third party peer review by Pacific Environment Limited.<sup>230</sup> As Mr Lakmaker explained, the adequacy of the modelling and assessment methodology was also the subject of consideration by the TRG and by the EPA.<sup>231</sup>
333. The EPA's support for the Air Quality Impact Assessment extends beyond the modelling undertaken in respect of Melbourne Metro. It supports the conclusions drawn by that assessment in respect of the extent and magnitude of the impacts that will be generated by Melbourne Metro and the management regime proposed as part of the EPRs in response.<sup>232</sup>
334. The EPA's support in this respect is significant. It is the agency charged under the *Environment Protection Act 1970* (Vic) with ensuring that appropriate environmental outcomes are achieved in respect of air quality. It stands in stark contrast with the assessment attributed to the EPA by Dr Bellair as part of his evidence.
335. The following MMRA Technical Notes to these submissions on air quality issues: TN3, TN31, TN59 and TN75.

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<sup>229</sup> Mr Lakmaker indicated, for instance, that the level of emissions that would be predicted within CBD North would be approximately half those modelled in respect of the Arden and Domain Precincts.

<sup>230</sup> Appendix C to the Air Quality Assessment.

<sup>231</sup> TN 75 Response to the 'Matters for further consideration and/or clarification' request dated 12 September 2016 (iv) Air quality.

<sup>232</sup> See Document 19 (in part).

#### **D.5.1.1 Adequacy of the Modelling<sup>233</sup>**

336. Dr Bellair raised issues about the modelling undertaken by MMRA in respect of the Domain Precinct.
337. Dr Bellair was, at his request, provided with copies of the relevant input and output files. Having been provided with that information, Dr Bellair's criticism centred principally on whether the modelling demonstrated a 'worst case' outcome in respect of his client's property.
338. The modelling undertaken as part of the EES was not directed towards identifying worst case outcomes at one particular property. It was instead directed toward:
- (a) identifying (based on appropriately conservative assumptions) the likely level of emissions associated with the delivery of the Concept Design within the most adversely affected precincts; and having done so
  - (b) comparing those estimates against applicable criteria.
339. Consistent with the directives of *PEM Mining and Extractive Industries* the modelling should be understood as being 'worst case' as it related to that task.<sup>234</sup>
340. As Mr Lakmaker explained, various assumptions that informed the preparation of the modelling undertaken in respect of the Concept Design ensure that it is appropriately conservative. These include (but are not limited to):
- (a) the adoption of the 75<sup>th</sup> percentile worst case background conditions (as opposed to the EPA recommended 70<sup>th</sup> percentile worst case conditions);<sup>235</sup>

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<sup>233</sup> See, for instance, MM240.

<sup>234</sup> Document 173 at page 15.

<sup>235</sup> Air Quality Impact Assessment at page 75.

- (b) the adoption of peak periods of spoil handing and movement as the basis of the assessment along with peak periods of truck movements (and their extrapolation over a twelve month period);<sup>236</sup>
  - (c) the adoption of peak weekday levels of emissions across the week (including on weekends);<sup>237</sup>
  - (d) the allocation of a range of sources of emissions in close proximity to the most sensitive receivers (including two in close proximity to the ‘Botanica’);<sup>238</sup>
  - (e) the assumption that the majority of the work site would be subject to wind erosion (70%) and that the construction work site is unsealed;<sup>239</sup> and
  - (f) the adoption of rates of emissions from the National Pollutant Inventory (which Dr Bellair described as the “most appropriate emission estimation technique” available).<sup>240</sup>
341. Modelling was undertaken in respect of PM<sub>10</sub>, PM<sub>2.5</sub>, and TSP in accordance with the parameters prescribed under the PEM, and the outputs of the modelling demonstrated comfortable compliance with the applicable criteria specified in the PEM.
342. Whilst modelling was not undertaken in respect of potential point sources of emissions (such as vent stacks and the like erected during the course of construction) Dr Bellair agreed that:
- (a) Point sources would likely generate relatively low levels of emissions compared with area sources; and

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<sup>236</sup> *Ibid.* at page 17.

<sup>237</sup> *Ibid.* at 18.

<sup>238</sup> As shown in the plan at Document 174.

<sup>239</sup> Air Quality Impact Assessment at page 18.

<sup>240</sup> Dr Bellair’s witness statement at page 10.

- (b) The EPRs ensure that any emissions from point sources must comply with the stringent design criterion specified in Schedule A of SEPP (AQM).<sup>241</sup>
343. Dr Bellair contended that potential sources of emissions had been omitted from the modelling. MMRA relies, in response, on the evidence of Mr Lakmaker who explained that all main sources of emissions (including as a consequence of excavation) had been accounted for.<sup>242</sup>
344. The Committee should accordingly conclude that the level and extent of modelling undertaken is appropriate and can inform the preparation of a robust set of EPRs.
345. MMRA recognises that it will be necessary for further modelling to be undertaken based on the detailed design of Melbourne Metro and the ultimate construction methodologies adopted. This further requirement is appropriately provided as part of EPR AQ1 and should (and indeed must) inform the preparation of the detailed management and monitoring requirements to be documented in the dust management and monitoring plan.
346. Measures to be implemented pursuant to that plan, as agreed between the experts, have been included as part of the modified EPR AQ1. They are also identified in EPA Publication 480 which is called up pursuant to EPR AQ2.

#### **D.5.1.2 RCS, Asbestos and Aspergillums Spores<sup>243</sup>**

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<sup>241</sup> Document 172 at pages 17 – 25.

<sup>242</sup> MMRA notes, in this respect, that the emissions attributable to the activity of “loading and unloading spoil to construction stockpiles” as part the analysis were derived by applying the relevant factors associated with “excavators/shovels/front-end loaders operating on overburden” as set out in the NPI (at page 15). They accordingly cover all emissions attributable to the activities associated with excavation and soil handling.

<sup>243</sup> See, for instance, MM12, MM191, and MM240.

347. Dr Bellair raised particular concerns in respect of RCS emissions. The potential for RCS emissions to arise as a consequence of Melbourne Metro was addressed by Mr Lakmaker in response to questions put to him when giving his evidence, and is further examined in Technical Note 59.
348. The Air Quality Impact Assessment provides a sound basis to conclude that any RCS emissions attributable to the construction of the Project would comply with the particularly stringent criteria identified in SEPP (AQM) and PEM Mining and Extractive Industries.
349. Indeed, as Mr Lakmaker demonstrated, even if the particularly conservative approach was taken wherein *all* emissions of PM<sub>2.5</sub> attributable to Melbourne Metro were deemed to be emissions of RCS,<sup>244</sup> the modelling undertaken demonstrates compliance with the applicable design criterion.<sup>245</sup>
350. Other submitters have raised concerns in respect of airborne emissions of asbestos and aspergillus spores.<sup>246</sup>
351. In respect of the prospect of asbestos emissions, MMRA relies on its response set out within TN75.
352. It notes, also, that a comprehensive legislative regime exists within Victoria concerning the management of asbestos within workplaces. This is addressed, in part, in the *Occupational Health and Safety Act 2004* (Vic) and in the *Occupational Health and Safety Regulations 2007* (Vic) (Part 4.3 of which is directed specifically toward asbestos). These instruments contain a range of general and specific obligations on managers of workplaces

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<sup>244</sup> Noting, in this respect, that pursuant to Appendix A to SEPP (AQM) emissions of RCS are to be modelled as PM<sub>2.5</sub>.

<sup>245</sup> The applicable criterion is 3ug/m<sup>3</sup> as specified in the Protocol for Mining and Extractive Industries (which is a figure consistent with SEPP (AAQ) and NEPM (AAQ)). See TN59 for an explanation of why the modelling of PM<sub>2.5</sub> contained within the AQIA demonstrates compliance with this standard (even on the conservative assumption that all PM<sub>2.5</sub> emissions are RCS)..

<sup>246</sup> See, for instance, MM12 and MM191.

potentially containing asbestos which are designed to ensure that the identification and disposal of asbestos is properly managed.<sup>247</sup>

353. EPR C4 will relevantly require the preparation and implementation of a health, safety and environmental plan for the management of asbestos and other hazardous substances.
354. In addition to this, asbestos is a class 3 air quality indicator pursuant to SEPP (AQM).<sup>248</sup> As in the case of the other types of air quality indicators identified in the Air Quality Impact Assessment (such as PM<sub>2.5</sub>, PM<sub>10</sub>, and TSP), there is a requirement to control any emissions of airborne asbestos fibres in accordance with the terms of the SEPP.
355. This requirement is formalised in respect of Melbourne Metro by EPR AQ3. In the case of asbestos this would require that emissions be reduced to the “maximum extent achievable”,<sup>249</sup> and that the relevant design criterion is achieved.<sup>250</sup>
356. As Dr Bellair explained, the risk of asbestos emissions arises only in respect of the relatively shallow excavation that will be undertaken in respect of Melbourne Metro, and that the bulk of excavation would occur at depths below which asbestos would be encountered.
357. In respect of aspergillus spores, MMRA relies on the assessment and analysis undertaken pursuant to Technical Note 75.

#### **D.5.1.3 More Stringent Standards in and around Parkville<sup>251</sup>**

358. It has been suggested that different (and more stringent) standards should apply in the Parkville Precinct to those that apply elsewhere along

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<sup>247</sup> See, for instance, Regulation 4.3.20 of the *Occupational Health and Safety Regulations*.

<sup>248</sup> See Appendix A to the SEPP (AQM).

<sup>249</sup> Clause 20 of SEPP (AQM).

<sup>250</sup> See Appendix A to SEPP (AQM).

<sup>251</sup> See, for instance, MM308 and MM373.

Melbourne Metro's alignment on account of the concentration of health and education facilities in the area.

359. The MMRA notes, in this respect, that the EPRs do already recognise that hospitals and research facilities within this precinct should be the subject of particular monitoring requirements.<sup>252</sup>
360. Beyond this, however, it is submitted that there is no legitimate legislative basis upon which to draw a distinction in applicable criteria.
361. Neither the Commonwealth air quality regime (contained principally within the NEPMs) nor the Victorian air quality regime (contained principally within the SEPPs) distinguish between different types of receivers in this way. Instead, those standards specify quantitative design criterion (based on levels of risk deemed acceptable to the population as a whole), supplemented by qualitative requirements for different types of pollutants (such as, in the case of SEPP (AQM), requirements that "best practice" be implemented in the management of class 2 air quality indicators and that class 3 air quality indicators be minimised to the "maximum extent achievable").<sup>253</sup>
362. Questions were put to Mr Lakmaker in respect of whether the epidemiological studies that informed the recent revisions to the NEPMs (and in turn the SEPPs) constituted a valid basis to draw a distinction on these terms. Tellingly, however, those same studies did not prompt a distinction to be drawn on these terms in the context of the NEPMs.
363. Many of the class 2 and 3 air quality indicators identified in SEPP (AQM) (and also in the applicable NEPMs) have no threshold (such that they cause a risk to human health at any level of exposure). It is for this reason that the SEPPs establish particularly stringent design criterion in respect of these

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<sup>252</sup> EPR AQ1.

<sup>253</sup> See, for instance, clauses 19 and 20 of SEPP (AQM).

pollutants and why, in addition, there are qualitative requirements to implement measures to reduce emissions further still where possible.<sup>254</sup>

364. The regime is accordingly adequately protective of human health, regardless of whether that is within the Parkville Precinct, or elsewhere along the alignment.

#### **D.5.2 The Proposed EPRs**

365. Version 3 records modifications to the Air Quality EPRs. Those modifications are designed to give effect to the consensus in expert opinion documented in the conclave report.<sup>255</sup> They provide further details concerning the particulars of the Dust Management Plan that will form the centrepiece of the response to dust impacts.

366. The MMRA contends that the regime proposed under EPRs AQ1 – AQ3 responds positively to the principles identified by MMRA at paragraph 2.11 of its opening submissions:

(a) *Do the EPRs properly respond to the environmental impact that is to be managed?*

- i. The EPRs respond directly to the principal source of air quality impacts; namely, dust deposition and dust emissions during construction (including emissions of PM<sub>10</sub>, PM<sub>2.5</sub> and TSP).
- ii. The EPRs also extend to the full gamut of other air quality indicators (including RCS and asbestos) identified as part of SEPP (AQM).

(b) *Do the EPRs establish an appropriate benchmark in respect of delivery of the Project?*

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<sup>254</sup> Be that through the adoption of “best practice” management procedures (Class 1 and 2) or to the “maximum extent achievable” (Class 3).

<sup>255</sup> Document 37.



- i. The EPRs call up the preparation of specific air quality management and monitoring procedures as part of the formal management plan.
  - ii. They also properly identify EPA Publication 480 (which prescribes a number of dust mitigation measures to be applied to major construction sites within Victoria)<sup>256</sup> and SEPP (AQM) as establishing relevant criterion in respect of Melbourne Metro.
- (c) *Do the EPRs properly provide for the preparation and implementation of appropriate management plans where necessary?*
- i. Yes.
- (d) *Do the EPRs properly provide for (or sit within a framework which properly provides for) consultation with stakeholders and affected persons?*
- i. Consultation with affected stakeholders was a focus of Dr Bellair's evidence. MMRA agrees that this will be an important part of the response to air quality issues.
  - ii. To this end MMRA has proposed specific measures concerning communications in respect of dust emissions as part of EPR AQ1 and the plan to be prepared pursuant to EPR SC3.
- (e) *Are the EPRs sufficiently robust to account for changes from the Concept Design and within the Project Boundary?*
- i. Yes, the EPRs are appropriately performance-based, and identify the relevant criteria that must be achieved and the mechanisms that must be implemented in order to ensure compliance.
- (f) *Do the EPRs properly acknowledge their relationship with other EPRs?*

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At part 4.5 and elsewhere.

- i. Yes. The cross-reference to dust emissions as part of the communications plan to be prepared in accordance with EPR SC3 is an example of how the AQ EPRs are integrated with the broader framework of environment protection under the EPRs.
- ii. Another example is EPR C4, which will also partially address the potential risks posed by asbestos.

### **D.5.3 Environmental Effects – Noise and Vibration**

367. MMRA’s closing position in respect of noise and vibration impacts is effectively represented in Version 3 of the EPRs.<sup>257</sup> MMRA has tested the positions of various submitters and considered the totality of the evidence in informing its proposed revisions to the EPRs. It has done so in accordance with the approach that it identified in its opening submissions.
368. MMRA has not attempted (and submits that the Committee should not attempt) to apply the conclave outcomes literally.<sup>258</sup> The conclave report is a useful record of issues for consideration. However, owing to the time constraints of the conclave and the large number of participants and issues, the report cannot be taken as faithfully or accurately recording any firm consensus between the participants.
369. For example, Mr Marks’ claim of a unanimous verdict from which Mr Anderson had allegedly retreated, did not match the evidence of Mr Stead whose powerpoint simply identified the same item as “not agreed.” It was also clear that not all witnesses had the same understanding of how the conclave document was structured or how it was to be interpreted. This was unclear on the face of the document.
370. The “agreed” position in respect of EPR NV1 is a case in point. The agreement as recorded in the conclave report encourages the Committee to

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<sup>257</sup> Documents 205 and 206.

<sup>258</sup> See Document 63.

*consider* the adoption of a range of alternative instruments in place of (or as a supplement to) EPA Publication 1254. Throughout the course of the hearing it became apparent that the participants in the conclave hold a wide range of views about what modifications are warranted to EPR NV1 in this respect (a matter discussed in greater detail below).<sup>259</sup>

371. In short, MMRA contends that the opinion evidence to be attributed to the witnesses for all parties should be primarily understood from their respective presentations to the Committee and responses given under cross-examination.
372. This is not to dismiss the conclave report out of hand. It is instead to treat it as a useful tool in the organisation of issues rather than as a statement of agreement.
373. Before turning to particular issues identified in submissions and in evidence, it is noted that the following Technical Notes are relevant to this topic: TN32, TN42, TN43, TN44, TN54, and TN64.

#### **D.5.3.1 Airborne Noise: Construction<sup>260</sup>**

374. It became evident throughout the course of the hearing that there were various opinions on the part of the experts appearing before the Committee concerning the adequacy of EPA Publication 1254.

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<sup>259</sup> It was accordingly not fair, nor appropriate, to suggest (as did Mr Marks) that Mr Anderson acted inconsistently with the position put in the conclave or for Mr Marks to speculate (based apparently on third-hand information) about the basis of Mr Anderson's position.

<sup>260</sup> MM008; MM010; MM012; MM058; MM062; MM068; MM080; MM096; MM104; MM107; MM109; MM112; MM117; MM118 MM129; MM137; MM146; MM153; MM159; MM166; MM170; MM183 MM184; MM186; MM190; MM191; MM193; MM196; MM218; MM224; MM226; MM227; MM229; MM231 MM232; MM240; MM242; MM246; MM250; MM252; MM253; MM256; MM259; MM260 MM263; MM264; MM266; MM267; MM268; MM272; MM273; MM274; MM276; MM281;MM283; MM284 MM285; MM287; MM289; MM291; MM295; MM297; MM304; MM311; MM313; MM314 MM315; MM321; MM325; MM330; MM333; MM338; MM346; MM347; MM348; MM352; MM354; MM356 MM362; MM363; MM365; MM367; MM370; MM371; MM372; MM374; MM377.

375. The basic concerns in this respect can be summarised in three broad propositions:

- (a) First, it was submitted that the duration and extent of aspects of the construction programme (including those periods prior to the erection of noise enclosures at some locations or, in the case of the Eastern Portal, for sustained periods at different times) are too significant to merely be treated as “unavoidable works” under EPA Publication 1254 (and not attract a quantifiable threshold level for the adoption of mitigation measures);
- (b) Secondly, it was submitted that EPA Publication 1254 is deficient insofar as it provides no guidance in respect of threshold noise levels for daytime works; and
- (c) Thirdly, it was submitted that EPA Publication 1254 is deficient insofar as it provides no guidance in respect of threshold noise levels for non-residential sensitive receivers.

376. The starting point in responding to each contention must be to recognise that:

- (a) EPA Publication 1254 has historically been adopted as the primary basis for managing noise emissions from other major infrastructure projects in this state (including most recently in respect of the East West Link (Eastern Section)); and
- (b) the EPA has recommended its adoption in respect of Melbourne Metro.<sup>261</sup>

377. These factors immediately count against the approach advanced (at least initially)<sup>262</sup> by Mr Marks wherein reference to EPA Publication 1254 in EPR NV1 should be “replaced” by a reference to some other standard or

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<sup>261</sup> Document 19.

<sup>262</sup> It is noted that in evidence before the Committee Mr Marks seemingly reverted to the position favoured by Mr Anderson wherein the reference to EPA Publication 1254 would remain in EPR NV1 and be supplemented by references to specific parts of the NSW Interim Construction Guidelines.

guideline (be that the NSW Interim Construction Guideline or the City of Melbourne Noise and Vibration Management Guidelines).<sup>263</sup>

378. It was notable, in MMRA's submission, that whilst there was a considerable amount of evidence during the course of the hearing about potential or theoretical deficiencies in EPA Publication 1254, there was no example given of EPA Publication 1254 being found to have been inadequate for any previous project.

379. MMRA contends that there was no coherent basis advanced in support the proposition that EPA Publication 1254 should be jettisoned from the suite of EPRs formulated in respect of Melbourne Metro. Instead, to the contrary, there was general support for the implementation of the types of work practices specifically called up under EPA Publication 1254 in the construction of Melbourne Metro.<sup>264</sup>

380. That being said, MMRA recognises that some clarification may be helpful to instil confidence in the EPRs from the perspective of the public. MMRA has proposed a fair and practical response to these issues in Version 3 of the EPRs.

381. MMRA makes the following more detailed submissions in response to each of the three key issues identified in paragraph 375 above.

382. Issue 1, Unavoidable Works:

- (a) It is not correct to assert that the management of airborne noise (including noise generated out of hours) under the proposed EPRs is limited to EPA Publication 1254. The EPRs include a range of other

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<sup>263</sup> Notwithstanding that it had been supported initially by MDA witnesses in their written reports, it was seemingly generally agreed that because the City of Melbourne Guidelines explicitly do not apply to "civil infrastructure works such as bridges, freeways, and tram or train track works" they were not appropriately referenced in respect of this project.

<sup>264</sup> Mr Marks, in giving evidence on behalf of the City of Stonnington, accepted that the measures in EPA Publication 1254 were "almost universally incorporated" within management plans prepared in respect of projects of this type.

management controls including, most notably, the preparation of a detailed CNVMP.

- (b) It is also important to recognise that EPA Publication 1254 is a guideline only. It is of a different legislative character, for instance, to the SEPPs prescribed in respect of the emission of noise pursuant to the *Environment Protection Act 1970* (Vic). It should be understood more as the basis for preparing a plan – which is itself a key component of the mitigation measures identified under EPA Publication 1254 than as a regulation that itself purports to define in explicit terms the entire scope and nature of mitigation measures to be implemented. The notion that development should be undertaken “in accordance with” the guideline – as proposed by Melbourne Grammar School – accordingly mischaracterises the nature of the instrument.
- (c) MMRA recognises that night works could occur in a number of precincts over sustained periods and that these works could give rise to impacts on sensitive receivers. MMRA accepts, also, that the distinction between unavoidable works and necessary programmed works may be artificial to a degree when the works are to be undertaken over a sustained period of time.
- (d) Version 3 of the EPRs seeks to remove any ambiguity in this respect by:
  - i. Cross referencing NV1 to the CNVMP and other EPRs;<sup>265</sup>
  - ii. Referencing Part 2.3 of the NSW Interim Construction Guidelines within the CNVMP (which had been supported by a number of witnesses as a reasonable basis upon which to assess works undertaken outside of normal working hours);<sup>266</sup> and
  - iii. Stating unambiguously under EPR NVB that the mitigation strategies specified in the RIMG (discussed in greater detail

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<sup>265</sup> EPR NVB(3)(i).

<sup>266</sup> EPR NVB(3)(v).

below) will apply *both* to scheduled works undertaken outside of standard hours and to unavoidable works.<sup>267</sup>

- (e) This resolves the concern expressed in evidence (perhaps most succinctly by Mr McHugh) that audible out of hours works – be they scheduled or unavoidable – should not escape mitigation.

383. Issue 2: Threshold noise levels for daytime works:

- (a) It is not correct to say that EPA Publication 1254 does not address daytime noise emissions. It does so by directing the adoption of a range of work practices:
  - i. none of which were called into question during the course of the hearing;
  - ii. many of which were instead explicitly endorsed as appropriate at points during the hearing;<sup>268</sup> and
  - iii. none of which are exclusively directed toward works undertaken out of hours.
- (b) This notwithstanding, MMRA recognises – in keeping with the evidence – that there may be benefit in establishing under the CNVMP threshold noise levels in respect of daytime works that trigger the implementation of certain mitigation measures.
- (c) Version 3 of the EPRs addresses this potential by explicitly referencing Part 4.1.1 of the NSW Interim Construction Guidelines as a relevant consideration in the preparation of the CNVMP.<sup>269</sup> That part of the NSW Guideline was identified by Mr Anderson (amongst others) as establishing appropriate threshold noise values in respect of daytime works.

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<sup>267</sup> EPR NVB(5).

<sup>268</sup> Including by Mr Marks in giving evidence on behalf of RMIT.

<sup>269</sup> EPR NVB(3)(iii).

- (d) The approach adopted by MMRA wherein these matters are addressed as part of the project-specific CNVMP was consistent with that favoured by Mr Fearnside, Mr Leo, Mr McHugh, Mr Goddard, and Mr Mitchell.

384. Issue 3: Threshold noise levels for non-residential sensitive receivers:

- (a) It is again not correct to assert that EPA Publication 1254 does not address non-residential receivers. A stated purpose of the Guideline is that “[c]ommercial and other premises affected by noise should be considered and reasonable measures implemented to reduce impact on these premises.”<sup>270</sup> Furthermore, the implementation of the work practices called up under the Guideline will be equally effective in limiting the impact of airborne construction noise on non-residential receivers as on residential receivers.<sup>271</sup>
- (b) Again, this notwithstanding, MMRA recognises – in keeping with the evidence – that there may be benefit in establishing under the CNVMP threshold noise levels in respect of non-residential receivers that trigger the implementation of certain mitigation measures.
- (c) The EPRs had always contemplated that this be done in respect of particularly sensitive receivers. EPR NV5, for instance, had specified (and continues to specify) threshold noise levels in respect of hospital wards and medical facilities (amongst other uses).
- (d) The Version 3 EPRs expand this scope by making reference, under EPR NVB(3)(iv), to the noise level thresholds specified in Part 4.1.2 of the NSW Interim Construction Guidelines. That part of the NSW Guidelines identifies threshold levels in respect of a range of non-residential receivers including (but not limited to) classrooms at

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<sup>270</sup> Document 71 (in part) at page 2.

<sup>271</sup> It is noted, in this respect, that some of those work practices explicitly contemplate consideration of non-residential receivers, such as the requirement that “[w]here work is conducted in a residential area or other noise-sensitive location, use the lowest-noise work practices and equipment that meet the requirements of the job” (emphasis added).



schools, places of worship, and passive and active recreation areas.<sup>272</sup>

These management levels were widely supported in evidence as being appropriate threshold levels for consideration in this case.

- (e) However, as the evidence also demonstrated, care must be taken in the manner in which those thresholds are applied and implemented in the context of this Project. Monitoring of ambient conditions undertaken along parts of the alignment<sup>273</sup> demonstrates, as one would expect, that Melbourne Metro will pass through areas with relatively high existing ambient conditions. It is highly likely, as a consequence, that in many cases existing background conditions are either at or above the threshold levels specified in Part 4.1.2 of the NSW Interim Construction Guidelines.
- (f) This was demonstrated to be the case in respect of noise measurements taken at the University of Melbourne by Mr Stead (discussed in greater detail below).<sup>274</sup> It was accepted by Mr Leo that it may well be the case in respect of existing noise levels within St Paul's Cathedral. It was certainly the case in respect of RMIT during the site inspection conducted by the Committee (which is also a matter discussed in further detail below). It may well be the case in respect of Melbourne Grammar School as became apparent during the cross-examination of Mr Mitchell, Melbourne Grammar School had delayed baseline measurements until the week that Mr Mitchell's evidence was required to be submitted to the Committee.
- (g) The selection and implementation of mitigation measures in response to any modelled exceedance of the threshold values must accordingly have regard to existing ambient conditions (amongst a range of other factors).

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<sup>272</sup> Document 71 (in part) at page 13.

<sup>273</sup> Recorded in Appendix F to the Air Quality Impact Assessment.

<sup>274</sup> Document 148.

385. MMRA recognises, in respect of each issue, that the CNVMP will play a central role in setting appropriate parameters and defining appropriate mitigation measures. This, in MMRA’s submission, is entirely appropriate having regard to the matters of general principle identified in paragraph 324 above. It will allow for the flexible application of mitigation measures to respond to the varying conditions that will be encountered along the alignment, and for tailored responses to be implemented in response to the particular sensitivities of different receivers.
386. Consistent with the approach that was ultimately favoured by the majority of witnesses appearing before the Committee, the CNVMP as it addresses airborne noise, is not necessarily required to be prepared “in accordance with” any particular guideline. It is instead required to be prepared “having regard to” a number of the different guidelines that were identified during the course of evidence as being most appropriately referenced in the case of Melbourne Metro. This approach will allow for the formulation of a set of criteria that are suitably tailored to Project (and to the different conditions that exist along its alignment).
387. MMRA recognises that, as a consequence of the approach adopted under Version 3 of the EPRs, it is important that appropriate governance measures be put in place to ensure that the CNVMP is comprehensive and that it responds properly to the range of issues identified above.
388. The EPRs and Incorporated Document establish appropriate measures in this respect:
- (a) First, a suitably qualified acoustic and vibration consultant must be engaged to undertake modelling and mitigation investigations pursuant to EPR NV3. Those investigations must be documented and must be subject to review by the Independent Environmental Auditor.
  - (b) Secondly, pursuant to EPR NVB, the modelling and mitigation investigations undertaken pursuant to EPR NV3 are required to inform the preparation of the CNVMP. The CNVMP must, in addition, be prepared in consultation with the EPA and the relevant councils.

(c) Thirdly, pursuant to the Incorporated Document, the CNVMP is required to be approved by the MMRA and (in respect of the PPP works package) will be the subject of review by the Independent Reviewer as identified in table of plans at Appendix 1 to the Incorporated Document.<sup>275</sup>

(d) Fourthly, pursuant to the EMF, compliance with the CNVMP will be required and will be the subject of oversight by MMRA and the Independent Auditor.

389. This is accordingly not a case in which the successful contractor will be given free rein to prepare the CNVMP on any terms that it pleases. The terms of the proposed CNVMP will instead be highly scrutinised by MMRA and by independent third parties. The CNVMP is also to be prepared in consultation with the EPA and councils, as required under EPR NVB.

390. Passing criticism was made during the course of the hearing in respect of aspects of the modelling undertaken as part of the NVIA. It was submitted, for instance, that the modelling was deficient on the basis that the sound power levels adopted for particular items of equipment were underestimated, and that modelling was not conducted in respect of elevated receivers. Neither contention is correct:

(a) Mr Anderson demonstrated that an adjustment of the sound power levels of relevant pieces of equipment did not materially affect the predictions under the NVIA.<sup>276</sup> No other expert undertook this exercise.

(b) Technical Note 58 clarifies that the SoundPLAN modelling was undertaken at all levels of the facades of the relevant buildings and that multiple reflection paths were included in the calculation settings.<sup>277</sup>

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<sup>275</sup> See page 10 (TN 56).

<sup>276</sup> See Document 73 at page 13.

<sup>277</sup> See Document 168 at paragraphs 16 and 19.

391. It should also be borne in mind that the modelling was undertaken on the conservative basis that the modelled equipment was operating over the entirety of the relevant assessment period.
392. A range of other matters were raised during the course of the hearing concerning the potential impact of airborne noise during construction. A number of those matters are addressed as discrete topics in the sections that follow. MMRA otherwise notes (and relies upon) the detailed response prepared by Mr Anderson to relevant submissions in his witness statement.

#### **D.5.3.2 Vibration and Groundborne Noise: Construction**

393. Of the nine experts in noise and vibration that appeared before the Committee, it is respectfully submitted that Dr Heilig has the greatest experience in respect of modelling, assessing, and responding to vibration generated during the construction of large-scale development projects (including in respect of major tunnelling projects). Dr Heilig's assessment and support for Melbourne Metro, and for the regime proposed in respect of the management of vibration impacts, should accordingly be attributed considerable weight by the Committee.
394. There seems to be agreement between the witnesses that, pursuant to EPR NV6, the adoption of the DIN 4150 Vibration Guideline Targets for Structures is appropriate. In accordance with the evidence of Dr Heilig, provision has been made for tailored criteria to be specified in respect of particular structures, depending on the outcomes of the pre-construction condition surveys that must be undertaken in respect of all potentially affected structures.<sup>278</sup> This constitutes best practice and, as Dr Heilig explained, is common in major tunnelling projects of this type.

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See, in this respect, the notes added to EPR NV6 as part of the Version 3 EPRs and EPR NVB(6). It is noted that NVB(6) references condition surveys called up under other EPRs (including, most notably, EPR GM4). So as to avoid duplication, the EPR requires that *additional* pre-construction condition surveys be undertaken only if structures susceptible to vibration would not otherwise be the subject of surveys pursuant to other EPRs.

395. Consistent with the evidence of Mr Lovell, a more detailed assessment and mitigation regime based on that specified in EPR NV2 in respect of the Victoria Barracks, has been established in respect of buildings on the Victorian Heritage Register.<sup>279</sup>
396. EPRs NV7 and NV8 have been refined to apply to above- and below-ground infrastructure assets respectively, and to address assets of particular concern to the Melbourne City Council.
397. The Committee should accordingly be satisfied that a comprehensive regime has been established in respect of the protection of the structural integrity of public and private buildings and assets along the alignment.
398. The appropriateness of adopting criteria based on BS6472-1:2008 in respect of vibration impacts on human comfort has been the subject of debate before the Committee.
399. MMRA relies on the evidence of Dr Heilig, and on the written response that he prepared to the Committee's request for information made on 12 September 2016 (attached to Technical Note 64), in support of the proposition that EPR NV9 is drafted appropriately.<sup>280</sup> That approach was specifically endorsed by Mr Shields.
400. In accordance with recommendations made in the conclave report, the ground-borne noise criteria (specified in EPR NV11) have been expanded to address impacts on education institutions.
401. MMRA again contends that the CNVMP is the appropriate mechanism pursuant to which an appropriate suite of mitigation measures should be designed and implemented in respect of any modelled exceedances of the various guideline targets. This is provided for in EPRs NVB(10) and NVB(11).

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<sup>279</sup> EPR CHA.

<sup>280</sup> See TN 64 (Document 244).

402. Furthermore, like in the case of airborne noise, EPR NVB has been refined to make clear that the mitigation regime to be implemented pursuant to the RIMG is operative in respect of *all* 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 RIMG.<sup>281</sup>
403. This is not to suggest that the construction of Melbourne Metro will not result in periods of inconvenience or disruption on account of vibration or ground-borne noise.
404. The modelling contained within the NVIA demonstrates that it is likely that at points along the alignment there will be temporal exceedances of the applicable guideline targets:
- (a) In the case of TBM tunnelling those exceedances will be relatively short-lived (up to approximately 10 days in duration for each pass of the TBM). The NVIA demonstrates that the level of impact will increase, peak, and diminish as the TBM approaches, passes, and then moves away from a sensitive receiver.<sup>282</sup>
  - (b) The duration of impact associated with tunnelling undertaken by road headers will be longer than that attributable to TBMs (up to approximately 22 days for the most affected receivers for each pass of the road headers). The ultimate peak level of impact will, however, be less than in the case of TBM tunnelling.<sup>283</sup>
  - (c) The anticipated levels of impacts at and around the station caverns differ depending on the context. However, it should also be noted that given the greater flexibility available in the adoption of construction techniques in respect of these elements of the project, there is greater

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<sup>281</sup> See, in particular, NVB(12).

<sup>282</sup> See, for instance, page 97 of Appendix B to the NVIA.

<sup>283</sup> See, for instance, page 98 of Appendix B to the NVIA.

scope to minimise (although not eliminate) impacts associated with construction of the stations.

405. Further analysis of the likely extent and magnitude of the anticipated impacts of vibration and ground borne noise during construction is contained in Technical Note 42 (which was prepared in response to queries raised by Dr Heilig following his initial review of the NVIA).

#### **D.5.3.3 Airborne Noise: Operation<sup>284</sup>**

406. Two primary issues have been raised during the course of the hearing concerning airborne noise during operation:

- (a) The first concerns noise generated by trains at and around the Eastern and Western Portals; and
- (b) The second concerns noise generated by above-ground fixed plant associated with Melbourne Metro.

407. The first of these issues is governed by the Victorian Passenger Rail Infrastructure Noise Policy (called up under EPR NV15).

408. An assessment has been undertaken pursuant to that policy as part of the NVIA.<sup>285</sup> MMRA recognises that it will be necessary to implement mitigation measures in response to modelled exceedances of the applicable threshold levels:

- (a) At the Western Portal this will likely require the erection of noise barriers close to the portal along the northern side of the tracks

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<sup>284</sup> MM019; MM062; MM112; MM119; MM129; MM146; MM155; MM166; MM174; MM217; MM231; MM240; MM250; MM253; MM261; MM267; MM268; MM281; MM287; MM311; MM314; MM321; MM327; MM338; MM347; MM350; MM363; MM367; MM370.

<sup>285</sup> See, in particular, Appendix C to the NVIA.

(modelled in the case of the Concept Design at approximately 4.5 metres in height);<sup>286</sup>

- (b) At the Eastern Portal this will likely require the erection of noise barriers along both the northern and southern sides of the tracks (modelled in the case of the Concept Design at approximately 2.5 to 3 metres in height).<sup>287</sup> Furthermore, owing to the existence of elevated receptors, it will also likely require that façade treatments be undertaken to the upper levels of a limited number of properties in the vicinity of the alignment (modelled in the case of the Concept Design to be the upper levels of two properties on William Street and two properties on Arthur Street).<sup>288</sup>

409. The assessment of rail infrastructure projects pursuant to the PRINP is well understood. MMRA opposes any proposed modification to the PRINP (such as, for instance, that which was seemingly advanced by Mr Marks in respect of the identification of guideline internal noise levels for buildings subject to external mitigation works pursuant to the PRINP). The PRINP is established government policy and should be applied in respect of Melbourne Metro in precisely the same way that it is applied to other recent rail infrastructure projects.

410. The second issue, as it concerns residential receivers, is satisfactorily addressed pursuant to SEPP N-1 (called up pursuant to NV16). At the request of Mr Anderson further analysis (documented in Technical Note 54)<sup>289</sup> demonstrates the types of measures that could be implemented to achieve compliance with this requirement.

411. In response to submissions and evidence, MMRA has modified EPR NV16 to introduce sound levels applicable to other types of sensitive receivers

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<sup>286</sup> See page 29 of Appendix C to the NVIA.

<sup>287</sup> *Ibid.*

<sup>288</sup> *Ibid.*

<sup>289</sup> Document 210.



(based on AS/NZS 2107) which would not otherwise be subject to protection pursuant to SEPP N-1.

#### **D.5.3.4 Vibration and Ground Borne Noise: Operation<sup>290</sup>**

412. A number of submissions have been made concerning the potential impacts of vibration and ground borne noise generated by trains passing through the tunnels.
413. The applicable criteria in respect of:
- (a) ground borne noise have been derived by reference to the NSW Rail Infrastructure Noise Guideline (as specified in EPR NV17) in the absence of an equivalent Victorian guideline; and
  - (b) vibration have been derived by reference to BS6472-1:2008 (as specified in EPR NV18).
414. There was seemingly consensus in expert opinion that:
- (a) the numerical criteria specified in the EPRs are appropriate; and
  - (b) subject to the adoption of appropriate track forms, ground borne noise and vibration impacts from Melbourne Metro are anticipated to be acceptable.
415. Some of the experts recommended that the EPRs mandate the adoption of high attenuation track forms along parts of the alignment. MMRA recognises that this may well be necessary but considers that the ultimate selection of track forms (be they standard, high attenuation or very high attenuation as defined in the NVIA) should be determined as part of a detailed assessment undertaken having regard to the ultimate design and alignment of Melbourne Metro. That assessment should involve, as the

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MM019; MM062 MM112; MM119 MM129; MM146 MM155; MM166 MM174; MM217 MM231; MM240 MM250; MM253 MM261; MM267; MM268; MM281 MM287; MM311 MM314; MM321 MM327; MM338 MM347; MM350 MM363; MM367 MM370.

NVIA recognises, the verification of ground propagation characteristics by direct measurement at the construction stage.<sup>291</sup>

416. The current EPRs, which are appropriately performance-based, provide adequate assurance that appropriate track forms will be selected as part of the ultimate design. It is not necessary or desirable to mandate particular outcomes in this respect based on modelling undertaken in respect of the Concept Design.
417. It was recommended, also, that EPRs NV17 and NV18 should impose mandatory requirements. MMRA contends that this should not be the case given the relatively high ambient levels (of both noise and vibration) modelled along the alignment, which may result in some of the threshold levels *already* being exceeded under current conditions (such that strict compliance may not be possible).
418. MMRA notes the particular concerns raised by residents of North Melbourne during the course of the hearing concerning the potential operational impacts of Melbourne Metro. The modelling undertaken in respect of the Concept Design recognises that very high attenuation track will likely be required throughout the precinct.<sup>292</sup> It also demonstrates, however, that the implementation of that type of track form would likely limit both ground borne noise and vibration to within acceptable levels. The concerns of these residents are addressed in greater detail in Part F below.

#### **D.5.3.5 The Residential Impact Mitigation Guidelines<sup>293</sup>**

419. As noted on multiple occasions throughout the course of this hearing, MMRA recognises that there will be periods during the construction of Melbourne Metro in which works will potentially result in substantial

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<sup>291</sup> See page 56 of Appendix E to the NVIA.

<sup>292</sup> See, in particular, Table E.12 at page 55 of Appendix E to the NVIA.

<sup>293</sup> MM51, MM66, MM107, MM112, MM190, MM283, MM285, MM339, MM356.

impacts on nearby residential receivers (be that in respect of airborne noise, ground borne noise or vibration).

420. The durations and levels of impact will vary between precincts and between receivers. They will generally be most substantial during the initial phases of construction (prior to the erection of acoustic sheds or prior to works being undertaken below-ground). MMRA accepts, however, that these initial phases of construction may extend over many months, and that varying degrees of impact will persist throughout the entire course of the construction phase of the Project. They will occur both during and outside of standard working hours (and will arise from both scheduled and unavoidable works).
421. The Victorian Government is committed to preparing a Residential Impact Mitigation Guideline in respect of Melbourne Metro. The current discussion draft of the RIMG is described in Technical Note 43.<sup>294</sup> The stated purpose of the RIMG is to “provide a framework for contractors to address residual impacts on residential amenity as far as is reasonably practicable and appropriate”.
422. The RIMG has been tested throughout the course of the hearing and numerous comparable guidelines – premised on different projects (undertaken both domestically and abroad) – have been tabled.
423. MMRA’s approach, as explained at the outset of the hearing, is that the Committee should comment on Discussion Draft 1 with the expectation that the Victorian Government will have regard to these comments in finalising the policy.
424. MMRA submits that, on balance, the current discussion draft of the RIMG compares favourably to the comparable guidelines:
- (a) It provides a clear and balanced policy outcome;

- (b) It provides for a range of different mitigation measures to be implemented in response to different threshold criteria (including mitigation in the form of respite offers and acoustic treatment);
- (c) Whilst the threshold levels that would potentially trigger the implementation of particular mitigation measures are set at higher levels than some (but not all) of the other guidelines, the relevant durations of exceedance that would trigger consideration of mitigation measures are considerably more stringent.

425. The last of these points is particularly important. Under many of the other guidelines tabled before the Committee, offers for alternative accommodation are triggered only in circumstances where the relevant threshold values are exceeded *and* where that exceedance extends over:

- (a) 10 days out of any 15 day period; or
- (b) 40 days out of any 6 month period.

426. The comparable duration component of the trigger under the RIMG is substantially more onerous. It provides that offers for alternative accommodation may be triggered where exceedance of the relevant threshold criteria extends over 3 or more consecutive nights.

427. This means that, under highly intensive development scenarios (wherein the applicable noise level thresholds would likely be exceeded under *any* of the guidelines), alternative accommodation would be considered under the RIMG after three consecutive nights of disturbance, whereas under many of the other guidelines even a continuous period of up to 9 days would not necessarily trigger mitigation of this type.

428. This, MMRA submits, is a very substantial difference, and one that counts strongly in favour of the approach adopted under the RIMG.

429. MMRA provides the following responses to other matters raised in respect of the RIMG during the course of the hearing:

- (a) First, the provision of ear plugs should be considered a reasonable component of the suite of mitigation responses identified. It was

successfully implemented in response to the construction impacts of the Victorian Comprehensive Cancer Centre and should not be characterised as insensitive or inappropriate.

- (b) Second, like other guidelines, the RIMG does provide for monitoring to be undertaken. Rather than specifying it as a mitigation measure in and of itself, however, the RIMG properly identifies it is something that should occur throughout the construction phase of the project.
- (c) Third, the RIMG appropriately makes provision for façade treatments, in circumstances where receivers will be subject to prolonged exposure to elevated levels of noise.
- (d) Fourth, the adoption of thresholds premised on internal noise levels is an appropriate response to potential disruption caused by *both* vibration and ground borne noise. As Dr Heilig explained, the assumption underpinning the approach adopted in the RIMG – that “exceedance of the construction noise targets for ground borne noise will also address the potential adverse impacts on human comfort associated with ground-borne vibration”<sup>295</sup> – is sound.
- (e) Fifth, for the reasons identified above, it is intended that the RIMG apply to all works undertaken in respect of the Melbourne Metro (regardless of whether they are scheduled or unavoidable).

430. It is noted, finally, that there has been a distinct lack of consensus in expert opinion concerning what changes, if any, should be recommended in respect of the RIMG. Mr Marks, for instance, provided a number of different standards but indicated that he had not formed a view about which he preferred. Other witnesses criticised aspects of the RIMG without suggesting any clear or coherent amendments to it. One matter on which all of the experts did agree, however, was that the implementation of a RIMG was a worthy initiative.

431. In MMRA’s submission, the Committee should ultimately conclude that:

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At Part 3.2.

- (a) The formalisation and implementation of a RIMG is a particularly positive step in respect of the protection of residential amenity;
- (b) It will provide a further (and important) level of assurance that, where measures cannot be implemented to mitigate noise impacts at the source of emissions, measures will be implemented at the receiver;
- (c) The measures identified in the discussion draft are appropriate (and, importantly, extend to offers of alternative accommodation and building works); and
- (d) The threshold criteria specified are adequately protective of amenity, and will provide meaningful respite to the most affected residential receivers.

#### **D.5.3.6 Sensitive Equipment and Bio resources**

- 432. Both RMIT and the University of Melbourne made submissions in respect of the need to protect sensitive equipment during the construction and operation of Melbourne Metro. The University of Melbourne also raised specific concerns in respect of potential impacts on biological resources.
- 433. MMRA agrees that these are important matters that need to be taken into account. It has accordingly proposed EPRs that are specifically directed toward the protection of both types of assets.
- 434. MMRA takes issue, however, with aspects of the cases advanced on behalf of RMIT and the University of Melbourne.
- 435. In respect of RMIT, for instance, it is very clear that the Institute seeks to hold Melbourne Metro to considerably higher standards than what it has imposed on the contractors that it has engaged in respect of its own program of works.
- 436. This was made abundantly clear during the course of the site inspection undertaken by the Committee, at which high levels of noise and vibration were perceptible within the buildings identified by the RMIT as containing some of (if not the majority of) its most sensitive equipment.

437. Indeed, contrary to what MMRA understands RMIT's position to have been in submissions, it is clear that for the purposes of that program of works the Institute has been prepared to accept:
- (a) Internal noise levels of up to 65 dBA; and
  - (b) Vibration levels up to 0.1 inch/s.<sup>296</sup>
438. This is what the relevant NAS contract provided for. It is also what the notices displayed within Building 14 expressly stated at the time of the site inspection.
439. Furthermore, RMIT had not provided results of monitoring undertaken during its construction program until requested to do so by MMRA, nor was Mr Marks in a position to adequately describe the vibration isolation measures that had been put in place in respect of the most sensitive microscopes (described, during the course of the Committee's inspection, as "world's best"). Indeed, during the course of Mr Stead's evidence, it was revealed that RMIT had engaged Mr Stead to design and implement vibration isolation measures in respect of a number of sensitive pieces of equipment.
440. That the sensitive equipment has remained operative during the course of the NAS construction program is informative. It demonstrates that it is possible to undertake major development projects in very close proximity to areas containing sensitive equipment, and indeed *within* buildings containing sensitive equipment, and for that equipment to remain viable.
441. It also demonstrates that disruptions of this type are matters that institutions such as RMIT and the University of Melbourne will inevitably face from time to time as a consequence of locating sensitive equipment within facilities situated in highly urbanised environments.

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Which, as document 124 demonstrates, is many orders of magnitude above even the least stringent of the generic ASHRAE criteria.

442. MMRA would have explored these issues further in evidence, but RMIT elected to withdraw all witness statements prepared by representatives of RMIT.
443. Further support for these propositions is evident in the extent of development undertaken in recent times within the Parkville Precinct. The Committee will recall that Mr Payne, who appeared on behalf of Graduate House, had personally been the project manager on eleven projects involving basement excavation and deep pile foundations within the precinct (including the development of the VCCC).<sup>297</sup> His firm had been involved in a further nine projects.<sup>298</sup> These projects did not include the construction of the Peter Doherty Institute.
444. Many of these projects were undertaken in close proximity to buildings identified within the NVIA as housing sensitive equipment (which are not limited to the Peter Doherty Institute and the Tri-Radiate Building). No evidence was led that these projects gave rise to any fundamental or insurmountable conflicts between construction works and the operation of sensitive equipment.
445. The University itself proposes further development in and around the location of the new station. It explained, for instance, its plans to redevelop the Tri-Radiate Building at some point in the future. This, as the University recognised, would either require the decanting of existing biological resources and sensitive equipment from that building, or at the very least the movement of biological resources and sensitive equipment within that building.
446. The preliminary survey undertaken by Mr Stead, tabled with the Committee by MMRA,<sup>299</sup> identifies the locations of sensitive equipment within University facilities situated in closest proximity to Melbourne Metro.<sup>300</sup>

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<sup>297</sup> See page 1 of Mr Payne's statement.

<sup>298</sup> *Ibid.*

<sup>299</sup> Document 148.



447. Those locations correlate closely with the locations assessed pursuant to the NVIA.<sup>301</sup> That assessment predicts that compliance with the applicable criteria will be achieved at the majority of locations.<sup>302</sup> Mr Stead took no issue with those predictions.
448. An exception is the electron microscope situated within the basement of the Peter Doherty Institute (as inspected by the Committee). Notably, however, the modelling undertaken by Mr Stead demonstrates that:<sup>303</sup>
- (a) this as the only location within the Peter Doherty Institute identified as being of particular sensitivity;
  - (b) existing background levels of noise and EMI presently exceed the generic criteria selected for the purposes of the assessment; and
  - (c) existing levels of vibration are presently similar to the generic criteria.
449. Furthermore, this is a location identified during the inspection as incorporating high levels of vibration and EMI attenuation, which must be taken into account in any future impact assessment.
450. This is not to suggest that Melbourne Metro does not have the potential to impact sensitive equipment, or that it this is not a matter that should be taken into account by the Committee. It does however demonstrate that a careful case-by-case analysis be undertaken in respect of each piece of equipment, and that there will necessarily be a range of factors that will need to be taken into account in assessing and identifying appropriate mitigation responses. It also demonstrates that there is a level of tolerance and that effective mitigation measures are available.

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<sup>300</sup> At page 10.

<sup>301</sup> See Appendix B to the NVIA at page 106.

<sup>302</sup> *Ibid.*

<sup>303</sup> Document 148 at page 13.

451. Indeed, as Dr Heilig explained, in any given case there may be a range of mitigation measures that could be implemented. These may include (but are not limited to):
- (a) the provision of notice about periods of potential impact;
  - (b) the provision of additional vibration isolation to the relevant equipment;
  - (c) the relocation of smaller pieces of equipment;
  - (d) the recalibration of equipment after the completion of certain works;<sup>304</sup> and
  - (e) the co-ordination of the scheduling of particular works with the operation of particular equipment.
452. Dr Heilig explained that this may result in multiple trigger levels being specified for different pieces of equipment. As is currently provided for under EPR NVB, these are matters properly identified pursuant to the CNVMP.
453. Because the applicable responses may differ markedly depending on the particular characteristics of the equipment in question, it is apparent that close consultation between the successful contractor, the MMRA, and the affected stakeholders will be important. It is partly for this reason that MMRA has proposed the creation of the PPRG.
454. In MMRA's submission the PPRG, headed by an independent chair, will play an important role in facilitating meaningful consultation of the type identified above. It is the appropriate forum within which these types of issues can be addressed and, contrary to the submissions of the University, it should be considered a particularly positive attribute of the management framework proposed pursuant the EPRs. This was certainly the attitude

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<sup>304</sup> MMRA understands that this may not be appropriate in respect of all types of sensitive equipment (and may depend on the manner in which particular pieces of equipment is implemented in ongoing research). It is, however, clearly a measure that should be explored in any given circumstance.

expressed by Dr Goodier on behalf of Melbourne Health in submissions to the Committee.

455. The applicable EPRs have been modified in Version 3 to respond to the following matters raised in evidence:

- (a) First, as both Dr Heilig and Mr Stead agreed, the relevant threshold criteria specified in EPR NV10 in respect of sensitive equipment should be determined having regard to background levels or manufacturer specifications where possible rather than the generic ASHRAE criteria.
- (b) Secondly, consistent with the *Code of Practice for the Housing and Care of Laboratory Mice, Rats, Guinea Pigs and Rabbits*, the noise levels specified in EPR NV13 should be expressed as guideline targets rather than strict requirements.<sup>305</sup>
- (c) Thirdly, consistent with the evidence of Mr Stead, EPRs designed to address EMI impacts have been included.

#### **D.5.3.7 Noise from Construction Vehicles<sup>306</sup>**

456. A common concern raised in a number of submissions was the extent of noise that would be generated by truck movements in and around the various work sites.

457. In response to those submissions, and consistent with the evidence of Mr Anderson and Mr Smedley, MMRA has introduced a detailed series of

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<sup>305</sup> It is noted, in this respect, that Mr Stead expressed the view as part of his Preliminary Survey Report (Document 146 at page 20) that compliance with standards specified in respect of sensitive equipment would likely result in compliance at animal houses.

<sup>306</sup> MM012; MM049; MM063; MM079; MM080; MM081; MM096; MM084; MM104; MM115; MM137; MM166; MM170; MM190; MM203; MM226; MM241; MM259; MM266; MM268; MM281; MM283; MM285; MM291; MM304; MM305; MM306; MM309; MM342; MM347; MM348; MM352; MM354; MM356.

measures (at EPR NVB(18)) that must be implemented pursuant to the CNVMP in respect of this source of impact.

#### **D.5.4 The Proposed EPRs**

458. As identified above, a number of substantial revisions have been made to the noise and vibration EPRs during the course of the hearing, in response to the evidence and in response to submissions.

459. The regime proposed is without doubt the most sophisticated that has been developed in respect of any major infrastructure project within this state.

460. The Committee should be satisfied, having regard to the matters specified in paragraph 2.11 of MMRA's opening submission, that:

- (a) The EPRs respond directly to the various forms of potential impact that may arise as a consequence of noise and vibration generated during construction and operation;
- (b) The EPRs establish appropriate benchmarks derived from applicable domestic guidelines and standards where available, and supplemented by international standards where necessary or appropriate;
- (c) The EPRs appropriately make provision for the creation of a CNVMP;
- (d) The EPRs specifically promote consultation with stakeholders and affected persons;
- (e) The EPRs are properly framed as performance-based standards and are sufficiently robust to account for changes from the Concept Design situated primarily within the Project Boundary; and
- (f) The EPRs appropriately cross-reference the suite of other EPRs.

#### **D.6 Cultural Heritage**

*To avoid or minimise adverse effects on Aboriginal and historic cultural heritage values.*

461. Aboriginal Cultural heritage is addressed in Chapter 15 of the EES. Technical Appendix K contains the Aboriginal Heritage Impact Assessment which assesses the potential impact of the Project upon Aboriginal cultural heritage within the Project Area.
462. Technical Note 34 – RFI 25 July – Section 9 (Aboriginal heritage) - Sections 45-49<sup>307</sup> is also relevant to this issue.
463. Pursuant to section 49 of the *Aboriginal Heritage Act* 2006, construction of the Project cannot commence until a Cultural Heritage Management Plan (**CHMP**) has been approved under the *Aboriginal Heritage Act*. As advised in TN 34, the MMRA has prepared a draft CHMP in consultation with the Office of Aboriginal Affairs Victoria and the Traditional Landowners.
464. The CHMP was not exhibited with the EES because the CHMP will be the subject of a separate statutory process under the *Aboriginal Heritage Act* 2006. There is no Registered Aboriginal Party *Aboriginal Heritage Act* 2006 for works within the Project Area. Accordingly, the draft CHMP will be submitted to the Office of Aboriginal Affairs Victoria for approval. The CHMP is proposed for submission to the Secretary to the Department of Premier and Cabinet in late 2016 to early 2017.
465. As outlined in TN 34, the CHMP will outline a series of management measures and contingencies which will be directed to minimising impacts on Aboriginal cultural heritage. These measures will include
- (a) A policy for unexpected finds of any Aboriginal cultural heritage material discovered during works;
  - (b) Requirements for salvage works to be completed at sites such as the South Yarra Siding Reserve, where ground surface impacts may occur to a Aboriginal heritage places. This will ensure that appropriate records are made and cultural material is curated properly;

- (c) Undertaking salvage excavation at Tom's Block;
  - (d) Recommendations for the identification of Aboriginal cultural material during historical archaeological excavations.
466. The application of these management recommendations and contingencies will minimise any adverse impacts to Aboriginal cultural heritage as a result of the construction of the Project.
467. Compliance with the approved CHMP will be a requirement of the EPRs. EPR AH1 requires compliance with a CHMP, prepared in accordance with the *Aboriginal Heritage Regulations 2007* and approved under the *Aboriginal Heritage Act 2006*. The implementation of EPR AH1 will ensure that adverse effects on Aboriginal cultural heritage will be avoided, and if not avoided, minimised and appropriately managed during construction of the Project.

#### **D.6.1 Historic Cultural Heritage**

468. The alignment of the Project traverses an urban environment which includes numerous heritage places including buildings and structures, gardens and landscapes and archaeological sites including places listed on the Victorian Heritage Register (**VHR**), the Victorian Heritage Inventory (**VHI**), and in the Heritage Overlay in the applicable planning schemes. It is therefore entirely predictable that the construction of Melbourne Metro and permanent and temporary infrastructure associated with the Project will interact with places of cultural heritage significance and potential impacts will need to be mitigated.
469. The potential impacts associated with the construction of the Project on historic heritage has been the subject of detailed assessment in Chapter 14 of the EES and the associated Technical Appendix J Historical Cultural Heritage prepared by Lovell Chen (**the HHIA**). The expert report of Mr

Lovell<sup>308</sup> and the evidence presented to the Committee by Mr Lovell and Ms Gary has addressed each of the issues raised by submitters in relation to impacts on historical cultural heritage.

470. Key issues raised in submissions to the EES and the Committee regarding historical cultural heritage include:

- (a) The potential for adverse effects from vibration and ground movement on the fabric of heritage structures;
- (b) The potential for adverse effects on heritage places arising from demolition and alteration of heritage places, including adverse effects on heritage landscapes from tree removal particularly along St Kilda Road, Royal Parade and within the Domain Parklands;
- (c) Diminution of heritage values of heritage places associated with the visual impacts resulting for the introduction of permanent infrastructure, particularly within Domain Parklands and Tom's Block and along St Kilda Road;
- (d) Removal or damage to archaeological sites including the City Ford site in the Parkville precinct.

471. The following Technical Notes are relevant to Historical Cultural Heritage:

- (a) TN14 – CBD South Entrance: Properties located at 65 and 67-73 Swanston Street no longer required as potential station entrance;<sup>309</sup>
- (b) TN16 – Modification – Removal of the Fawkner Park TBM southern launch site;<sup>310</sup>
- (c) TN33 Request for Further Information 25 July – Section 8 (Historical cultural heritage) requests 39 to 44;<sup>311</sup> and

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<sup>308</sup> See Appendix D to the expert report of Mr Lovell.

<sup>309</sup> Part of Document 3.

<sup>310</sup> Part of Document 3.

<sup>311</sup> Document 21.

(d) TN 55 – Emergency Access Shafts.<sup>312</sup>

472. It is important to emphasise that there will be no direct impacts on important heritage places, particularly places on the VHR such as the City Baths, the State Library of Victoria, St Paul’s Cathedral, Princes Bridge, Young and Jackson Hotel, Melbourne Town Hall or the Shrine of Remembrance.
473. Overall, the impacts of Melbourne Metro on heritage and historic values have been assessed under the HHIA and by Mr Lovell as not being significant.
474. The Project also presents opportunities to enhance heritage values. These opportunities include:
- (a) Opportunities for historical archaeological testing, monitoring and salvage activities where damage or removal to historical archaeological sites cannot be avoided;
  - (b) Repair and conservation works (where physical intervention for the protection of structures need to be adopted or heritage fabric relocated);
  - (c) Opportunities to develop a heritage interpretation strategy for the Project as a whole. The heritage interpretation strategy would that would explore historical and Aboriginal cultural heritage themes and recognise heritage places in the design of the new stations.
475. The approach adopted by MMRA to avoiding or minimising impacts to cultural heritage as required by the evaluation objectives can be summarised as follows:
- (a) First, to avoid impacts on heritage places where possible. This is the overarching approach which has been enshrined in EPR CH1 which requires the design of both permanent and temporary works for the Project ‘to avoid, or minimise impacts on the cultural heritage values of heritage places.’



- (b) Second, where impacts on heritage places have been assessed as a risk, to formulate EPRs and potential mitigation measures that will apply across the Project and also specific measures tailored to address particular impacts on individual places of cultural heritage significance. For example EPR CH18 requires the detailed design design to review the siting and design of the eastern Domain entry to ensure it is as recessive as possible.
- (c) Third, the HHIA has identified potential mitigation measures for minimising the risks of impacts, and where necessary to address impacts on cultural heritage significance. A matter raised in submissions and which was also the subject of a request for further information from the Committee is the mechanism that will be adopted to ensure that consideration is given to the possible mitigation measures specified in the HHIA when making future decisions with respect to the Project about heritage places that are not listed in the Victorian Heritage Register or the Victorian Heritage Inventory.
- (d) In response, the MMRA has proposed a modification to EPR CH2 to require the preparation and implementation of a Heritage Management Plan (**HMP**) for the Project. The HMP will be required to identify the mitigation measures that will be adopted to avoid or minimise impacts on the cultural heritage values of heritage places. The MMRA has not sought to require the implementation of the mitigation measures identified in the HHIA through the EPRs because the mitigation measures identified in the HHIA are directed to providing guidance as to how the relevant EPRs could be achieved, either across the Project or for the specific heritage place referenced. The identified mitigation measures are not intended to prescribe the only way in which protection of heritage values can be achieved. Some of the possible mitigation measures also include an additional level of detail to assist in interpreting and complying with the EPRs. This detail is likely to provide assistance by highlighting

particularly relevant considerations when undertaking further detailed design and documentation work (see for example the commentary in the HHIA regarding Flinders Street Station). However, it is unnecessary that these detailed matters be required to be implemented via the EPRs.

- (e) Fourth, the implementation of EPR CH2 will ensure that the appropriate mitigation measures will be considered and implemented as part of the HMP as part of the process of achieving compliance with the EPRs. Further, a number of EPRs require specific measures to mitigate potential impacts on cultural heritage values. These specific measures include:

- i. The requirement to undertake all underground service works beneath or within heritage places or tree protection zones for trees as part of heritage places to avoid, minimise and mitigate impacts to the heritage fabric (EPR CH8).
- ii. To ensure that new development is responsive to heritage places in terms of height, massing, form, façade articulation and materials (EPR CH9).
- iii. To develop and implement detailed methodology to plan the dismantling, storage and reconstruction of heritage fabric (EPR CH4).
- iv. To implement appropriate protection measures for heritage places and objects including sculptures, memorials, monuments and associated heritage fabric where retained in proximity to works for the Project (EPR CH5).

- (f) Fifth, where cultural heritage values will be lost as a consequence of the Project, the approach has been to require:

- i. The documentation of change to affected heritage places (see EPR CH3);
- ii. The development and implementation of a heritage interpretation strategy to interpret lost values in accordance with good conservation practice (see EPR CH7).

- iii. That archaeological investigation be undertaken to realise research potential (see EPR CH6).

**D.6.1.1 The potential impact on heritage places as a result of noise and vibration and ground settlement particularly during construction<sup>313</sup>**

476. The most commonly expressed concern by submitters in relation to cultural heritage relates to the potential impacts on heritage buildings and places as a result of construction vibration and ground settlement associated with the Project. However, the assessment has concluded that the risk of damage is low to very low.<sup>314</sup>
477. Submissions have queried whether condition assessments are to be undertaken prior to works commencing for the Project. Another key issue raised by submitters has been the process for addressing rectification of damage to heritage places should this occur as a result of the works, including the responsibility for and cost of such works. Particular concerns have been raised in the submissions on behalf of St Paul's Cathedral to the Committee regarding potential damage to heritage fabric from vibration and ground movement associated with the construction of the Project.<sup>315</sup>
478. MMRA acknowledges the sensitivity and concern of submitters to the issue of risk of damage to both heritage and non-heritage places as a consequence of project related vibration or ground movement. The MMRA has been particularly concerned to ensure that impacts on places listed on the VHR will be avoided or minimised.

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<sup>313</sup> See MM024, MM025, MM050, MM057, MM058, MM090, MM095, MM100, MM101, MM109, MM119, MM113, MM134, MM135, MM142, MM146, MM159, MM166, MM180, MM182, MM186, MM192, MM207, MM215, MM220, MM221, MM222, MM228, MM235, MM249, MM250, MM274, MM320, MM324, MM326, MM332, MM347, MM351, MM364, MM365, MM367, MM371; Submissions to the Committee on behalf of the National Trust dated 12 September 2016, Document 157.

<sup>314</sup> Section 6.0 Project wide issues and at 6.6.2 to 6.6.4.

<sup>315</sup> See pages 20-22 of the Submission on behalf of St Paul's Cathedral to the Committee, July 2016, Document 127.

479. The relevant EPRs provide the foundation for the management of risks to cultural heritage values from project related vibration or ground movement. EPR CH2 is the overarching EPR which will require that impacts on cultural heritage values of heritage places should be avoided or minimised. All of the elements required to achieve the objective of avoiding or minimising impacts on cultural heritage are contained within the EPRs. The key elements of the process that will be adopted for the Project outlined in the EPRs are as follows:

- (a) An acoustic and vibration consultant will be appointed to predict noise and vibration during construction and to determine appropriate mitigation to achieve the EPRs (EPRs NV3 and NV14).
- (b) To address concerns by submitters as to communication regarding heritage places and ground movement and vibration a communications plan will be developed and implemented to liaise with affected community stakeholders and landowners regarding potential noise and vibration impacts. This will include procedures for complaint management (EPR NV4). Communications will need to comply with the CSEMP.
- (c) To minimise impacts on heritage places, a ground movement plan for the construction and operational phases of the Project will be developed and implemented. The ground movement plan will address matters including identifying structures which may be susceptible to damage by ground movement and will define appropriate ground movement impact acceptability criteria for buildings. The plan is required to have particular regard to places listed on the VHR. The plan will also identify mitigation measures to prevent impacts and also measures that will be adopted if acceptability criteria are not met so as to reinstate any property damage (EPR GM3).
- (d) Pre-construction condition surveys for structures predicted to be affected by ground movement (under the modelling required by EPR

GM3) will be required. This information will be shared proactively with landowners (EPR GM4).

- (e) Specific measures for heritage places on the VHR will be implemented through New EPR CHA, which requires that before tunnelling commences that the modelling required by EPR NV3 is to be considered and used to identify heritage places on the VHR which may be vulnerable to degradation as a result of vibration and to identify appropriate mitigation measures to prevent damage. Vibration modelling at the vulnerable heritage places will also be required to assess the actual vibration from construction works. In the event that the modelling 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. Pre-construction surveys will also be required and the mitigation measures identified will be required to be implemented.
- (f) New NVB requiring the development of a CNVMP, which is to be informed by modelling undertaken by the acoustic and vibration consultant in accordance with NV3. In relation to heritage buildings, the relevant provisions of the proposed CNVMP include the requirement to identify sensitive receptors along the Project's alignment, to identify reasonable and practicable measures to be implemented to manage construction vibration impacts in accordance with the specified guideline targets and monitoring requirements.<sup>316</sup> Implementation of vibration guideline targets for structures and in particular for Type 3 structures with a particular sensitivity to vibration such as heritage buildings will be required (EPR NV6).

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The relevant technical reports (Technical Appendix I Noise and Vibration and Technical Appendix P Ground Movement and Land Stability) recommend monitoring for sites which fall into identified zones of sensitivity.

- (g) For properties and assets affected by ground movement there is a requirement that any required repair works are undertaken (EPR GM6).

480. Heritage Victoria has submitted that the EPRs for noise and vibration should be amended to include specific requirements for VHR registered places (beyond the requirements specified in recommended EPR NV3). Heritage Victoria has also recommended specific measures for VHR-registered places, based in part on the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* requirements. This is unnecessary. As Mr Lovell explained in the course of his evidence the vibration level predicted at Victoria Barracks is well below the Guidelines Target (Technical Appendix I Noise and Vibration). As such, applying the onerous requirements specified for Victoria Barracks more broadly to places listed on the VHR is unwarranted.<sup>317</sup> Mr Lovell did nevertheless accept in his evidence, and the MMRA has adopted this recommendation, that there be a specific EPR to address vibration and ground movement impacts on heritage places on the VHR. This is EPR New CH A.

481. Vibration and ground movement in respect of VHR properties will also be addressed by the implementation of New NVB (the Construction Noise and Vibration Management Plan which includes requirements for identifying sensitive receptors, modelling impacts and implementing strategies to address potential impacts) and GM2 to GM6 (inclusive).

#### **D.6.1.2 Impact of the above CityLink tunnels option on the Domain Parklands (VHR H2304)<sup>318</sup>**

482. Following the tabling of TN 65 – Domain Parklands and St Kilda Boulevard,<sup>319</sup> the over CityLink tunnels option has been removed from the

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<sup>317</sup> Mr Lovell's report, Appendix D at D-3.

<sup>318</sup> MM128, MM175, MM189, MM254, MM365, MM320 (Heritage Victoria), MM332.

<sup>319</sup> Document 254.

Concept Design. This is an excellent outcome for the protection of cultural heritage values of the Domain Parklands.

**D.6.1.3 Impact of the permanent structures over the emergency access shafts in the Domain Parklands (VHR H2304) and Fawkner Park (HO6 and VHR PROV H2361)<sup>320</sup>**

483. The removal of all surface works from Fawkner Park confirmed in TN16 – Modification – Removal of the Fawkner Park TBM southern launch site<sup>321</sup> and TN 55 – Emergency Access Shafts<sup>322</sup> is an outcome which demonstrates that modifications to the Project to reduce the environmental effects of the Project can be achieved as detailed design and further planning continues.
484. In relation to the proposed emergency access shaft in the Domain Parklands, following further consultation with the Metropolitan Fire Brigade an emergency access shaft will no longer be required at Linlithgow Avenue.<sup>323</sup>
485. While the Emergency Access Shaft will no longer be required at Linlithgow Avenue, the site may be used for a potential temporary secondary access to the TBM tunnels if required. It is therefore proposed to retain the Linlithgow location for a potential access to the TBM if required by the PPP Contractor for temporary purposes during construction. The final determination as to whether the access shaft will be required will be made at the detailed design stage. However, if the shaft is required it can be expected that the impacts of the temporary access shaft during construction will be significantly less than the impacts assessed under the EES.<sup>324</sup> That is because the permanent infrastructure that would have been required for an Emergency Access Shaft will not be required. It is noted that the conclusion of the HHIA and the

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<sup>320</sup> MM04, MM32 (Heritage Victoria), MM332, MM365.

<sup>321</sup> Part of Document 3.

<sup>322</sup> Document 81.

<sup>323</sup> TN 55 – Emergency Access Shafts, Document 81.

<sup>324</sup> The cultural heritage impacts associated with the Emergency Access Shaft are assessed in section 7.6.3.3 ff of the HHIA and in the conclusion at section 7.6.3.4.

evidence of Mr. Lovell was that the (then) proposed Emergency Access Shaft could be accommodated without a major adverse impact on the heritage values of the place, although the Queen Victoria Gardens option was least preferred because of its potential visual impact on the setting of the King Edward VII memorial.

486. Minimising the impact on the cultural heritage of the access shaft on the heritage place will be achieved by the implementation of the following EPRs:

- (a) CH1 which requires the avoidance of minimising of impacts on the cultural heritage values of heritage places in the detailed design).
- (b) CH9 which requires new development to be responsive to heritage places in terms of height, massing, form façade articulation and materials and also LV1 which requires permanent and temporary works to be designed so that they comply with the UDS and maintain broader landscape character values.
- (c) CH5 requiring that prior to construction works that affect heritage structures or places that appropriate measures for the protection of heritage places and objects including memorials are developed and implemented.
- (d) The EPRs addressing arboricultural matters which require that tree removal be minimised during the detailed design phase, trees be reinstated in accordance with the Domain Parklands CMP and the Domain Parklands CMP (EPRs AR1, CH17).

#### **D.6.1.4 Removal of trees associated within heritage places and in particular along St Kilda Road<sup>325</sup>**

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<sup>325</sup> M320; Submission on behalf of the National Trust to the Committee dated 12 September 2016, Document 157 and submissions in relation to the Domain precinct to the Committee including: Submissions by the G12 (Document 178); Domain Owners' Corporation (Document 179), Mr S McHugh (Document 180); Ms F. Reed (Document 191); Ms H. Kent (Document 196).



487. Numerous submissions have raised the issue of tree removal as part of the works for the Project. This has been variously expressed as a general concern about tree removal as well as specific concern about trees within specific heritage places (particularly Royal Parade and St Kilda Road (VHR PROV H2339)). The issues relating to tree removal and impact on heritage landscapes have been addressed in the arboricultural and landscape section D.8.1 of this submission.
488. It is noted that particular concerns have been expressed in relation to St Kilda Road, with submitters referencing the boulevard layout and treed character of St Kilda Road and its status as a major boulevard in the Victorian or national context, but without necessarily linking these characteristics to the issue of heritage. The removal of trees and other changes in St Kilda Road are considered to be heritage issues, having particular regard to the Executive Director's recommendation (after the place was nominated by the MMRA) that St Kilda Road be included in the Victorian Heritage Register.<sup>326</sup> The Executive Director's recommendation in favour of registration on the VHR confirms the significance as historical and aesthetic, broadly consistent with the values identified in the HHIA.
489. The HHIA considered the impact of the works on St Kilda Road.<sup>327</sup> This addressed the key issues of tree removals, alterations to the road layout (including medians), the construction of new infrastructure related to the station and revised tram interchange and the reinstatement of trees as part of the new design.
490. In relation to removal of trees, EPR AR1 requires that at the detailed design stage potential tree impacts will be reviewed so as to provide for the maximum tree retention. The area required for construction activities, for example, could be further reviewed to consider whether this could be reduced.

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<sup>326</sup> See Appendix C to the Statement of Evidence of Mr Lovell, the VHR recommendation by the Executive Director of Heritage Victoria in respect of St Kilda Road dated 13 May 2016.

<sup>327</sup> See the HHIA at section 13.5.6.3 (pp. 360-372).

491. The following EPRs will mitigate the cultural heritage impacts associated with tree removal from St Kilda Road:

- (a) Re-establishing trees to replace lost canopy cover is required by EPR AR3. As explained in TN40: Arboriculture, replacement tree plantings will occur in improved soil, utilise irrigation and where appropriate super advanced specimen can be used to mitigate against immediate loss of amenity and provide the necessary conditions to optimise future growth.<sup>328</sup>
- (b) The establishment of a new functional road layout and design where works occur will allow for the re-establishment, as far as is possible, of the boulevard form and character through the planting of new trees. EPR CH20 requires the trees removed in St Kilda Road to be replaced and the boulevard formation re-established.
- (c) In relation to the issue of the placement and design of tram stops and ventilation and other structures these will be required to be designed and sited in a manner which minimises impacts on the cultural heritage values of the heritage places (EPR CH1).

#### **D.6.1.5 Western Portal precinct<sup>329</sup>**

492. The majority of the submissions made in relation to the Western Portal express a strong preference for the alternative design option (Option B). The key reason for the preference for Option B is because that option avoids the requirement to acquire and then demolish residences in Childers and Ormond Streets, which are graded and the subject of the Heritage Overlay. Submitters have contended that the residences required to facilitate Option A

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<sup>328</sup> TN40: Arboricultural, Part of Document 21, paragraph 8.

<sup>329</sup> MM092, MM093, MM101, MM120, MM122, MM124, MM140, MM152, MM158, MM165, MM167, MM168, MM169, MM179, MM192, MM238, MM282, MM293, MM332 and MM365.

collectively form an ‘important edge’ to the Kensington Precinct (HO9) under the Melbourne Planning Scheme.<sup>330</sup>

493. The HHIA notes that the Childers Street residences have a level of separation from other contributory building stock by virtue of the townhouse development at the corner of Tennyson and Childers streets. The four residences proposed to be demolished in the Concept Design have been assessed as contributory in the revised Heritage Inventory 2016 in proposed Amendment C258 to the Melbourne Planning Scheme. The contributory grading for the residences provides an appropriate recognition of their level of significance and contribution to the precinct. The HHIA does not conclude that the residences form an important edge to the precinct. In fact, the HHIA concludes that the contribution made to the precinct is less critical to the cohesion of the place than would be the case if the residences were located more centrally.<sup>331</sup>

494. Overall, the HHIA concludes that there is an opportunity in the case of Option B to avoid the impact on the heritage values of the heritage place (HO9). As a matter of principle it would be preferable to avoid the impact on heritage values if this could be achieved.<sup>332</sup> In his evidence to the Committee Mr Lovell confirmed this assessment and the preference for the alternative design, from a heritage perspective.

495. The implementation of EPR CH1 will ensure that impacts to cultural heritage values will be avoided, and if they are to occur that they are minimised.

#### **D.6.1.6 Impacts on the Parkville station precinct<sup>333</sup>**

496. Key concerns in relation to the Parkville station precinct concern the cultural heritage impact associated with the loss of 10 elms in Royal Parade (which

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<sup>330</sup> See in particular MM332 and MM365.

<sup>331</sup> HHIA, 8.6.1.3 at page135.

<sup>332</sup> HHIA at pages 135-136.

<sup>333</sup> MM128, MM294, MM318, MM332, MM364 and MM365.

is listed on the VHR) and 14 elms in Grattan Street, and the cultural heritage impact of loss of these trees. Specific EPRs have been developed to address the impact on heritage landscapes. In particular EPR CH12 requires the replacement of elms with appropriate species and the re-establishment of the boulevard formation and to provide suitable soil conditions to facilitate the growth of the new trees.

497. The impact of new structures on heritage buildings and places within the Parkville Station precinct is also addressed in the HHIA, including on Royal Parade and the various University of Melbourne heritage places, and the Carlton Precinct (HO1).
498. A specific issue has been raised in relation to the bluestone gate pillar and cast iron fence at the corner of Royal Parade and Grattan Street (VHR HO918).<sup>334</sup> Works in connection with the construction of the eastern station entrance off Grattan Street are likely to disturb this heritage place. Three EPRs are relevant to addressing impacts on the heritage place. The first is EPR CH1 which requires all temporary and permanent new structures to be designed to avoid or minimise impacts on the cultural heritage values of the heritage place as a starting point (EPR CH1). One of the key ways in which this could be achieved is via the implementation of EPR CH16, which requires the integration of the bluestone pillar and cast iron fencing into the design for the station entry and surrounds in consultation with the University of Melbourne. It would also be appropriate to develop active site interpretation referencing the historical boundary treatment to the Parkville campus. The third relevant EPR is EPR CH4, which requires that where heritage fabric is required to be dismantled stored and reconstructed as may be required in the case of the fence and pillar, this be overseen by a suitably qualified conservation practitioner and in accordance with detailed methodology.

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499. In relation to the Gatekeeper's Cottage (VHR HO919), EPR CH13 has been formulated to address the impacts on this element of the heritage place. It requires that in detailed design for the Parkville station, the entry is to be set no less than 8-10 metres from the Gatekeeper's Cottage, and an appropriate boundary treatment is retained or re-established for the heritage building.

**D.6.1.7 CBD South precinct<sup>335</sup> - Demolition and alteration of buildings in the Flinders Gate Precinct (HO505)**

500. Submitters have made submissions:
- (a) Opposing the demolition of graded buildings within the Flinders Gate Precinct including the Port Phillip Arcade and 9-25 and 27-29 Swanston Street;<sup>336</sup>
  - (b) Impacts on the heritage fabric of St Paul's Cathedral from construction vibration and ground movement.<sup>337</sup> These impacts are addressed at D.6.1.1; and
  - (c) the visual impact of station infrastructure particularly on views to St Paul's Cathedral.<sup>338</sup>
501. In relation to the demolition of buildings within the Flinders Gate Precinct the HHIA concluded that the proposed mitigation strategies contained in the EPRs were appropriate to address the expected impacts associated with demolition of these buildings. Specifically:

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<sup>335</sup> MM182, MM195, MM236, MM274, MM281, MM297, MM332, MM326, MM335, MM359, MM365, MM269; Submission on behalf of St Paul's Cathedral to the Committee, July 2016 pages 11-14 Document 127.

<sup>336</sup> MM195, MM335, MM359, MM365, MM332.

<sup>337</sup> See pages 20-22 of the Submission on behalf of St Paul's Cathedral to the Committee, July 2016, Document 127.

<sup>338</sup> MM274, MM332

- (a) The requirement that before demolition, graded buildings would be required to be investigated and recorded in accordance with EPR CH3;
- (b) Archaeological investigations of sites to be demolished would be required by EPR CH6;
- (c) The ownership, relocation and management of the Charles Bush sculpture on the Port Phillip Arcade is to be addressed and the sculpture is to be incorporated on the design for the new building on the Port Phillip Arcades site, preferably in a prominent position on the Flinders Street façade (EPR CH14); and
- (d) A heritage interpretation strategy will be required for the detailed design as a whole, which will include referencing the Port Phillip Arcade (EPR CH7).

502. In relation to visual impacts of infrastructure associated with the Project on St Paul's Cathedral:

- (a) The MMRA acknowledges that St Paul's Cathedral has high heritage significance and is recognised and protected through inclusion in the VHR and the Heritage Overlay as well as through inclusion in the Register of the National Estate and the National Trust classification. The landmark qualities of St Paul's Cathedral are recognised in the Conservation Management Plan for St Paul's Cathedral. The statement of significance recognises that St. Paul's Cathedral is socially and historically significant as a landmark building on one of Australia's busiest intersections.
- (b) As a heritage place, which is of architectural, historic, scientific (technical) importance to the State of Victoria, MMRA's approach to visual impact on St Paul's Cathedral is that the visual impact of new structures should be minimised. The MMRA acknowledges the potential for development in proximity to the Cathedral to have an adverse impact on its presentation - notwithstanding the fact that the

VHR Statement of Significance is silent on the issue of views to St Paul's Cathedral.

- (c) Mr Lovell's opinion is that longer views to the Cathedral are less likely to be affected by new structures, provided that these structures are low scale and carefully sited. Overall, it is Mr Lovell's opinion that while there are sensitivities associated with locating infrastructure in proximity to the heritage place, the addition of modest low level structures on either the Federation Square site or the City Square site is unlikely to have an adverse heritage impact.<sup>339</sup>

503. Ultimately, the impacts on St Paul's Cathedral will need to be the subject of further consideration at the detailed design stage. EPR CH1 requires that the design of permanent and temporary works must avoid or minimise impacts on the cultural heritage values of heritage places. Consultation as required with Heritage Victoria is also required by EPR CH1. This will ensure that the impacts on the heritage place will be given appropriate consideration at the detailed design stage.

#### **D.6.1.8 Relocation of Burke and Wills Monument<sup>340</sup>**

504. The City of Melbourne owns the Burke and Wills Monument. It is highly likely that the Monument will be required to be removed during construction works for the CBD South station. The ultimate location of the statue, and whether it will be permanently relocated from its City Square location has not been confirmed to date because the detailed design work for City Square has not been completed. Submissions addressing the relocation of the statue have highlighted that the Statue has had five homes in the last 151 years and do not favour a further temporary relocation. Submitters have favoured a permanent home for the Monument within the grounds of the Royal Society

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<sup>339</sup> Statement of evidence of Mr Lovell, Appendix D at D30-31.

<sup>340</sup> MM269, MM332

of Victoria as the Royal Society of Victoria organised the Burke and Wills expedition.<sup>341</sup>

505. The MMRA does not oppose the relocation of the Monument to the grounds of the Royal Society of Victoria, but notes that as the City of Melbourne is the asset owner it will ultimately be a matter for the City of Melbourne in consultation with the Royal Society of Victoria, as to whether the permanent relocation is supported and the conditions upon which relocation will be achieved.

506. Insofar as the protection of the Monument during works and any relocation are concerned, the following EPRs will ensure the protection of the Monument:

- (a) EPR CH15 requires that in the event that the permanent relocation of the Monument is required that its final location will be resolved in consultation with the City of Melbourne prior to the commencement of construction.
- (b) EPR CH4 provides for the development and implementation in accordance with the ICOMOS Burra Charter of a detailed methodology for the dismantling, storage and reconstruction of heritage fabric required to be relocated.
- (c) In the event that the Monument is retained in situ during works, EPR CH5 requires the development and implementation of appropriate protection measures for heritage fabric during construction works.

#### **D.6.1.9 Impacts on the Shrine of Remembrance (VHR H0848)<sup>342</sup>**

507. Submissions regarding the Shrine have raised the following key issues:

- (a) the loss of trees;<sup>343</sup>

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<sup>341</sup> See submissions MM269 at page 4 and MM332 at page 5.

<sup>342</sup> MM193, MM218, MM249, MM332, MM346, MM365, MM370.

<sup>343</sup> See for example MM 193, MM370 and MM332.



- (b) the surface impact of proposed design and infrastructure treatments and whether they are sympathetic to the Shrine and its environs;<sup>344</sup> and
- (c) the degree to which the design will take into consideration the significance, iconic status, and reverence for the Shrine and its environs and the need to minimise or avoid impacts.<sup>345</sup>

508. The MMRA is conscious that the Shrine of Remembrance is a place of commemoration and that for the community, the Shrine has a solemn purpose, great symbolism and is of cultural heritage significance to the State of Victoria.

509. The proposed station entry for Domain is the key feature of Melbourne Metro that has the potential to impact the Shrine of Remembrance. This has been assessed in the HHIA<sup>346</sup> and the expert evidence of Mr Lovell addressing both construction impacts and the location of permanent infrastructure associated with the station entry for Domain.<sup>347</sup>

510. In relation to the impacts associated with the entrance to the station, Mr Lovell's conclusion is that the entry would not in any sense undermine the purpose of the heritage place nor would it detract from an appreciation of the Shrine's importance and cultural heritage significance. That is principally because the proposed entry is remote from the Shrine building and located on the periphery of the Shrine's reserve and will not impose on key axial views. Mr Lovell has concluded that with further design refinement, an appropriate design can be achieved which will minimise impacts on the cultural heritage values of the heritage place. EPR CH1 will require design development to proceed in a manner which avoids or minimises impacts on the cultural heritage values of heritage places including this heritage place.

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<sup>344</sup> See for example MM249m, MM346 and MM 365.

<sup>345</sup> See for example MM 249 and MM365.

<sup>346</sup> See section 13.5.2.3 (pages 340 to 347) of the HHIA.

<sup>347</sup> See the HHIA at 13.5.2.3.

The ultimate design will require the approval of Heritage Victoria. A specific EPR has been proposed to address impacts on the Shrine, EPR CH18 which requires the review of the eastern Domain entry at the detailed design stage to ensure that it is as recessive as possible and has only a limited presence on the edge of the Reserve. The design is also required to allow for the maintenance of an appropriate setting to the Macpherson Robertson Memorial Fountain.

511. In relation to the removal of trees from the Shrine's surrounds, relatively limited numbers of tree removals are proposed within the boundaries of the Shrine. The majority of the trees to be removed are juvenile specimens. No dedicated trees will be removed. EPR CH17 requires the replacement of removed trees as part of project delivery to re-establish valued landscape character in consultation with the Shrine of Remembrance Shrine Trustees and in accordance with the Shrine of Remembrance Conservation Management Plan (**CMP**).

#### **D.6.1.10 South African Soldiers Memorial (VHR H1374)<sup>348</sup>**

512. The key issues raised in submissions regarding the South African Soldiers Memorial relate to:
- (a) the significance of the place and the various elements on the site, including the memorial itself, the drinking fountain and mature trees;
  - (b) removal of trees as part of works including the loss of the Windsor Oak (the impact assessment assumed full clearance of the site);
  - (c) temporary removal and reinstatement of the memorial and the drinking fountain; and

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MM006, MM128, MM133, MM190, MM208, MM214, MM226, MM229, MM232, MM256, MM267, MM268, MM283, MM289, MM311, MM312, MM315, MM343, MM346, MM349, MM356 (duplicate of MM190), MM270, MM375

- (d) the design of the proposed station entry and the implications for the siting of the reinstated memorial with an appropriate setting.

513. The HHIA recognised that the Concept Design was not an appropriate design outcome for the Memorial and acknowledged that further design work was required.<sup>349</sup> Since the completion of the HHIA, further investigation and assessment of the heritage values of the place has been completed on behalf of Port Phillip City Council by Context Pty Ltd, and a CMP prepared. As the heritage place is listed on the VHR, a permit under the Heritage Act will be required for works disturbing the memorial and the area contained within the registration including removal of trees. The CMP is likely to be a key reference for Heritage Victoria when considering permits for works that will occur and the future management of the place. In terms of heritage values, the CMP recognises the significance of elements on the site not specifically referenced in the VHR documentation, including the drinking fountain, the trees and the plaques. The HHIA also recognised these elements as of interest or significance, including as part of the setting to the memorial.

514. The EPRs respond to each of the key issues raised by submitters in relation to the Memorial as follows:

- (a) In relation to the appropriate siting and design of the memorial, EPR CH19 will require a review, to the satisfaction of Heritage Victoria, of the siting and design of the western Domain station entry in the detailed design phase to ensure the South African Soldiers Memorial has an appropriate landscaped setting if relocated on this site. If no appropriate setting can be established, EPR CH19 requires the consideration of options for relocation of the memorial to an alternative site. EPR CH19 will also require the development of interpretative material in consultation with the City of Port Phillip to display in the precinct until the Monument is restored.

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See the HHIA at section 13.5.3.3.

- (b) In relation to removal of trees, at the detailed design stage EPR AR1 requires a review of potential tree impacts to provide for the maximum tree retention that is practicable. At this point whether significant trees, including the Windsor Oak, can be retained will be assessed and if it is practicable to do so, trees will be retained. In relation to replacement trees, EPR CH17 will require that removed trees will be replaced as part of project delivery to re-establish landscape character in consultation with the City of Port Phillip and in accordance with the South African Soldiers Memorial Reserve CMP (Context, 2016).

#### **D.6.1.11 The proposed EPRs**

515. The Committee should be satisfied, having regard to the matters specified in paragraph 2.11 of MMRA's opening submission, that:

- (a) The EPRs respond directly to the various forms of potential impact on cultural heritage places that may arise during construction and operation of the Project;
- (b) The EPRs establish appropriate benchmarks for addressing impacts;
- (c) The EPRs appropriately make provision for the creation of a Heritage Management Plan (EPR CH2) which will outline proposed mitigation measures for heritage place and for the related CNVMP and ground movement plan;
- (d) The EPRs specifically promote consultation with councils, Heritage Victoria, stakeholders and affected persons;
- (e) The EPRs are properly framed as performance-based standards and are sufficiently robust to account for changes from the Concept Design situated primarily within the Project Boundary;
- (f) The cultural heritage EPRs appropriately cross-reference the suite of other EPRs. In particular, the EPRs make appropriate cross-reference to the noise and vibration and ground movement EPRs.

## **D.7 Land Stability**

*To avoid or minimise adverse effects on land stability that might arise directly or indirectly from project works.*

### **D.7.1 Environmental Effects**

516. There is potential for Melbourne Metro to result in ground movement that may potentially impact existing buildings and infrastructure. This may occur as a consequence of excavation-induced settlement (be that in respect of underground or open cut works), consolidation-induced settlement (attributable to groundwater drawdown), or vibration-induced settlement.
517. The ultimate extent of ground movement, and the resulting level of impact, will be determined by the complex interaction of a number of factors, including (but not limited to) the geological and hydrogeological conditions encountered along the alignment, the depth and alignment of the ultimate project, the construction methods adopted, and the structural condition of buildings and infrastructure situated along the alignment.
518. An analysis of the potential impacts associated with the Concept Design is documented in the Ground Movement Impact Assessment (**GMIA**) at Appendix P of the EES. Mr Bennett assisted in the preparation of that assessment and explained in evidence the basis upon which it was undertaken.
519. In broad terms the GMIA:
- (a) quantifies the extent of settlement that would be expected to be associated with different elements of the Concept Design;
  - (b) assesses the likely impact of this on buildings, civil infrastructure, and parklands situated along Melbourne Metro's alignment;
  - (c) identifies a range of monitoring and mitigation measures that could be implemented to ensure that impacts of Melbourne Metro are controlled within acceptable levels; and
  - (d) provides the basis for a series of EPRs to ensure that appropriate measures will be implemented in respect of Melbourne Metro.

520. The GMIA was informed in part by assessments undertaken by Golder Associates in respect of:
- (a) the hydrogeological setting (as described in the Interpreted Hydrogeological Setting EES Summary Report);
  - (b) the geological setting (as described in the Interpreted Geological Setting EES Summary Report); and
  - (c) the modelled level of ground movement associated with the Concept Design (as reported in the Ground Movement Assessment – EES Summary Report).
521. As foreshadowed in those reports and in the EES, further geological and hydrogeological investigations have been undertaken since the exhibition of the EES (including results from an additional 241 boreholes undertaken along the alignment).
522. MMRA has provided that material to the Committee in the form of updated Golder Associates Interpreted Summary Reports in respect of both the hydrogeological and geological settings (under cover of Technical Note 23).<sup>350</sup> Further detailed information has been provided to the Committee in respect of the results of the initial bore log tests that informed the preparation of the EES.<sup>351</sup>
523. Whilst there is accordingly a considerable body of knowledge concerning the geological and hydrogeological conditions of the alignment, which has also been informed by expertise gained in the context of other development projects undertaken along the alignment, it is anticipated that additional investigations into the geological and hydrogeological conditions will continue on an ongoing basis throughout the detailed design and construction phases of the project. These further investigations will further refine the understanding of Melbourne Metro's setting and will inform the

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<sup>350</sup> Document 7 (in part).

<sup>351</sup> *Ibid.*

development of the project's ultimate design and the selection of appropriate construction methodologies.

524. Examples of how Melbourne Metro's setting may influence aspects of detailed design and the selection of construction methodologies are provided in Technical Notes 8 and 24 respectively.<sup>352</sup>
525. TN8 recognises that, in response to the identification of a clay filled paleo-channel a short distance to the south of City Square, it may be necessary to lower the CBD South station cavern shown in the Concept Design by up to four metres (depending on the specific conditions at the interface of the paleo-channel with the deeper lying Melbourne Formation).
526. TN24 describes how, in response to the greater extent of fractured rock likely to be encountered within CBD South than previously anticipated, a different class of support may be required in order to construct the CBD South station cavern in accordance with the Concept Design.
527. Both sets of analyses demonstrate that the Concept Design remains a "technically feasible way for the project to be developed that meets the Victorian Government's objectives and the recommended [EPRs] documented in the EES."<sup>353</sup> They also demonstrate the range of factors that may ultimately influence the ultimate design and alignment of Melbourne Metro.
528. It is important that the EPRs formulated in respect of land stability are able to account for potential differences between the Concept Design and the ultimate design and alignment of Melbourne Metro (subject to it remaining primarily within the Project Boundary).
529. Mr Bennett explained how the EPRs proposed in respect of the project satisfy this requirement.<sup>354</sup> In short, they do so primarily by establishing a

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<sup>352</sup> Documents 3 (in part) and 7 (in part).

<sup>353</sup> See page 6-1 of the EES.

<sup>354</sup> See, in particular, Part 4.8 of Mr Bennett's witness statement.

robust framework pursuant to which the ultimate design of the project must be developed and ultimately assessed. They require *inter alia* that the following measures be undertaken as part of the design, construction and legacy phases of Melbourne Metro:

- (a) First, the completion of updated hydrogeological and geological modelling to inform detailed design;<sup>355</sup>
- (b) Second, the completion of monitoring to establish baseline conditions;<sup>356</sup>
- (c) Third, the carrying out of condition surveys of potentially affected buildings and structures along the alignment, prior to the commencement of construction;<sup>357</sup>
- (d) Fourth, the identification and implementation of mitigation measures – documented in project-specific Groundwater and Ground Movement Management Plans – as a means of ensuring that applicable groundwater and ground movement sensitivity criteria are identified and achieved;<sup>358</sup>
- (e) Fifth, the completion of ground movement and groundwater monitoring during construction;<sup>359</sup> and
- (f) Sixth, the completion of any necessary rectification works post-construction.<sup>360</sup>

530. It is notable that there has not been any suggestion during the course of the hearing that this framework is deficient in any material way. Indeed, the structural engineering experts that have appeared before the Committee have

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<sup>355</sup> See EPRs GW1, GW2, GM1, GM2, and GM5.

<sup>356</sup> EPR GM1.

<sup>357</sup> EPR GM4.

<sup>358</sup> See EPRs GW3 and GM3.

<sup>359</sup> See EPRs GW5 and GM3.

<sup>360</sup> EPR GM6.



confirmed that it establishes an appropriate framework to ensure that issues concerning land stability are appropriately addressed.<sup>361</sup>

531. Prior to addressing particular impacts that may arise in respect of land stability, it is noted that the following MMRA Technical Notes are relevant to the submissions on land stability: TN7, TN8, TN11, TN23, TN24, TN37, TN38, TN53, and TN62.

#### **D.7.1.1 Impacts of Melbourne Metro on Buildings and Infrastructure<sup>362</sup>**

532. A number of submitters expressed concern in respect of the potential for property damage to arise as a consequence of ground movement associated with Melbourne Metro (be that in respect of private dwellings, heritage listed structures, or public infrastructure).
533. MMRA recognises that it is important that appropriate measures be put in place to address these concerns and to ensure that:
- (a) All structures within Melbourne Metro's potential zone of influence are adequately protected; and
  - (b) Any structural damage sustained as a consequence of the project is rectified in a timely manner.
534. The framework established under the EPRs, described in broad terms above, will ensure that this will be the case by identifying a range of measures that must be considered or implemented before, during and after construction.
535. The broad process to be adopted pursuant to this framework is essentially the same regardless of the age of the building or structure in question, its heritage significance, or the depth or alignment of the tunnel at any given point.

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<sup>361</sup> A proposition, for instance, that was expressly supported by Mr Payne in evidence.

<sup>362</sup> See submissions MM008, MM012, MM059, MM096, MM101, MM216, MM219, MM222, MM238, MM258, MM266, MM285, MM290, MM324, MM327, MM377.

536. That said, the level of assessment to be undertaken pursuant to that process will necessarily differ on a case-by-case basis (depending *inter alia* on the potential extent of impact and the particular vulnerability or significance of the structure in question). As the analysis described in Technical Note 7 demonstrates, where buildings are identified as being potentially at risk, more detailed analysis is warranted (including the identification of specific land stabilisation measures where appropriate).
537. Melbourne Metro is clearly not the first major tunnelling project to be undertaken within a highly urbanised environment. The framework proposed pursuant to the EPRs is conventional in modern tunnelling projects of this type, and the range of potential mitigation measures that can be implemented pursuant to the framework to address land stability issues are well-understood.
538. The Committee should be satisfied that the EPRs respond positively to the applicable evaluation objective.

#### **D.7.1.2 Impacts of Buildings and Infrastructure on Melbourne Metro<sup>363</sup>**

539. Mr Bennett was the principal author of the Future Development Loading Technical Paper that informed the development and spatial application of the proposed DDO control.<sup>364</sup>
540. The specific terms of that control are addressed in greater detail in Part E.2 of these submissions. It is noted for present purposes, however, that the Future Development Loading Technical Paper constitutes a sound basis to assess:
- (a) the extent to which future development in and around the alignment may impact Melbourne Metro infrastructure; and equally

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<sup>363</sup> See submissions MM008, MM012, MM059, MM096, MM101, MM216, MM219, MM222, MM238, MM258, MM266, MM285, MM290, MM324, MM327, MM377.

<sup>364</sup> Appendix J to the Land Use Impact Assessment.

- (b) the extent to which the presence of Melbourne Metro may impact on the capacity for future development in and around the alignment.

541. The Technical Paper demonstrates, in respect of the first of these matters, that Melbourne Metro will be designed to account for both existing levels of loading and to make an allowance for a nominal level of additional loading. Melbourne Metro can be distinguished from a number of other tunnelling projects in this respect which have not made any provision for additional loading in their design.
542. Mr Bennett went on to explain, in respect of the second of these matters, that the presence of Melbourne Metro is very unlikely to preclude the realisation of *any* future developments (or future re-developments) on land in proximity to Melbourne Metro (including land immediately above or adjacent to the alignment of the tunnel). It may, if anything, require the application of different engineering measures or construction techniques in order to ensure that the structural integrity of Melbourne Metro structures is appropriately protected during and after construction.
543. Mr Bennett's opinions in this respect were informed, in part, by his considerable experience in assessing development proposals in and around the Melbourne Underground Rail Loop (which raises comparable technical considerations to those that would arise in respect of Melbourne Metro). Mr Payne, who also had experience in this regard, confirmed that Mr Bennett's experience was consistent with his own.
544. For the reasons set out in Part E below, MMRA remains of the view that the DDO control remains the most appropriate mechanism to ensure that matters relating to future development loading are properly considered and addressed in future development projects.
545. The potential redevelopment of the Graduate Union serves as a useful case in point. Notwithstanding the extensive excavation that is proposed as part of that potential redevelopment, and notwithstanding its proximity to the alignment of the Concept Design, Mr Payne confirmed that the existence of

the tunnel would not preclude the realisation of the Graduate Union's development aspirations.

546. Indeed, regardless of whether any future redevelopment of the Graduate Union precedes or post-dates the development of Melbourne Metro, Mr Payne confirmed that both structures could be delivered without any material modification to the respective proposals.

547. Whether the Graduate Union's application will be subject to the provisions of the DDO will turn on whether it receives planning approval prior to the introduction of the control. If it does, then the development will not be the subject of assessment pursuant to the DDO (and the ultimate design of Melbourne Metro will factor in the loading of the approved development). If it does not, then the application will need to be assessed pursuant to the provisions of the DDO in the same way as all future development applications.

#### **D.7.1.3 Impacts on Groundwater<sup>365</sup>**

548. Mr Middlemis undertook an independent peer-review of the Groundwater Impact Assessment (**GIA**) exhibited as Technical Appendix O to the EES.<sup>366</sup> He relevantly concluded that the GIA provides comprehensive details on the groundwater-related impacts of the Concept Design.<sup>367</sup> Mr Middlemis' initial review also:

- (a) endorsed the methodology adopted in the GIA;
- (b) concurred with the residual ratings of 'low' and 'very low' attributed to the various groundwater impacts identified under the risk register;

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<sup>365</sup> See submissions MM023, MM109, MM207, MM228, MM274, MM299, MM300, MM301, MM023, MM023, MM023, MM023, MM023.

<sup>366</sup> Appendix B to the Groundwater Impact Assessment.

<sup>367</sup> See page 9 of Mr Middlemis' initial peer review.

- (c) identified a series of further investigations to be undertaken as part of the detailed design phase of the project, including:
  - i. additional field investigations (including long term pumping tests);
  - ii. further groundwater modelling (including transient model calibration); and
  - iii. the preparation of a groundwater management plan in respect of the project.

549. Mr Middlemis updated his initial peer review in light of the additional geological and hydrogeological investigations undertaken since the exhibition of the EES (as documented in the updated Golder Associates Summary Reports). He indicated during the course of his evidence that the conclusions expressed in his initial assessment stood.

550. The conclave conducted in respect of groundwater recorded substantial agreement between Mr Middlemis and Mr Hargreaves (being the only other expert called in respect of hydrogeology). In particular, the conclave report records agreement that:<sup>368</sup>

- (a) The assessment methodology, results, and interpretations recorded in the GIA are generally appropriate for the Concept Design phase;
- (b) The results obtained for the construction phase are generally appropriate for the Domain Precinct (being the precinct in respect of which Mr Hargreaves was engaged); and
- (c) The EPRs proposed are generally adequate.

551. The extent of disagreement between the witnesses was limited to whether additional assessment should be undertaken at this stage of the process in respect of the potential groundwater rebound effect that would arise as a consequence of the partial replacement of the South Yarra Main sewer. MMRA relies on the evidence of Mr Middlemis in support of the

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<sup>368</sup> Document 27.

proposition that these further investigations are appropriately undertaken at the detailed design phase and are adequately provided for under the EPRs as presently proposed.

552. The Committee has also had the benefit of further independent technical advice prepared by Mr Hancock in respect of aspects of the GIA.<sup>369</sup> That advice, which covers a wide range of technical issues including *inter alia* surface water linkages to groundwater, confined aquifer behaviour, long-term groundwater level variations, and the prospect for depressurisation of the Fishermens Bend and Coode Island Silt, was generally supportive of the GIA. It was also generally consistent with the evidence given by Mr Middlemis to the Committee.
553. The Committee should accordingly be satisfied that the GIA provides a proper basis upon which to assess the environmental impacts of Melbourne Metro on groundwater. Technical Note 62 contains responses to the recent queries raised by the Committee in respect of the modelling parameters adopted in respect of CBD station caverns pursuant to the GIA.
554. A number of submitters raised concerns in respect of the potential for construction activities to give rise to groundwater drawdown (and in turn settlement) at various locations along the alignment.<sup>370</sup> MMRA adopts the written responses prepared by Mr Middlemis to each submission as recorded in his witness statement.<sup>371</sup>
555. It is noted, finally, that ground water disposal will need to be undertaken in accordance with a Groundwater Disposal Strategy to be prepared as part of the Groundwater Management Plan.<sup>372</sup> EPR GW4 specifically requires that

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<sup>369</sup> Document 40.

<sup>370</sup> See, for instance, MM023, MM050, MM109, MM119, 159, MM178, MM180, MM182, MM228, MM238, MM250, MM274, MM291, MM299, MM300, MM301, MM321, MM367, MM370, MM377.

<sup>371</sup> At Part 4.3.

<sup>372</sup> EPR GW3.

a Trade Waste Agreement be obtained with relevant Water Retailers in this respect.

#### **D.7.2 The Proposed EPRs**

556. Few submitters have sought modifications to the EPRs for ground movement and groundwater. MMRA has incorporated all modifications recommended by Mr Middlemis and by Mr Bennett into Version 3.

557. The framework proposed responds positively to the evaluation objectives identified in paragraph 2.11 of MMRA's opening submissions. In particular, the Committee should conclude that:<sup>373</sup>

- (a) The EPRs respond directly to the various forms of potential impact that may induce ground movement (be that excavation induced settlement, consolidation induced settlement, or vibration induced settlement);
- (b) The EPRs establish an appropriate framework to ensure that any impacts on buildings or structures are limited to within acceptable parameters and that any residual damage is rectified in a timely fashion;
- (c) The EPRs appropriately make provision for the creation of both Ground Movement and Groundwater Management Plans;
- (d) The EPRs specifically promote consultation with stakeholders and affected persons, including most importantly through the completion of pre-construction condition surveys, to inform the preparation of management responses and to ensure that an accurate record of existing conditions is established prior to the commencement of works;

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<sup>373</sup> *Ibid.*

- (e) For the reasons given above, the EPRs are sufficiently robust to account for changes from the Concept Design situated primarily within the Project Boundary; and
- (f) The EPRs appropriately cross-reference the suite of other EPRs.<sup>374</sup>

## **D.8 Landscape, Visual and Recreational Values**

*To minimise adverse effects on landscape, visual amenity and recreational values as far as practicable.*

### **D.8.1 Arboriculture**

558. The following MMRA Technical Notes are relevant to the submissions on arboriculture:

- (a) TN16 – Modification – Removal of the Fawkner Park TBM southern launch site;
- (b) TN40 – Arboriculture - Response to Section 15 of the Preliminary Matters and Further Information;
- (c) TN 47 - Tom’s Block – Ground Stabilisation Works;
- (d) TN 55 – Emergency Access Shafts;
- (e) TN 57 - MMRA’s response to recommended amendments to the Urban Design Strategy from the Urban Design Conclave;
- (f) TN 65 - Domain Parklands and St Kilda Road Boulevard;<sup>375</sup>
- (g) TN 72 - Clarification of tree impacts;<sup>376</sup>

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<sup>374</sup> As an example it is noted that the pre-construction condition surveys to be undertaken pursuant to EPR GM3 are referenced in EPR NVB in the context of the determination of structure-specific guideline target levels in respect of vibration.

<sup>375</sup> Document 254.

<sup>376</sup> Document 326.



- (h) TN 71 - Trees in Osborne Street;<sup>377</sup>
- (i) TN 77 - Melbourne Metro Sustainability Targets.

**D.8.1.1 The Arboricultural Impact Assessment has been undertaken on a conservative basis**

559. The key landscape impact arises from the removal of trees to accommodate excavations, built form and associated construction areas.
560. When considering the impacts associated with tree removal for the Project it ought be recognised that the tree removal assessment has conservatively assessed the removal of *all* trees within the construction area. In practice however, the EPRs will require the maximum tree retention.
561. It should also be recognised that the Project has reduced the number of trees to be removed by virtue of the following:
- (a) The majority of the rail tunnel will be located underground and will be constructed using a tunnel boring machine or road headers. As such, the number of trees that will need to be removed above the proposed tunnel alignment has been limited.
  - (b) EPR AR1 requires that during detailed design potential tree impacts will be reviewed to provide the maximum tree retention on both public and private land. This will require, prior to the construction of main works or shafts, the development and implementation of a plan in consultation with the relevant local council that identifies all trees in the project area and which covers all trees to be removed or retained. The preparation of detailed works programmes may result in a re-alignment of works boundaries within those delineated on the plans. This is likely to reduce the number of trees that are assumed to be removed in the Arboriculture Impact Assessments.

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<sup>377</sup>

Document 325.

- (c) The assessments undertaken for the EES by arborists from John Patrick, assessed the Useful Life Expectancy (**ULE**) of trees as *higher* than those ascribed by the City of Melbourne being the municipality with the greatest number of trees potentially affected by the Project. This underscores the conservatism of the assessment.
- (d) A significant proportion of trees assumed to be removed are either of recent planting date (i.e. within the past 5 years) so that they offer little amenity value at the present time, or are considered to be over-mature so that their removal could be viewed as beneficial by accommodating the planting of replacement juvenile vegetation. As an example, within the City of Melbourne, these trees considered as a group represent 54% of the total number of trees that are assumed to be removed. It is necessary to remove mature and over mature trees to maintain the viability and character of streetscapes, and this is beneficial for management of the urban forest.
- (e) At the Eastern Portal Trees assessed as impacted in the EES include 67 trees located within the Eastern Portal Precinct that are classified as declared or noxious weeds under the *Catchment and Land Protection Act 1994*. In the Arden Precinct it is proposed to remove 59 trees which are environmental weeds. The removal of environmental weeds, whether mature or immature, has beneficial outcomes.
- (f) In University Square, 57 trees within the Melbourne Metro construction footprint are also identified for replacement in the draft City of Melbourne University Square Master Plan. That is, these trees would have been removed to achieve the desired outcome of the Master Plan.
- (g) Modifications to the Concept Design during the course of this hearing reported in TN 14 (Swanston Street), TN 16 (Fawkner Park), TN55

Emergency Access Shafts and EES have Significant trees ‘savings’ including.<sup>378</sup>

i. 69 trees in Fawkner Park (62 trees were associated with the launch and retrieval of the TBMs, and 7 trees were associated with the EAS). 17 of these trees were medium-long term viability (MLTV) and the trees included a mature Bunya-Bunya Pine and Lemon-scented Gum.

ii. 60 trees in Domain Parklands which will no longer be removed to pass over the CityLink tunnel (46 trees of these trees were directly impacted by proposed grouting and 14 trees could be impacted by the Tom’s Block EAS).

iii. 2 trees on Swanston Street will be retained due to the properties located at 65 and 67-73 Swanston Street no longer being required for acquisition. Both of these trees (mature London Planes) had ULEs of 21-30 years.

(h) There is an opportunity to reinstate trees as part of the Project delivery to achieve high quality urban streetscapes and to improve on existing conditions. For example at the Arden precinct<sup>379</sup> and at University Square in Parkville.<sup>380</sup>

562. It is appropriate to place the extent of (worst case) tree removal for the Project in the context of ongoing urban forest management for public spaces particularly within the City of Melbourne. The proposed extent of tree removal can be put into context by recognising that in 2014 the City of Melbourne managed approximately 70,000 trees in public spaces, including

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<sup>378</sup> See TN 72 Clarification of impacts on trees, Document 326 for further detail.

<sup>379</sup> See Figure 9-4 Potentially Impacted Trees, Arden at page 67 and plans on page 68-72.

<sup>380</sup> See Technical Appendix R, Arboriculture Impact Assessment City of Melbourne, Port Phillip and Maribyrnong at pages 81-83 and Figure 10.5 Potentially Impacted Trees Parkville and plans on pages 85 and 86.

parks and street trees.<sup>381</sup> In its tree management programme it currently removes 1000 trees per annum and plants 3000 per annum. The proposed works for Melbourne Metro represent a single year of tree removals within the City of Melbourne. Because many are over-mature, the recruitment of replacement trees by the project contributes to a process that the City of Melbourne would itself be implementing. As the Council's *Urban Forest Strategy* notes:

- (a) A ULE assessment for the City of Melbourne's urban forest of 35,000 trees was undertaken between March 2011 and April 2012. The trees were assessed with results indicating that 23% of the tree population will be at the end of its useful life in the landscape within ten years and 39% within twenty years. The findings in respect of heritage landscapes, excepting the Shrine of Remembrance Reserve, are described as 'dramatic,' with the ULE assessments indicating a likely 35% loss in ten years and a 58% loss in twenty years. Most dramatically, ULE assessment of the City of Melbourne's elm trees indicated that 55% of Melbourne's elms are in a state of severe decline and will likely need to be removed from the landscape within the next ten years.<sup>382</sup>
- (b) Figures contained in the *Urban Forest Strategy 2012* identify trees with a ULE 1-10 yrs in red. Grattan Street, Royal Parade and St Kilda Road and Domain Parklands are all identified as having trees with ULE of 1-10 years.<sup>383</sup> That is, these trees will be required to be replaced in the 10 year period after the publication of the *Urban Forest Strategy* which coincides with the construction works for this Project that will require tree removal.

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<sup>381</sup> Document 51 - *Urban Forest Strategy 2012-2032*, page 21 at 2.3.2.

<sup>382</sup> Document 51 - *Urban Forest Strategy 2012-2032*, page 24

<sup>383</sup> Document 51 *Urban Forest Strategy*, Figure on page 25.

563. During the course of his evidence Mr Shears sought to assert that the trees in Domain and in Parkville would not necessarily be removed by the City of Melbourne, and their replacement would be the subject of (unspecified) further consultation with the community. This position is contrary to the clear strategic directions established by the Council's *Urban Forest Strategy* and the urban forest precinct plans. Those documents make it plain that the strategy and plans are used by the Council to guide tree planting and greening in City of Melbourne streets.
564. Precinct plans are subsidiary documents to the City of Melbourne's *Urban Forest Strategy* and form a key component of the strategy's implementation.<sup>384</sup> It is also plain from the strategies and plans themselves that the precinct plans have been developed in collaboration with the relevant community, and are grounded in sound urban design principles.
565. The *Urban Forest Strategy* expressly provides that the information provided in the plan will direct the annual tree planting program to achieve urban forest strategy objectives, protect and enhance neighbourhood character, and to prioritise works and budgets within each precinct.<sup>385</sup>
566. South Yarra's *Urban Forest Precinct Plan (the SYPP)* identifies that it has been developed in collaboration with the community, which is reflected in the character, vision, planting plan and priorities defined for South Yarra's urban forest.<sup>386</sup> The plan provides direction on where new and replacement planting is to occur across South Yarra. This includes focus on where there are opportunities to plant new trees or replace trees, where the highest density of vulnerable people reside, which streets are the hottest in summer, and where very low canopy cover exists. Replacement planting is identified for streets where the useful life expectancy of multiple trees is rated at less than 10 years.

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<sup>384</sup> Document 52, *South Yarra Urban Forest Precinct Plan*, page 4.

<sup>385</sup> Document 52, *South Yarra Urban Forest Precinct Plan*, Page 5 - What will the Precinct Plans Achieve.

<sup>386</sup> Document 52, *South Yarra Urban Forest Precinct Plan*, Page 7.

567. The figures on page 10 of the SYPP show that the part of St Kilda Road within the Domain Precinct is identified as a street with opportunities for plantings or replacements, a high density of vulnerable residents, the community identified priority for greening, hot and very hot streets, tree replacements required in next 10 years. Map 9 of the SYPP provides the 10-Year Planting Plan.<sup>387</sup> St Kilda Rd within the Domain precinct is identified for replacement plantings with large deciduous and evergreen trees.
568. Similarly, in respect of Parkville, the Parkville *Urban Forest Precinct Plan 2015-2025*<sup>388</sup> Figure 14, Map 5 identifies tree replacements required in the 10 year life of the precinct plan.<sup>389</sup> Grattan Street is identified for a proposed genus change.<sup>390</sup> The tree removal over the car park area of University Square is not contentious and is in fact contemplated as part of the City of Melbourne's draft Master Plan for University Square.

#### **D.8.1.2 Benefits of the Project**

569. There are benefits from components of the proposed works for the Project in arboricultural terms including:
- (a) The introduction of a new generation of planting into two of Melbourne's most iconic heritage locations, Royal Parade, Parkville and the St Kilda Boulevard in the Domain. The Project provides an opportunity for phased replacement of existing trees reaching the end of their ULE in a way that will carry these plantings and their Heritage significance forward into the next century. As suggested by Mr Patrick in his evidence, the proposed works could form the first stage of a broader review applied to these Heritage sites so that a Heritage Master Plan could be prepared for each site allowing for on-

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<sup>387</sup> Page 19

<sup>388</sup> Document 95 *Urban Forest Precinct Plan 2015-2025*.

<sup>389</sup> Document 95 *Urban Forest Precinct Plan 2015-2025*, Page 10.

<sup>390</sup> Document 95 *Urban Forest Precinct Plan 2015-2025*, Figure 22, Map 7 page 37.

going phased replacement to sustain their heritage significance into the future.<sup>391</sup> This will ultimately be a matter for Heritage Victoria and the City of Melbourne.

- (b) Mr Shears in his report acknowledged the opportunity to replant in accordance with City of Melbourne *Urban Forest Strategy*, Open Space Strategy and the requirements of cultural heritage conservation management plans created in those areas where trees necessitate removal to facilitate construction work.<sup>392</sup>
- (c) Establishing new tree planting in areas impacted by the proposed works for a new tree population to be established and for an upgrading of the landscaping in areas where existing tree cover is in poor condition - for example, at University Square and the South Yarra Sidings Reserve and Osborne Street.

#### **D.8.1.3 Strategies for addressing impacts**

570. The key strategy for addressing the impact of tree removal is the requirement that trees be replaced in accordance with local government planting and species guidelines and policies (EPR AR3).

571. EPR AR3 requires the re-establishment of trees to replace loss of canopy cover and to achieve canopy size equal to, or greater than, healthy, mature examples of trees removed. The replanting of trees to replace loss of canopy cover and to restore amenity and landscape values is required to follow relevant policies and strategies including the City of Melbourne's *Urban Forest Strategy*, *South Yarra Urban Forest Precinct Plan* and *Carlton Urban Forest Precinct Plan*. EPR AR4, which requires the implementation of Tree Protection Plans in accordance with AS 4970-2009, is also important for addressing potential impacts of the Project on trees.

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<sup>391</sup> Statement of John Patrick at [10.4-10.5].

<sup>392</sup> Statement of Ian Shears at page 10.

572. The Sustainability Targets for Melbourne Metro include a target relating to Urban Ecology and Vegetation which includes the following:
- (a) Doubling tree canopy cover by 2040 compared to the base case through the reinstatement of lost trees, planting of new trees and the creation of improved growing conditions;
  - (b) Ensuring that the total amount of vegetated surface permanently gained post construction will be greater than total amount of vegetated surface area permanently lost; and
  - (c) At least 25% of the new and reinstated planting areas must consist of diverse, multi-story plantings for biodiversity.<sup>393</sup>
573. The Sustainability Targets for the Project will be implemented by the development and implementation of a Sustainability Management Plan to meet, as a minimum the Melbourne Metro sustainability targets (EPR G1).<sup>394</sup>
574. Achieving the target will assist in mitigating the impacts of tree removal in visual and landscape terms and also addressing Melbourne's heat island effect. The target is not only best practice (in that it exceeds the usual 1:1 tree replacement approach) but will also contribute to Melbourne's liveability through city greening, and will complement the City of Melbourne's *Urban Forest Strategy*.
575. To implement the Urban Ecology and Vegetation target, MMRA has prepared a draft *Living (green) Infrastructure Plan* which will be finalised in consultation with local councils. The Living Infrastructure Plan, has been prepared jointly by Loci Environment and Place and MMRA and sets out strategies for the establishment and success of urban ecosystems. The strategies include measures directed to improving biodiversity, soil health, canopy planning, Biophillic design and water management in order to help protect the wider environment along with public health and wellbeing. The

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<sup>393</sup> Sustainability Targets TN 77.

<sup>394</sup> EPR G1



Living Infrastructure Plan will provide specific guidance on size of tree pit and water sensitive urban design requirements, as well as outlining best practice outcomes for healthy soils.

#### **D.8.1.3 The Urban Design Strategy and tree removal and replacement**

576. The UDS<sup>395</sup>(to be implemented by EPR LU4) provides a range of measures that incorporate local considerations and precinct specific guidance for maintenance or enhancement of landscape values.

577. Specifically:

- (a) Tree species, tree densities and their locations in the road reserve (e.g. in footpaths or medians) should be consistent with relevant local plans and strategies which are reference documents for the UDS and also expressly referred to in the EPRs.<sup>396</sup>
- (b) Where existing trees are to be retained, avoid damage to their canopies and minimise soil compaction and excavation within root zones. Where damage to existing canopies is likely, undertake advance pruning. Where damage to existing roots is likely, provide appropriate arboricultural care in preparation for and during construction including advanced root pruning and irrigation.<sup>397</sup> See also EPR AR4 which requires TPPs which comply with AS4970-2009 which provides guidance regarding tree protection and pruning.
- (c) The objective to improve the quality of the urban environment, including tree planting to mitigate the urban heat island effect.<sup>398</sup>

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<sup>395</sup> Technical Appendix M.

<sup>396</sup> UDS page 29.

<sup>397</sup> UDS page 34.

<sup>398</sup> UDS page 36.

- (d) Support the healthy growth of canopy trees throughout parks, streets and other open spaces, and allow for the potential to plant and replant over the long-term with minimal constraints.<sup>399</sup>
578. Key directions in the UDS include responding to changing climate and microclimate conditions to improve thermal comfort and create enjoyable places for use throughout the year through measures such as minimising tree loss as a result of construction and replacing trees removed as a result of the Project. This will improve existing landscape character and biodiversity and contribute to increased tree canopy coverage and species diversity.<sup>400</sup>
579. Specific aims in relation to precincts include:
- (a) ‘minimal long-term impact on the valued uses, character, amenity and heritage values of the Domain parklands due to the Melbourne Metro emergency access shaft and tunnel construction.’<sup>401</sup> Key objectives in this regard are to minimise impacts on landscape character, structures and vegetation and to minimise intrusion into sensitive views, and fragmentation of open landscape spaces.
  - (b) In relation to St Kilda Road, the formal boulevard character is identified as a matter of importance in the UDS with objectives to:
    - i. Maintain or recreate a generally symmetrically balanced layout, with regular kerb alignments typically set parallel to the road’s centreline, and large canopy trees.
    - ii. Design the island tram stop/interchange as a high quality public space with a formal design character that complements the boulevard setting.

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<sup>399</sup> UDS page 37.

<sup>400</sup> UDS page 38.

<sup>401</sup> UDS page 43.

- iii. Arrange tram overheads to minimise visual clutter and to allow for tree planting.<sup>402</sup>

580. The implementation of the objectives and directions of the UDS in the detailed design of the Project will ensure that impacts on landscape character are minimised and, where impacts occur, landscapes are reinstated with high quality urban design treatments and landscaping.

**D.8.1.4 The impacts of tree removal and in particular concerns regarding the loss of the amenity from the landscape value provided by trees proposed for removal<sup>403</sup>**

581. Particular concerns have been expressed by submitters in relation to removal of trees from St Kilda Road,<sup>404</sup> Royal Parade<sup>405</sup> and in the vicinity of the Shrine.<sup>406</sup> Submissions regarding these landscapes are also addressed in relation to heritage landscapes at D.6.1.4.

582. It is emphasised that much of tree removal in Parkville and Domain is taking place within sites that are on the Victorian Heritage Register.<sup>407</sup> This is significant because it provides a further level of assurance and oversight in relation to tree replacement at these key sites. The oversight of Heritage Victoria will ensure a careful planting will be required to ensure the landscape values which are an element of significance of these heritage places will be reinstated to re-establish valued landscape character: See EPRs CH12, CH17 and AR3 and these submissions at D.6.1.4.

583. The City of Melbourne's *Urban Forest Strategy* highlights that St Kilda Road and Royal Parade require special care and extensive, thoughtful

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<sup>402</sup> UDS page 79.

<sup>403</sup> Submissions MM091, MM135; MM162; MM266; MM068.

<sup>404</sup> See submissions MM081, MM089, MM151, MMM176, MM189, MM218, MM240 and MM242.

<sup>405</sup> MM128

<sup>406</sup> MM175

<sup>407</sup> On 4 August 2016, the Heritage Council accepted the nomination of Fawkner Park and St Kilda Road for inclusion on the VHR and they are now listed on the VHR.

planning. The *Urban Forest Strategy* notes that the elms are ageing and the plane trees are declining as a result of past water restrictions and periods of extreme heat. This has created opportunities to ‘retrofit’ these landscapes to ensure better conditions for our future trees. Conditions that require improvement include those below ground (soil structure, ground water, and conflict with underground services) and above ground (access to stormwater, conflict with infrastructure, mulching and potential compaction).<sup>408</sup>

584. In the Parkville and Domain precincts where trees which make a landscape and heritage contribution will be removed, mitigation will primarily be focussed on replanting and re-establishing amenity to the streetscape. While action will be taken to re-establish lost canopy cover, restore the continuity of tree-lined streets and reinstate trees in public open spaces will be undertaken as quickly as possible, it will take time to fully re-establish these landscapes.

585. In relation to mitigating impacts:

- (a) EPR AR1 will require the further evaluation of trees at the detailed design stage so as to provide for maximum tree retention and for plans to be prepared which identify trees to be removed or retained and the condition of trees to be removed. A tree replacement programme will be required to be implemented that meets the expectations of relevant stakeholders including (as appropriate) the City of Melbourne, Heritage Victoria and the Shrine Trustees.
- (b) Trees which are removed will be required to be re-established by EPR AR3 to replace loss of canopy cover and to achieve canopy size equal to, or greater than healthy, mature examples of trees removed in Melbourne. The replanting of trees to replace loss of canopy cover and to restore amenity and landscape values is required to follow local Council policies and strategies including the City of Melbourne’s *Urban Forest Strategy*.

586. While action would be taken to re-establish canopy cover, restore the continuity of tree-lined streets and reinstate trees in public open spaces as quickly as possible, it would take time to fully re-establish these landscapes.
587. Ultimately, the long term duration of loss of trees from the public realm will be determined by the interplay between a range of factors including species selection, size of planting stock, rainfall, drought and summer heat events; competition from established trees in the vicinity of replacement specimens; soil type and use of structured soils and the provision of irrigation and/or WSUD treatments. Mr Galway recommended, and MMRA has accepted, an amendment to EPR AR2 to require the installation of irrigation to ensure the ongoing supply of water to tree root zones, especially during their establishment stage.
588. A well developed canopy could be well established over a period of 20 years along St Kilda Road and in other areas affected by tree removal, possibly less if irrigation is occurring. A local example of tree replacement in Swanston Street was provided during the evidence of Mr Patrick.<sup>409</sup> That is not to say that there will be no amelioration of the landscape impacts of tree removals for 20 years.
589. The potential benefits from components of the proposed works for the Project have been identified at paragraph 569 of these submissions.
590. In relation to whether trees should be replaced individually, over time or by replacement of boulevard planting in blocks, there is substantial agreement that block replanting is the appropriate technique to be employed.<sup>410</sup>
591. An avenue replacement program, with associated benefits, is preferable. That is because juvenile trees are not forced to compete with established mature trees for light, nutrients and space. It is preferable to have trees of a similar age within an avenue. It is preferable to undertake in sections or in

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<sup>409</sup> Powerpoint presentation of John Patrick, Document 43.

<sup>410</sup> Mr Patrick suggested this technique. An example of the success of this technique was provided by the National Trust submission in the replanting of the avenue planting in Camperdown (see 7.2.1 of the National Trust submission dated 12 September 2016, Document 157.

‘blocks’ as opposed to individual specimens over differing time frames resulting in a lack of uniformity to the planting undermining the avenue formation. To achieve the required aesthetics, it is desirable to plant identically aged trees that will maintain the visual consistency of the avenues. For St Kilda Road it is desirable to seek to recreate a more complete avenue/boulevard effect. This work would be guided by heritage plans. Provided the visual link between trees along the boulevard is maintained, it will still read as a continual boulevard experience.

#### **D.1.8.5 Impact of tree removal from Tom’s Block and Domain Parkland**

592. Prior to the release of TN 65 Domain Parklands and St Kilda Road Boulevard,<sup>411</sup> one of the more significant impacts in landscape and arboricultural terms was associated with the loss of trees from Tom’s Block and Domain Parkland for the construction of an access shaft (which is still required for the purpose of construction but not for emergency access – see TN 55 Emergency Access Shafts) and to facilitate construction of the tunnels on a vertical rail tunnel alignment over the CityLink tunnels.
593. As the ‘over CityLink’ tunnel option is no longer pressed by MMRA this will result in the saving of some 60 trees within Tom’s Block. Of those trees 46 were directly impacted by proposed grouting only. An additional 14 trees could have been impacted by the Tom’s Block temporary Access shaft location. Importantly, 30 of the trees which have been saved are MLTV trees.
594. The saving of these trees is an excellent outcome and demonstrates that the MMRA has sought to minimise the environmental impacts of the Project in heritage, arboricultural and landscape terms.<sup>412</sup>

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<sup>411</sup> TN 65 Domain Parklands and St Kilda Road Boulevard, Document 254.

<sup>412</sup> TN 65, Document 254 and TN 72 - Clarification of Tree impacts, Document 326.

#### **D.8.1.6 Loss of trees at the Eastern Portal**

595. The landscape value in the South Yarra Sidings Reserve was assessed by Mr Galway as low because there is no significant canopy cover in this area, and no theme of plantings. The northern part of the reserve has been used to stockpile materials for the railway. This is stark contrast to a landscape such as Fawkner Park.
596. In relation to the Eastern Portal, Mr Galway accepted that if all the trees within the construction area for the Eastern Portal are removed, the extent of that tree removal will result in a loss of amenity to users of the Reserve. However, this loss of amenity will be temporary.
597. The loss of trees within the Eastern Portal has the potential to affect local the amenity of residents and users of the area.
598. Furthermore, as Mr Galway noted most of the trees to be removed from the Eastern Portal Precinct are not mature and many are less than 10 years. A new landscape could be established and tangible improvements would be realised within 5 years before a mature canopy is established.
599. The MMRA has responded in TN 71 - Trees in Osborne Street<sup>413</sup> to the Committee's query as to whether there is the potential to retain trees along the eastern side of Osborne Street. As reported in TN 71, there is limited potential to reduce the impact on trees on Osborne Street between Toorak Road and the south side of the vehicle access bridge. There may be potential to reduce the impact on trees on Osborne Street south of the vehicle access bridge.
600. Ultimately the potential to minimise impact on trees in this area will be reliant on the contractor's access requirements for the vehicle access bridge, utility works and laydown areas for storage of materials. As required by EPR AR1, MMRA will work with the contractors to minimise tree loss in the detailed design of the Project.

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#### **D.8.1.7 Concerns regarding the protection of trees that will be retained during the construction period**

- 601. A number of submitters have expressed concerns regarding the protection of trees identified for retention during the construction period.
- 602. The recommended EPRs (EPR AR4) provide for the preparation and implementation of Tree Protection Plans for each precinct. EPR AR5 requires a bank guarantee or bond for the value of the trees. The measures provided in the EPRs will ensure that trees to be retained will be protected during construction of the Project.

#### **D.8.1.8 Whether trees can be temporarily removed from the Project Area and replanted following construction<sup>414</sup>**

- 603. Removing trees, storing them and then replanting them at the completion of construction of Melbourne Metro is not recommended by MMRA's arborists. Such techniques have relatively low success rates and the costs associated with undertaking that exercise are considerable and disproportionate to the benefits that might be achieved.
- 604. The preferred approach of both Mr Patrick and Mr Galway is for the planting of new, vigorous young trees that can make a secure future contribution to the landscape rather than replanting mature and over mature vegetation.

#### **D.8.1.10 Whether the City of Melbourne should be compensated for tree removal**

- 605. The City of Melbourne has submitted that there should be an amendment to EPR AR5 to add the following:

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<sup>414</sup>

MM017.



For CoM trees that are removed payment shall be made for the Amenity Value and Ecological Services Value in accordance with the CoM Tree Retention and Removal Policy.

606. The MMRA opposes the suggested amendment. The charge sought to be imposed by the City of Melbourne on the Project has no statutory basis.
607. The City of Melbourne seeks, in effect, to implement its *Tree Retention and Removal Policy*, 2012. That policy provides that where a public tree removal is approved by Council's arborist in relation to a development, the associated cost of the tree and its removal shall be paid by the property owner, or representative prior to the removal.
608. The 'associated costs' of a tree are determined under valuation guidelines published by the Melbourne City Council '*Urban Forest – Tree Valuations*' (undated). Neither the policy nor the valuation guidelines identify the statutory basis for the imposition of charges by the City of Melbourne for tree removal on public land. Additionally, pursuant to s 258 of the MTPFA any local law is inoperative to the extent that it is inconsistent with the project authority's exercise of its powers in relation to a declared project and declared project area.
609. Even if there was a statutory basis for the imposition of the proposed charge, the requirement sought to be imposed by the City of Melbourne is both disproportionate and unreasonable for the following reasons:
- (a) As outlined at paragraph 561 above many of the trees which are to be removed have a ULE of less than 10 years and would need to be replaced in the next 10 years. That is, the City of Melbourne forecasts, and its planning documents confirm, its intention to replace those trees in the next 10 years – irrespective of the Project.
  - (b) The Project will replace (at its cost) trees at a ratio of two trees for every tree removed to accord with the City of Melbourne's strategies and will create improved growing conditions for trees. See also the submissions regarding sustainability at paragraph 572 and following.
  - (c) The Project will be required to reinstate quality soils to sufficient volumes to support long term viable growth of replacement trees and

to ensure ongoing water supply (EPR AR2). These measures are consistent with the objectives of the City of Melbourne's *Urban Forest Strategy* and will improve the soil and growth conditions for replaced trees.

- (d) Finally, there is no assurance that the payment required by the City of Melbourne's proposed amendment to AR5 will be applied to tree replacement meaning that improvements to the urban forest would not necessarily be assured by the levying of the charges sought to be imposed. Mr Shears' evidence was that there was no separate account for these charges but the practice was that revenue obtained in this manner was 'hypothecated' for tree planting. However, there is no assurance that this will occur – and it is not in fact required by the City of Melbourne's policy.

For these reasons, EPR AR5 should not be amended in the manner sought by the City of Melbourne.

#### **D.8.1.11 The proposed EPRs**

610. The Committee should be satisfied, having regard to the matters specified in paragraph 2.11 of MMRA's opening submission, that:

- (a) The EPRs respond directly to the potential impacts on landscape and arboricultural values that may arise during construction and operation of the Project;
- (b) The EPRs establish appropriate benchmarks for addressing impacts;
- (c) The EPRs appropriately make provision for appropriate plans including Tree Protection Plans and the implementation of the strategies contained within key strategic documents;
- (d) The EPRs specifically promote consultation with councils, and stakeholders such as the Shrine Trustees and University of Melbourne;

- (e) The EPRs are properly framed as performance-based standards and are sufficiently robust to account for changes from the Concept Design situated primarily within the Project Boundary; and
- (f) The arboricultural and landscape EPRs appropriately cross-reference the suite of other EPRs. In particular, the EPRs make appropriate cross-reference to the heritage and urban design EPRs.

## **D.9 Hydrology, Water Quality, and Waste Management**

*To protect waterways and waterway function and surface water and groundwater quality in accordance with statutory objectives, to identify and prevent potential adverse environmental effects resulting from the disturbance of contaminated or acid-forming material and to manage excavation spoil and other waste in accordance with relevant best practice principles.*

- 611. This evaluation objective addresses a wide range of potential environmental effects. These effects will be addressed in two broad categories:
  - (a) First, potential impacts relating to surface water and water quality; and
  - (b) Second, potential impacts relating to contaminated groundwater and spoil.
- 612. It is noted, for ease of reference, that issues concerning groundwater are otherwise addressed in Part D.7 to the extent that they bear upon ground movement and settlement.

### **D.9.1 Environmental Effects – Surface Water and Water Quality**

- 613. The Surface Water Impact Assessment at Appendix N of the EES has been supplemented by the following additional material during the course of the hearing:
  - (a) The witness statement of Mr McRann, including:

- i. Appendix D which addresses Western Portal Compensatory Flood Storage;
  - ii. Appendix E which addresses Arden Precinct Compensatory Flood Storage; and
  - iii. Appendix F which addresses flood defence options at tunnel portals;
- (b) Technical Note 6 which addresses flood risk and the City Loop;<sup>415</sup>
  - (c) Technical Note 36 which responds to those aspects of the Committee's 'Preliminary Matters and Further Information' request made on 25 July 2016 concerning surface water;<sup>416</sup> and
  - (d) Technical Note 76 which responds to those aspects of the Committee's subsequent request for information made on 12 September 2016 concerning surface water.
614. MMRA relies on that material in response to the various issues raised during the course of the hearing concerning surface water.
615. It notes, furthermore, that the Surface Water Impact Assessment was peer-reviewed as part of the EES process by Mr David Fuller of DeepRiver Associates.<sup>417</sup> The peer-review relevantly concluded that:
- (a) the assessment was comprehensive; and
  - (b) the range of mitigation measures identified in the EES, and which would be implemented pursuant to the EPRs, are appropriate.
616. Three issues are addressed in further detail below in response to common themes raised in submissions:
- (a) The potential impacts of Melbourne Metro on water quality;

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<sup>415</sup> Document 3 (in part).

<sup>416</sup> Document 21 (in part).

<sup>417</sup> Appendix C to the SWIA.

- (b) The potential impacts of Melbourne Metro on drainage infrastructure;  
and
- (c) The risks posed by flooding on Melbourne Metro and surrounding infrastructure.

#### **D.9.1.1 Water Quality Impacts<sup>418</sup>**

617. Whilst Melbourne Metro will pass below a number of established waterways, such as the Yarra River and the Moonee Ponds Creek, it is not proposed that Melbourne Metro interact directly with those waterways. The potential for Melbourne Metro to directly impact water quality, or aquatic flora and fauna, is accordingly remote.
618. As in the case of any construction project, however, there will be a need to ensure that effective measures are put in place to address the potential for indirect impacts to arise (either via surface water or groundwater transmission).
619. To this end, all aspects of Melbourne Metro will be required to implement integrated stormwater treatment systems during construction which comply with the best practice performance objectives specified in *SEPP (Waters of Victoria)* and other applicable guidelines (including EPA Publication 480, *Environmental Guidelines for Major Construction Sites*).<sup>419</sup>
620. In accordance with the recommendation of Mr McRann, MMRA now proposes that a comparable requirement be established in respect of the operational phase of the Project.<sup>420</sup> This was an outcome supported by Mr Fox and by the City of Melbourne.<sup>421</sup>

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<sup>418</sup> See, for instance, MM91, MM131, and MM260 (amongst others).

<sup>419</sup> EPRs AQ1 and EM2.

<sup>420</sup> EPR AQ7.

<sup>421</sup> Document 58, item 2.

621. MMRA recognises, also, that the design of future stations should incorporate permeable surface treatments and vegetation where possible to allow rainwater infiltration and passive irrigation. As the members of the surface water conclave agreed, this matter is adequately addressed in the Urban Design Strategy.<sup>422</sup>
622. EPR SW2 has been refined so as to reference those requirements as part of the suite of surface water EPRs.

#### **D.9.1.2 Impacts on Drainage Infrastructure<sup>423</sup>**

623. There is the potential for Melbourne Metro and associated works to detrimentally impact existing drainage systems and overland flood flows (during both construction and operation). The EPRs ensure that appropriate alternative measures must be established during both phases of Melbourne Metro.<sup>424</sup>
624. Importantly, those systems must be designed to the requirements and satisfaction of the relevant water management authority (be that Melbourne Water or the relevant council).<sup>425</sup> The replacement of aging drainage infrastructure with new will be a lasting benefit of Melbourne Metro.
625. It is notable, in this respect, that Melbourne Water has recorded (in correspondence tabled with the Committee) its “broad and in-principle support to the propositions and undertakings represented in the EES.”<sup>426</sup> Mr Fox, on behalf of the City of Melbourne, similarly confirmed that he

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<sup>422</sup> See, in particular, pages 25 and 38 of the Urban Design Strategy. See also Document 58 at item 9.

<sup>423</sup> See, for instance, MM180, MM365, and MM367 (amongst others).

<sup>424</sup> EPR SW2.

<sup>425</sup> *Ibid.*

<sup>426</sup> Document 91, page 1.

considered that the EPRs (as documented in Version 2) were appropriate in this regard.<sup>427</sup>

626. A considerable portion of the works required to be undertaken in respect of the diversion and realignment of existing drainage infrastructure is proposed to be undertaken as part of the early works package. The conclave relevantly records, in this respect, that agreement has been reached with the City of Melbourne concerning the appropriate ARI capacity of all new and altered drainage infrastructure to be delivered as part of that works package.<sup>428</sup>

627. The City of Melbourne have sought, pursuant to their marked up EPRs, to insert a new EPR requiring that the Project make provision for a new drain to run below Flinders Street to the drain's discharge point at the Yarra River. Mr McRann explained in evidence that it was not necessary, as a consequence of the Project, for the drain to be replaced to this extent. He also explained that the City of Melbourne's proposal would involve excavation work underneath Flinders Street Station and outside the Project Boundary.

628. Mr Fox did not specifically address this matter in oral evidence but confirmed, in response to questions put during cross-examination, that he did not recommend any further changes to the EPRs in respect of drainage.

On this basis the City of Melbourne's position in respect of its proposed new SW EPR is clearly opportunistic and should be rejected by the Committee.

### **D.9.1.3 Flood Risk<sup>429</sup>**

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<sup>427</sup> A view expressed during cross-examination on Day 10 of the hearing.

<sup>428</sup> Document 58, item 10.

<sup>429</sup> See, for instance, MM12, MM70, MM76, MM226, MM240, MM267, MM283, MM289, MM308, MM315, MM318, MM365.

629. A number of submitters have presented material before the Committee documenting the effects of flood events that have occurred at different points along Melbourne Metro's alignment and at different times.
630. Clearly, it is important that the risks posed by flooding be properly addressed during the design, construction and operational phases of Melbourne Metro.
631. Two issues, in particular, arise in this respect:
- (a) First, the need and capacity for Melbourne Metro to provide compensatory flood storage at locations along the alignment; and
  - (b) Second, the need and scope to provide appropriate mechanisms to protect Melbourne Metro tunnels and stations from flooding.
632. Appendices D and E to the witness statement of Mr McRann address the first of these issues in detail. Those reports identify indicative locations and design solutions for compensatory storage in respect of the Arden and Western Portal Precincts (wherein it is anticipated that the construction of Melbourne Metro would result in some loss in flood plain storage).
633. Those analyses demonstrate that it is feasible for the Melbourne Metro to be delivered in a way that does not increase flood risk within those precincts – an outcome that is secured by means of EPR SW2.
634. The indicative measures identified by Mr McRann are not the only means by which compensatory storage could be provided. Mr Fox, for instance, identified other means by which it could be provided (including, in the case of the Arden Precinct, by means of a stormwater retention tank). EPR SW2 accordingly requires that an adequate extent of compensation be provided (to the satisfaction of the relevant authority) without prescribing the means by which this must occur.
635. Appendix F to Mr McRann's witness statement was prepared in respect of the second matter, and documents a range of flood mitigation measures incorporated within comparable projects around the world. It, along with the



EES, explains how these measures could be implemented as a potential means of responding to flood risk at or around the tunnel portals.

636. The EPRs contemplate that the selection of the ultimate flood mitigation measures will be informed by a detailed risk assessment and that the preferred measures will be incorporated within the final design of Melbourne Metro. The risk assessment would also inform the implementation of appropriate measures to address the prospect of flooding of the tunnels to occur via the Melbourne Underground Rail Loop.
637. MMRA notes that the following further matters relevant to flood protection at and around Melbourne Metro are addressed in TN76:
- (a) MMRA's position regarding the appropriate process to be adopted in respect of the selection and implementation of flood defence measures as part of detailed design;
  - (b) Flood defence options that may be implemented in respect of the Arden Station; and
  - (c) The scope of potential bunding measures that could be implemented in respect of the electrical substation at Arden.
638. Queries were raised during the cross-examination of Mr McRann in respect of the assumptions that had underpinned the surface water modelling documented in the Surface Water Impact Assessment. MMRA's response to those queries is set out in Technical Note 76.
639. It is noted, finally, that EPR SW2 requires that further modelling be undertaken in respect of the design of both permanent and temporary works to demonstrate the resultant flood levels and risk profile to the satisfaction of the responsible waterway management authority.

#### **D.9.2 The Proposed EPRs**

640. Version 3 records modifications to the suite of surface water and water quality EPRs agreed as part of the conclave and as modified in discussion with interested stakeholders such as the City of Melbourne.

641. The MMRA contends that the regime proposed under EPRs SW1 – SW3 and EPRs AE1 – AE7 responds positively to the principles identified by MMRA at paragraph 2.11 of its opening submissions. In particular, the Committee should conclude that:
- (a) the EPRs properly respond to potential surface water impacts by addressing both the impact that Melbourne Metro will have on surface water conditions (including on drainage infrastructure, flood storage capacity, and overland flood flows), and that surface water impacts will have on Melbourne Metro (including, most notably, extreme flood events), and protecting waterways and waterway functions;
  - (b) the EPRs establish an appropriate benchmark in respect of delivery of the Project, having regard to applicable standards where available (such as, for instance, SEPP (Waters of Victoria)). Other requirements are to be determined in consultation with (and to the satisfaction of) relevant management authorities;
  - (c) the EPRs appropriately outline (in a number of instances) requirements for additional analysis to be undertaken to inform the implementation and delivery of different phases of Melbourne Metro;
  - (d) the EPRs properly provide for consultation, as there are a number of the requirements that must be implemented to the satisfaction of relevant water management authorities;
  - (e) The EPRs are sufficiently robust to account for changes from the Concept Design and within the Project Boundary; and
  - (f) the EPRs appropriately cross-reference other relevant instruments where appropriate (such as, for instance, the Urban Design Strategy); and other EPRs are indirectly relevant to the issue. EPR NV8, for instance, is designed to protect underground drainage infrastructure from the adverse impacts of vibration during construction.

#### **D.9.3.1 Contaminated land and spoil management**

642. Contaminated land and spoil management are addressed in Chapter 20 of the EES and Technical Appendix Q.
643. The following Technical Notes are relevant to this chapter:
- (a) TN 37 RFI 25 July – Section 12 (Groundwater) requests 55, 60-70;<sup>430</sup>
  - (b) TN 39 RFI 25 July – Section 14 (Contaminated Land) requests 81-86.<sup>431</sup>
644. As is the case with all tunnelling projects in urban environments, the Project which traverses many known and potentially contaminated sites within the Project Area has the potential to encounter contaminated soil, rock and groundwater.
645. The EES has assessed the Project's impacts on contaminated land and impacts associated with spoil management. The assessment has considered disturbance of actual and potential Acid Sulfate Soil and rock, gas and vapour migration and contaminated groundwater plumes. An assessment has also been undertaken of the risks associated with, and appropriate handling and disposal of, large volumes of contaminated and clean spoil.
646. The contaminated land and spoil management impact assessment conducted for the EES concluded that the main contaminated land aspects requiring consideration for Project are:
- (a) Non-natural contaminated spoil (fill), particularly at the Western Portal, Eastern Portal and Arden station sites and throughout the CBD where there has been a long history of potentially contaminating land use activities;
  - (b) Naturally occurring, potentially acid sulfate soil associated with the presence of specific geological formations, such as Coode Island Silt, Werribee Formation and Brighton Group, that may become

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<sup>430</sup> Document 21.

<sup>431</sup> Document 21.

oxidised during construction – with these formations most likely to be found at the Western Portal, Eastern Portal and Arden station sites and in sections of the tunnels between CBD South station and the Eastern Portal;

- (c) Naturally occurring, potentially acid sulfate rock, which is prevalent along most of the alignment;
- (d) Interception of contaminated groundwater and/or vapour in the immediate vicinity of the Project boundary during construction, with potential exposure risks to workers and the environment; and
- (e) Handling and disposal of large volumes of contaminated and clean spoil.

647. These aspects are typical of a project that seeks to introduce a new rail tunnel into a highly urbanised environment. The evidence of Dr David Coutts is that all of these issues are manageable within the framework of the proposed EPRs. Submissions relating to contaminated land and spoil management have focused on the following key issues raised by submitters.

#### **D.9.3.2 The storage, transportation, treatment and disposal of excavated materials**

648. An estimated 2,032,000 m<sup>3</sup> of spoil would be generated by the construction of the Concept Design. This comprises approximately 613,000 m<sup>3</sup> from the tunnels, 103,000 m<sup>3</sup> from the portals and 1,316,000 m<sup>3</sup> from the stations.

649. MMRA has developed a Spoil Management Strategy<sup>432</sup> which outlines the proposed approach to spoil management. The Spoil Management Strategy has been developed to reflect a waste disposal hierarchy which requires avoidance as the most preferred option, followed by re-use, then treatment, then disposal.

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<sup>432</sup>

The Spoil Management Strategy is Appendix E to Technical Appendix Q Contaminated Land and Spoil Management of the EES.

650. It is anticipated that there would be limited opportunities to reuse excavated clean fill onsite, and thus spoil will need to be removed off-site. However, as most of this waste would be natural and classified as clean fill, it could be directed for reuse at another site in accordance with EPA regulations and guidelines if other options become available.
651. Prescribed industrial waste would be managed in accordance with the *Environment Protection (Industrial Waste Resource) Regulations 2009* (Vic). This requires wastes to be categorised and disposed of at facilities licensed to accept the waste or to a treatment facility that can reduce the concentrations of contaminants prior to disposal. Further investigations since the EES have confirmed that there is sufficient capacity at existing waste management facilities to accept the anticipated volume of prescribed industrial waste.
652. Waste acid sulfate soils and rock will be managed in accordance with EPA guidelines, including the *Industrial Waste Management Policy (Waste Acid Sulfate Soils)*. Re-use opportunities will be considered, with disposal being selected as the preferred option where no appropriate reuse opportunities are available. Further investigations since the EES have confirmed that there is sufficient capacity at existing waste management facilities for waste acid sulfate soils.
653. The specific methodology for handling, staging and treatment of spoil is proposed to be determined and implemented by the PPP Contractor. In accordance with EPR C1, this methodology will reflect MMRA's proposed Spoil Management Strategy and be captured in a Spoil Management Plan which is to be prepared prior to construction of main works and shafts in consultation with and to the satisfaction of the Environment Protection Authority.
654. In addition, EPR C2 requires that an Acid Sulfate Soil and Rock (**ASS/ASR**) Management Sub-Plan to the Spoil Management Plan. This sub-plan is also to be prepared prior to construction of main works and shafts in consultation with and to the satisfaction of the Environment Protection Authority.

### **D.9.3.3 Potential impacts associated with the risk of mobilisation and/or migration of contaminated groundwater including associated vapour risks<sup>433</sup>**

655. The EES reported that the groundwater quality beneath the Project boundary is generally poor with high salt loads and often contaminated with various heavy metals (such as barium, boron, iron, manganese, nickel) and other inorganics (such as nitrate and ammonia). Often these contaminants reflect either natural conditions in the aquifer (such as nickel in Older Volcanics groundwater) or contamination from non-point sources.
656. The EES reported that site investigations confirmed low levels of volatile organic compounds in groundwater in the Parkville to CBD North segment and near Fawknor Park associated with man-made point sources of contamination on or near the alignment. Twenty-eight EPA Groundwater Quality Restricted Use Zones (**GQRUZs**) were identified within approximately 1km of the Project boundary (two within the Project boundary), and that contaminated groundwater from these sites may migrate towards tunnels or excavations if the groundwater flow regime is altered during construction and through ongoing operation.
657. Since the EES, over 100 additional boreholes have been advanced, over 50 groundwater wells installed and sampled and over 1,000 soil samples tested for various contaminants of concern.<sup>434</sup>
658. The post EES investigation dataset has confirmed the conclusion reached in the EES, that man-made point sources of localised groundwater contamination across the alignment will be encountered and require management. This is a typical observation and conclusion when considering

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<sup>433</sup> MM291; MM318.

<sup>434</sup> Statement of Dr David Coutts, section 4.2 and Annexure C, Summary of Additional Works completed post EES.

impacts on groundwater quality associated with infrastructure projects within an urbanised environment.

659. Risks associated with contaminated groundwater migration will be managed through a series of interrelated EPRs (as amended based on the recommendations of Dr Coutts):

(a) EPR C3 requires that, prior to construction of main works or shafts, a remedial options assessment is undertaken for contaminated land which considers a range of specified factors. EPR C3 has been amended based on the recommendation of Dr Coutts to require a Remedial Management Plan (**RMP**) for contaminated land and groundwater. EPR C3 has also been amended so that it now refers to the outcomes of the groundwater investigations and modelling required by:

(1) GW1 which requires that the tunnel and underground structures are designed so that they minimise groundwater drawdown during construction and operation to minimise impacts on groundwater dependent values and contamination plume migration.

(2) GW2 which requires a groundwater model to be developed for the detailed design phase to predict impacts associated with any changes to construction techniques or operational design features proposed during detailed design. It also requires that the EPRs and mitigation measures are reconfirmed as sufficient to mitigate impacts from changes in groundwater levels, flow and quality. GW2 further requires monitoring during construction to ensure that predictions are accurate and mitigation measures are appropriate.

(3) GW3 which requires the development and implementation of a Groundwater Management Plan (**GMP**) detailing groundwater management approaches to address the

predicted impacts to groundwater dependent values during construction. The GMP is required to be based on the detailed design phase groundwater model, and include an approach identified in consultation with the EPA so that contaminant migration causes no significant impacts on beneficial uses and vapour intrusion into underground structures and to establish appropriate monitoring networks to confirm effectiveness of the approach. EPR GW3 also includes a groundwater disposal strategy and the disposal of groundwater is expected to be manageable.

- (4) GW5 which requires the development and implementation of a Groundwater Monitoring Plan as part of the Groundwater Management Plan that details sufficient monitoring of drawdown to verify that no significant impacts occur from potential contaminant migration on the beneficial uses of groundwater at third party properties caused by drawdown and vapour intrusion to underground structures.
- (b) EPR CM3 provides that the RMP must present and take into account the outcome of risk assessments and if required identify remedial options to be implemented for contaminated land and groundwater to the satisfaction of the EPA. It is a further requirement that, if required as an outcome of the RMP, a remedial action plan will be prepared and implemented and integrated into the design of the Project to the satisfaction of the EPA.
- (c) EPR C4 requires that, prior to construction of main works or shafts commencing, a health, safety and environmental plan is prepared and implemented for the management of hazardous substances. The plan is required to include consideration of the risks associated with exposure to hazardous substances for employees, visitors and general public and the identification of methods to control exposure



in accordance with relevant regulations, standards and best practice guidance to the satisfaction of Worksafe and the EPA.

660. The implementation of this suite of EPRs will provide a rigorous management regime which will ensure compliance with all relevant regulations and standards so that any potential adverse environmental impacts would be appropriately managed.

**D.9.3.4 Concerns relating to the storage and trucking of spoil and associated amenity impacts (dust, noise, traffic)<sup>435</sup>**

661. All works will be required to be undertaken in accordance with a Construction Environmental Management Plan (EPR EM1) and also in accordance with EPRs C1, C2 and C4.
662. The specific methodology for handling, staging and treatment of clean fill and prescribed wastes will be determined by the PPP Contractor in accordance with the EPRs.
663. Traffic associated with construction works will be managed through implementation of a Transport Management Plan, prepared by the PPP Contractor (EPR T1), which will be developed in consultation with the TTWG (New EPR TA) of which local councils and relevant agencies will be participants. The TTWG also is required to invite other key affected stakeholders to present or attend where matters specific to their interests are being discussed or addressed. The Transport Management Plan required by EPR T1 will address potential routes for construction vehicles travelling to and from Melbourne Metro construction work sites, with specific recognition for sensitive receptors and minimising the use of local streets where practicable. Consequently, the impacts from traffic generated during construction works, will be mitigated through the implementation of EPR T1.
664. Potential dust and noise impacts associated with construction works are addressed by EPRs specifically related to those issues namely: New NVB

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<sup>435</sup>

MM199; MM291; MM310; MM318.

which requires the preparation of a CNVMP in consultation with EPA Victoria, relevant councils and key affected stakeholders (confirm this wording remains unchanged). The CNVMP is required to address haulage and to specify operational procedures and controls that minimise truck noise including but not limited to where reasonable and practical limiting heavy construction vehicle movements to Normal Working Hours, monitoring construction vehicle driver behaviour and avoiding local roads (residential streets) for construction vehicle activities. Minimising the potential for adverse impacts on air quality will be addressed by the implementation of EPRS AQ1-AQ3 which include a requirement for the development and implementation of a plan for dust management and monitoring which will include advising the community of the plan and will address measures to be implemented to ensure compliance with air quality criteria and identifying dust sources and sensitive land uses (EPR AQ1).

665. EPR SC3 which provides for the CSEMP will address how the community will be engaged in relation to construction issues, including the management of spoil.

**D.9.3.5 Concerns relating to the potential for mismanagement of spoil and suggested alternatives for spoil disposal<sup>436</sup>**

666. A number of submissions have expressed concerns about estimates for the volume of spoil and procedures for the management of spoil and concerns that this will be mismanaged. Other submissions have suggested alternative transportation methods for spoil material (for example the use of a conveyer belt and loading point onto barges on the Maribyrnong River and disposal to Port Phillip Bay is suggested by a number of submitters.)<sup>437</sup>
667. The methodology for handling, staging and treatment of clean fill and prescribed wastes will be determined by the PPP Contractor in accordance with the relevant EPRs (C1, C2 and C4).

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<sup>436</sup> MM178; MM199; MM243; MM291; MM317; MM365.

<sup>437</sup> MM243; MM247; MM248; MM286.

668. The Spoil Management Strategy, which is appended to the EES,<sup>438</sup> provides details on spoil generation activities, volumes and timeframes. The Spoil Management Strategy also provides details on spoil categorisation, onsite spoil management and requirements for transportation of spoil and specifically requirements for the Contractors' Spoil Management Plan (SMP). EPR C1 requires the contractor to prepare and implement an SMP which is to be in accordance with the MMRA's Spoil Management Strategy, relevant regulations and standards and to the satisfaction of the EPA.
669. The SMP will contain detailed mitigation measures to avoid mismanagement of spoil during the construction stage, and specifically will be required to identify management measures for handling and transport of spoil, suitable sites for re-use, management and disposal of spoil and monitoring and reporting requirements. These measures will ensure that spoil will be managed by meeting all relevant regulations and standards so as to appropriately address the potential for adverse environmental impacts.

#### **D.9.3.6 Concerns relating to odour and hazard from spoil transfer<sup>439</sup>**

670. All storage and transfer of spoil will be required to be undertaken in accordance with the Construction Environmental Management Plan, the Spoil Management Plan and in accordance with the relevant EPRs (C1, C2 and C4).
671. It is expected that temporary staging of excavated materials may be undertaken at various locations along the alignment (with temporary stockpile areas are envisaged at Arden, Domain and the Western Portal.<sup>440</sup> Concerns were raised during the cross examination of Dr Coutts on behalf of RMIT as to the precise location and management of the temporary stockpile

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<sup>438</sup> Appendix E to Appendix Q – Contaminated Land and Spoil Management.

<sup>439</sup> MM141; MM199; MM291; MM317.

<sup>440</sup> Refer to the Spoil Management Strategy at 6 (pages 22-24), Appendix E to Technical Appendix Q to the EES.

areas. However, as noted by Dr Coutts in his evidence the majority of excavated soil and rock will be transported directly to a receiving facility and where material is required to be stored it would be a matter of hours or days pending categorisation of the spoil. This is largely because of the limited area available for the storage of waste at the construction sites. The EPA will oversee via its Site Determination process (and its involvement in the SMP process under EPR C1) the management of, and location of spoil stockpiles for the Project.

#### **D.9.3.7 The Proposed EPRs**

672. There have been relatively few submitters that have sought modifications to the EPRs in respect of contamination management. The MMRA has incorporated the recommendations of Dr Coutts into Version 3 of the EPRs.
673. The framework proposed by the contaminated land and spoil management EPRs respond positively to the evaluation objectives identified in paragraph 2.11 of MMRA's opening submissions. In particular, the Committee should conclude that:
- (a) The EPRs respond directly to the various forms of potential impacts regarding contaminated land and spoil management;
  - (b) The EPRs establish an appropriate framework to ensure that any potential impacts are appropriately managed;
  - (c) The EPRs appropriately make provision for the creation of a Spoil Management Plan and a Remedial Management Plan in consultation with and to be prepared to the satisfaction of the EPA;
  - (d) The EPRs specifically promote consultation with stakeholders and in particular the EPA prior to construction works;
  - (e) For the reasons identified in submissions, the EPRs are sufficiently robust to account for changes from the Concept Design situated primarily within the Project Boundary; and

- (f) The EPRs appropriately cross-reference the suite of other EPRs and in particular the groundwater EPRs (EPR C3).

## **D.10 Biodiversity**

*To avoid or minimise adverse effects on native terrestrial and aquatic flora and fauna, in the context of the project's components and urban setting.*

### **D.10.1 Environmental Effects**

674. Biodiversity effects are addressed at Chapter 21 to the EES for the Melbourne Metro, with separate assessments of potential Terrestrial Flora and Fauna impacts and Aquatic Ecology and River Health impacts addressed in Technical Appendix T and Technical Appendix U to the EES. Arboriculture is addressed in section D.
675. There are no Technical Notes relevant to consideration of Biodiversity effects.
676. Melbourne Metro is being constructed and operated in inner urban Melbourne, along an alignment where most of the original biodiversity values have been significantly disturbed, or modified or destroyed. The highly disturbed and modified nature of the area in the vicinity of the Melbourne Metro alignment means that there are likely to be negligible impacts to the biodiversity of native terrestrial and aquatic flora and fauna.
677. This is not surprising. The route selection in the Concept Design and selection of the Tunnel Boring Machine construction methodology beneath the Yarra River has avoided potential biodiversity impacts on sensitive areas, and with the majority of surface construction in either operational rail environments, highly urbanised areas or modified landscapes, the risk to threatened or vulnerable species is low.
678. Consequently, MMRA rejects the recommendation from City of Melbourne for further investigation of threatened and vulnerable species, and City of Melbourne has since agreed with MMRA's position.

679. One submitter<sup>441</sup> raised a concern that the construction of the Project will result in the loss of valuable habitat and impact on biodiversity in the Arden Precinct, and suggested moving the boundary of the construction zone to the north to preserve habitat and maintain biodiversity through construction and post-construction phases.<sup>442</sup>
680. In MMRA's view, EPR AR1 and AR3 are sufficient to preserve habitat and biodiversity. The amended EPR AR1 requires, during detailed design, a review of potential tree impacts and provision for maximum tree retention on both public and private land, having regard to valuable habitat linkages or corridors where practicable.
681. In addition, potential impacts on fauna are managed under EPR FF3, which requires that all vegetation being removed is to be inspected for habitat features and fauna occupancy, and sets out the requirements for the relocation of any nests or fauna, if encountered.
682. Some submitters suggested an EPR to require additional assessment of the project on biodiversity:
- (a) City of Melbourne originally recommended an EPR requiring the consideration of amenity impacts on local faunal biodiversity, but has now accepted that a new EPR is no longer required; and
  - (b) Another submitter requested further assessment of the impacts on biodiversity in areas above the tunnel should also be considered.<sup>443</sup>
683. As the Terrestrial Flora and Fauna assessment indicates the risk to threatened and vulnerable species is low, the existing EPRs are appropriate to manage impacts on biodiversity.

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<sup>441</sup> MM227

<sup>442</sup> MM227

<sup>443</sup> MM250

## **D10.2 The EPRs**

684. MMRA contends that the regime proposed by the EPRs responds positively to the principles outlined by MMRA at paragraph 2.11 of its opening submissions. Specifically:

- (a) The EPRs properly respond to the potential environmental impacts of Melbourne Metro on biodiversity;
- (b) Establish appropriate benchmarks in respect of delivery of the Project and for the preparation and implementation of appropriate management plans, including a plan identifying all trees in the project area in accordance with EPR AR1, and a translocation plan for the management of listed fauna species in accordance with EPR FF3;
- (c) Requires the re-establishment of trees to replace the loss of canopy cover with EPR AR3 with reference to relevant local council urban forest strategies and like policies;
- (d) The EPRs properly provide for consultation with stakeholders and affected persons, including ERPs AR1, AR3, and AR4;
- (e) The EPRs are sufficiently robust to account for changes from the Concept Design and within the Project Boundary; and
- (f) The EPRs properly acknowledge their relationship with other EPRs.

## **D.11 Environmental Management Framework**

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

685. A detailed assessment of the proposed EMF pursuant to this evaluation objective is set out in Chapter 23 of the EES.

686. The assessment in Chapter 23 relevantly addresses:

- (a) The proposed governance framework to be established under the EMF;<sup>444</sup>
- (b) The roles and responsibilities of various entities under the EMF;<sup>445</sup>
- (c) The ongoing risk and impact assessment to be maintained pursuant to the EMF;<sup>446</sup>
- (d) The role of EPRs pursuant to the EMF;<sup>447</sup>
- (e) The document hierarchy to be maintained pursuant to the EMF;<sup>448</sup>
- (f) The regimes that would be implemented in respect of monitoring,<sup>449</sup> reporting,<sup>450</sup> and auditing<sup>451</sup> pursuant to the EMF; and
- (g) The provision for contingency measures to be implemented pursuant to the EMF.<sup>452</sup>

687. The following Technical Notes supplement that analysis:

- (a) Technical Note 41<sup>453</sup> - Response to request for further information – Section 16 EMF; and
- (b) Technical Note 69<sup>454</sup> - Response to the matters for further consideration and/or clarification’ request dated 12 September 2016 – Section (xii) Independent Auditor.

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<sup>444</sup> Part 23.3.

<sup>445</sup> Part 23.4.

<sup>446</sup> Part 23.5.

<sup>447</sup> Part 23.6.

<sup>448</sup> Part 23.7.

<sup>449</sup> Part 23.8.1.

<sup>450</sup> Part 23.8.2.

<sup>451</sup> Part 23.8.3.

<sup>452</sup> Part 23.9.

<sup>453</sup> Part of Document 21.

<sup>454</sup> Document 312.



688. Technical Note 41 relevantly addresses the proposed interaction between:
- (a) the EMF and the risk register to be maintained in respect of the Project; and
  - (b) the EMF and the Incorporated Document.
689. It also provides additional clarity concerning the governance and approval processes that will be implemented in respect of the various plans that must be prepared pursuant to the EMF, and in accordance with the EPRs and the Incorporated Document.
690. Technical Note 69 provides additional information concerning the role of the Independent Environmental Auditor pursuant to the EMF.
691. This material records MMRA's position in respect of how the proposed EMF responds to the applicable evaluation objective.
692. A revised EMF will be tabled with the Committee on the final day of the hearing. The proposed revisions to the EMF are directed toward the following:
- (a) Providing statutory context, under the Incorporated Document, for the EMF;
  - (b) Clarifying the roles of the Independent Reviewer and the Independent Environmental Auditor, reflecting the position set out in Technical Note 69;
  - (c) Provision for updating Table 23-2 to reflect Version 4 of the EPRs;
  - (d) Clarifying responsibilities for assessing and approving the three tiers of management plans and documentation as described in Part 6.3 of Technical Note 41; and
  - (e) Updating the Environmental Management Documentation Table (Table 23-3 in the EES) so they mirror the requirements of the EPRs and Incorporated Document.
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693. The Committee should conclude that these revisions respond appropriately to the applicable evaluation objective, and that the proposed EMF will establish an appropriate framework to manage environmental effects and hazards associated with the construction and operation of Melbourne Metro.
694. MMRA relies on the detailed analysis undertaken in respect of Parts D.1 – D.10 of these submissions in support of the proposition that the EPRs and management plans to be prepared pursuant to that framework will “achieve acceptable environmental outcomes”.

## **E. THE PLANNING SCHEME AMENDMENT**

### **E.1 The Incorporated Document**

695. The MMRA has provided a table outlining the response to submissions regarding the content of the Draft Planning Scheme Amendment GC45 and in particular the Incorporated Document. The Committee is also referred to:

- (a) TN 68 – Response to matters for further consideration and/or clarification request dated 12 September 2016 (xii) Planning<sup>455</sup> which provides further information in relation to the form and content of the Incorporated Document and the various approval processes which apply; and
- (b) TN 69 - Response to matters for further consideration and/or clarification request dated 12 September 2016 (xiii) Independent Auditor which provides further information in relation to the role of the Independent Auditor and in particular the auditing of key plans under the Incorporated Document and EPRs.

### **E.2 The Design and Development Overlay**

696. The Committee's Request for Further Information, item (xii) requested:

‘further submissions regarding the operation of the DDO and why it is the preferred mechanism to protect the project asset in the long term.’

697. This part of the submission addresses that request and should be read in conjunction with MMRA's response to submissions relating to the proposed Draft PSA GC45, Document 209.

698. The draft PSA GC45 includes a new planning control to protect the underground tunnels, stations and other infrastructure during the construction and operation of the Project. The proposed planning control is a

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<sup>455</sup>

Document 311.

new schedule to the DDO<sup>456</sup> directed to be included in the relevant planning schemes to protect this critical infrastructure. Copies of the draft Design and Development Overlay schedules are included in Technical Appendix A to the EES.<sup>457</sup>

699. The purpose of the DDO is directed at protecting the physical form and integrity of the infrastructure associated with the Project, most particularly the tunnel and the stations. A second purpose of the DDO is to provide an assessment process for consideration of proposed design requirements, construction techniques or operations on land within the Overlay to ensure that the integrity and operation of infrastructure associated with the strategically important Project is not compromised.
700. The boundaries of the DDO have been identified through technical studies as the appropriate extent of land for which it is necessary that proposed future development be assessed and reviewed in order to ensure that the Project's infrastructure is protected.
701. The schedules to the Design and Development Overlay are proposed to be introduced into the relevant planning schemes at Clause 43.02 by draft PSA GC45. Draft PSA GC45 provides at the schedule to Clause 66.04 for the Secretary of DEDJTR to be the Determining Referral Authority for applications for permits made under the proposed DDO. When construction of Melbourne Metro is completed, VicTrack would take over as Determining Referral Authority for the Design and Development Overlay.

#### **E.2.1 Why is the DDO considered the appropriate tool for protecting Project infrastructure?**

702. Before selecting the DDO as the preferred planning tool to protect the Project infrastructure, MMRA conferred with DELWP and considered the

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<sup>456</sup> DDO67 Melbourne Planning Scheme, DDO30 in the Port Phillip Planning Scheme and DDO20 in the Stonnington Planning Scheme.

<sup>457</sup> See also TN 56 Updated Planning Scheme Amendment, Document 92.

available options. MMRA, in consultation with DELWP, ultimately concluded that the DDO was the best option from existing overlay controls in the Victoria Planning Provisions.<sup>458</sup>

703. When considering the preferred strategy, MMRA, in consultation with DELWP was concerned to balance the need to protect Melbourne Metro from inappropriate development, while also achieving visibility in the planning system and integration with the planning permit process. In particular, MMRA was concerned to ensure that there was early consideration of the Project's infrastructure during the design and decision making around new development applications.

704. The alternative options for the protection of the Project Infrastructure that were considered are outlined at 9.6.2 of the EES. The alternative options canvassed were:

705. First, protection of the tunnel infrastructure by legislation. The Melbourne Underground Rail Loop (**MURL**) is protected by legislation, specifically s 54(1) of the *Transport (Compliance and Miscellaneous) Act* 1983 which provides:

Any person who proposes to develop any land along or in the immediate proximity of the Loop shall before commencing the development and without in any way limiting his obligation under any other Act to obtain any other approval or consent submit to Rail Track full details of his proposed development and shall comply with any conditions imposed by Rail Track which it thinks may be necessary for the protection of the Loop or the proposed development. (Emphasis added)

706. The scope of section 54 of the *Transport (Compliance and Miscellaneous) Act* could be amended to require persons who propose to develop land along or in the immediate proximity of Melbourne Metro to obtain approval from VicTrack (the authority owning and managing railway land and assets in Victoria). Alternatively, project-specific legislation could be enacted.

707. There is no plan forming part of the *Transport (Compliance and Miscellaneous) Act* which identifies land 'along or in the immediate

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<sup>458</sup>

See the discussion in the EES at 9.6.2

proximity of the Loop’. While the legislative approach has been successful in protecting the MURL infrastructure, MMRA’s preference is to use the DDO.

708. MMRA considers that it is important that the presence and implications of the Project are clearly apparent to any party seeking to acquire, dispose or develop land. The use of the DDO is likely to be more transparent and the affected land will be more easily accessible apparent to anyone acquiring or disposing of an interest in land or seeking to develop land by being included in the relevant Planning Scheme. Overall, the proposed DDO mapping provides the appropriate level of short and long-term transparency for parties affected by being located within the environs of stations and the tunnel.
709. The second alternative considered was to amend the VPPs to include a new particular provision in Clause 52 of the relevant planning schemes to describe the type and location of permit applications that need to be referred to a referral authority. The MMRA did not consider that this was an appropriate option. This position is supported by Mr Milner’s evidence. Mr Milner did not consider that it was necessary or appropriate to create a new, site specific or generic overlay for inclusion in the VPPs and relevant planning schemes. As explained in his evidence, Mr Milner’s experience has been that there has been a resistance by government to include new planning scheme provisions when existing tools and provisions in the planning scheme can fulfil the required role. The underlying emphasis within the VPPs is upon streamlining rather than building larger planning schemes.
710. The third, and MMRA’s preferred option, is to amend the relevant planning schemes to introduce a schedule to the DDO.
711. The selection of the DDO as the appropriate planning tool to meet the objectives identified has been supported by the evidence of both town planners who have given evidence to the Committee: Mr Milner and Mr Smyth.

712. Mr Milner considered that the DDO was the most appropriate planning tool to achieve the relevant objective of protecting the Project's infrastructure for the following reasons:<sup>459</sup>

- (a) The use of an overlay in the planning scheme to protect the use and development of strategically important infrastructure from inappropriate development is unremarkable and has occurred in numerous planning schemes throughout the State. One example of this is the Airport Environs Overlay (Clause 45.02) which controls land use and development density within the flight path of airports and limits the intensity and form of development and creates a discretion on specified land uses. Another is the Special Building Overlay (Clause 44.05) which can control the height of floor levels above natural ground and limit the amount of works below nominated flood levels.
- (b) The DDO schedule would clearly identify the land to which it applies in the accompanying planning scheme maps. Schedules to the DDO have been used by the cities of Melbourne, Port Phillip and Stonnington to manage design and built form within their municipalities.
- (c) The DDO enables the referral of applications to government agencies charged with the maintenance of the infrastructure, as well as legal rights of review of decisions that is consistent with the VPPs performance based framework.
- (d) It is not unusual to find the DDO being applied to place boundaries and limitations on the siting and form of buildings to achieve a range of above ground objectives, including stipulating preferred or mandatory controls on heights and building setbacks in order to achieve urban character and public realm objectives and limit the

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<sup>459</sup>

Expert Witness Statement of Mr Milner at 7.4, pages 35 to 39.

yield and intensity of development to complement the capacity of a location to absorb growth.

- (e) There is nothing in the construction of the DDO provisions that prevents its application to below ground development considerations.
- (f) Both the Permit Requirements and Decision Guidelines of Clause 43.02 provide the opportunity to use the provisions in the schedule to nominate specific requirements for the form of new development and to advance decision guidelines that address the specific issues presented by the schedule to the overlay.
- (g) The DDO is a transparent control, that is easily identifiable to land owners. The mapping of affected property and the use of an overlay are the most effective and appropriate way to ensure that the appropriate level of awareness is easily accessible to the community and transparency is provided.

713. In a similar vein, Mr Smyth considered that the DDO:

‘...is a statutory tool well suited to protecting the rail infrastructure during the construction and operational phases of the Project and, of the tools available under the VPP suite of controls, is one which is ideally suited to consideration of important design and built form issues, as part of a responsible authority’s consideration of future buildings and works applications.’<sup>460</sup>

### **E.2.3 The operation of the DDO**

714. The DDO does not prohibit development but will require approval for any basement, works below two metres, a change in the natural surface level by one metre, a swimming pool below surface level or development above two storeys. Development exceeding those requirements would be subject to a permit and would require the documentation and technical analysis listed under the Application Requirements to be submitted. The application documentation is required to be submitted to the referral authority unless the referral authority has given prior approval.



715. The land use and development planning implications in terms of the impact upon the form, siting and type of development that might have otherwise been permitted are addressed in Appendix J (Future Development Loading report) to EES Technical Appendix E. This matter is also addressed in the expert witness statement of Mr Anthony Bennett and during his evidence to the Committee.<sup>461</sup>
716. In summary, any previously permitted development before the gazettal of the new DDO control would not be affected by the additional requirements.
717. The draft DDO provides for a process of assessment of future development proposals after the DDO takes effect, to protect the Melbourne Metro infrastructure from damage.
718. The design of the Project will take into account:
- (a) Existing structures;
  - (b) Developments that are approved prior to gazettal of the DDO; and
  - (c) Will make an allowance for an additional loading of 50 kPa for future development (and unloading).
719. Assessment under the DDO will be technically similar to the procedure used for developments near the MURL and will address the following key considerations:
- (a) Loading and unloading;
  - (b) Clearances – that is avoiding direct contact with Project infrastructure;
  - (c) Construction methods to ensure that unacceptable vibration which may damage Project infrastructure is avoided;
  - (d) Ensuring that proposed development does not rely on direct structural support from the Project’s infrastructure;

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<sup>461</sup>

See also the powerpoint presentation of Mr Bennett’s evidence to the Committee, Document 77.

- (e) A Pre-application meeting with the Referral Authority would be optional - but strongly recommended. It is anticipated that a pre-application meeting would facilitate information exchange to assist applicants in the preparation of their permit application;
- (f) If an application is received it will be referred to the Referral Authority. The application would then be assessed against the Design Allowances for the Project. If the application is more complex, the Referral Authority will undertake a 'first principle's assessment; and
- (g) The acceptability of the application and any mitigation requirements would be addressed via planning permit conditions.

#### **E.2.4 Information as to the application process**

720. Mr Milner's evidence highlighted that there was a degree of uncertainty associated with the application process envisaged under the proposed DDO.

721. Mr Milner considered that this was a matter where landowners and applicants would benefit from greater information and guidelines on how the applications for permits would be evaluated. Mr Milner's recommendation was that affected parties would be assisted by two documents providing a more fulsome information about the implications of the DDO and the application of its requirements:

- (a) A Planning Practice Note that could explain:
  - i. the role and purposes of the DDO;
  - ii. the implications for development;
  - iii. the processes for assessment and approval of works;
  - iv. the scope of detailed guidelines and how they apply to different sections of the tunnel; and
  - v. the location of other relevant information, and

(b) Technical guidelines for use by proponents for development. Mr Milner envisaged that these guidelines would detail:

- i. The limitations and considerations for different sections of the tunnel;
- ii. Checklists for essential and discretionary information to be submitted with applications for development;
- iii. The detailed processes and referrals that will apply;
- iv. Relevant time frames; and
- v. Rights of review.

722. These notes and guidelines will inform site-specific development and broader land use planning implications. MMRA accepts Mr Milner's recommendation that the practice note and guidelines should be prepared to assist in the administration and understanding of the requirements under the DDO.

## **F. CONCEPT DESIGN MODIFICATIONS AND CONSTRUCTION METHODOLOGY**

723. In Part C of these submissions, MMRA described the modifications that it has made to the Concept Design during the course of the hearing (as documented in separate Technical Notes) to assist the Committee in its assessment of the environmental effects of Melbourne Metro.
724. These include but are not limited to:
- (a) The abandonment of the option for TBM launch from within Fawkner Park;
  - (b) The confirmation that the vertical alignment of the rail tunnel will pass below CityLink; and
  - (c) The advice that permanent emergency access shafts are not required to be situated within Fawkner Park.
725. A number of submitters have made submissions proposing further modifications to the Project (including in respect of the appropriate construction methodology).
726. In the MMRA's submission, while the Committee will consider the submissions, some of the proposed modifications fall within the ambit of the Committee's assessment of modifications pursuant to the Terms of Reference and some do not.
727. In short, MMRA contends that:
- (a) Where those proposals are within the scope of the Project as declared by the Minister for Planning to be 'public works' pursuant to s. 3(1) of the EEA,<sup>462</sup> they potentially fall within the ambit of the Committee's

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<sup>462</sup> By declaration published in the Government Gazette on 3 September 2015 (and as modified on 24 November 2015).

assessment.<sup>463</sup> They do so provided that they are modifications ‘that are needed to address likely adverse effects or environmental risks.’<sup>464</sup>

- (b) Where those proposals seek to *change* the scope of the Project as declared by the Minister, they fall outside of the ambit of the Committee’s assessment of modifications.

728. This part of the submissions sets out the MMRA’s response to the first category of proposed modifications. MMRA’s response to submissions in respect of the second category of proposals is set out in Part G below.

729. By way of broad introduction, MMRA submits that the Committee should be loath to prescribe the implementation of a particular design option or a particular construction methodology in circumstances where – as is generally the case in respect of Melbourne Metro – a range of satisfactory options may exist. Maintaining an appropriate degree of flexibility in design and implementation is important as a means of fostering innovation and cost-effective outcomes.

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<sup>463</sup> The Project as declared ‘broadly comprises’ the following elements:

- *Two nine-kilometre rail tunnels from South Kensington to South Yarra to connect the Sunbury and Cranbourne-Pakenham railway lines, to be used by electric trams and generally following an alignment passing:*
  - *Approximately west to east to Grattan Street, and*
  - *Along the vicinity of Swanston Street, Queen Victoria Gardens, St Kilda Road, Fawkner Park and Toorak Road;*
- *Western portals generally in the vicinity of South Kensington Station, with realignment of the existing Sunbury Line tracks to form an at-grade junction with the Project tunnel tracks;*
- *New underground stations at:*
  - *Arden, proposed to be located east of CityLink;*
  - *Parkville, proposed to be located generally in the Grattan Street road reserve, near the intersection of Royal Parade, and including train-tram interchange;*
  - *CBD North, proposed to be located generally under the Swanston Street road reserve, generally between Franklin Street and Latrobe Street, and including interchange with Melbourne Central Station;*
  - *CBD South, proposed to be located generally under the Swanston Street road reserve generally between Collins Street and Flinders Street, and including the interchange with Flinders Street Station; and*
  - *Domain, proposed to be located generally under the road reserve of St Kilda Road and Albert Road, and including train-tram interchange;*
- *Eastern portals generally in the vicinity of South Yarra Station, with the project tunnel tracks tying into the existing Cranbourne-Pakenham Line tracks west of Chapel Street; and*
- *Relevant ancillary temporary and permanent works to support the construction and operation of the tunnels, stations and interchanges, including turnbacks and emergency access shafts for safety purposes in a number of locations as required, which may include Fawkner Park and the Domain parklands.*

<sup>464</sup> Clause 14(b)(ii) of the Terms of Reference.

730. It is respectfully submitted that an assessment on these terms must have regard to the operation of the EPRs formulated in respect of Melbourne Metro, which are generally performance based, and which will operate to ensure that appropriate environmental outcomes will be achieved (regardless of the ultimate design and configuration of Melbourne Metro).

#### **F.1 Western Portal: Option A and Option B**

731. A strong preference has been expressed by residents within Kensington in favour of Option B identified in respect of the Western Portal over Option A.

732. MMRA recognises this strong community position and accepts that, on certain measures, Option B (or a variant thereof) would generate lesser environmental impacts than would Option A.

733. Option A still remains an option for consideration, however, as the technical considerations and cost parameters of both options continues to be refined. The selection of the final design configuration for the Western Portal is therefore ongoing. It will ultimately turn on a number of technical considerations balanced against the assessment of the relative environmental impacts of the different options.

734. It is trite to observe that simply because one option would generate a higher level of impact on certain counts than another does not mean that it should necessarily be dismissed as unacceptable. In the context of the P&E Act, for instance, it is well-established that an assessment must focus on whether proposed outcomes are acceptable (as opposed to ‘optimal’ or ‘ideal’).<sup>465</sup>

735. MMRA will continue to consult with potentially affected residents in undertaking this assessment if changes to the community and environmental impacts result from its refinement of the two options. The Committee’s assessment of the environmental effects of the different options will also inform that assessment.

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<sup>465</sup> See, for instance, *Rozen v Macedon Ranges SC* [2010] VSC 583.

## **F.2 Domain Alternative – Western Verge of the Shrine Reserve**

736. A number of residents in and around the Domain Precinct expressed a preference for the station to be located within the western verge of the Shrine Reserve. Some of these submitters asserted that alternative designs of the rail alignment and station had not been considered.
737. This is not correct. The prospect of locating the station within the Shrine Reserve was considered and ultimately dismissed in developing the Concept Design.
738. It was dismissed principally on the basis that this configuration would encroach upon the Shrine Reserve, which is listed on the Victorian Heritage Register, to a far greater extent than the limited incursion proposed under the Concept Design. The cultural heritage significance of the Shrine is addressed in the HHIA and in the evidence of Mr Lovell, and earlier in these submissions.
739. Relocating the station in the manner suggested by the submitters would have significant impacts upon the cultural heritage significance of the Shrine and its environs by increasing the extent of built form incursion within the Shrine Reserve and by requiring the removal of a greater number of trees within the Reserve.
740. MMRA has undertaken extensive engagement with The Shrine of Remembrance Trustees over the past 18 months (including in respect of the development of the Concept Design). On-going consultation with the Trustees will continue. Through this engagement, the Shrine of Remembrance Trustees have advised MMRA that they are opposed to any proposal to relocate the station to within the Shrine Reserve for these reasons. EPR CH18, which requires that the siting and design of the Domain Station entrance be as ‘recessive as possible,’ is directed toward minimising the impact of Melbourne Metro on the cultural heritage significance of the

Shrine. The position advanced by the submitters is entirely inconsistent with this outcome, and should not be endorsed by the Committee.

### **F.3 Domain Alternative - Construction Methodology**

741. A number of residents in and around the Domain Precinct also submitted that the Domain Station should be required to be constructed as a mined cavern as opposed to the cut and cover methodology identified (and modelled) in respect of the Concept Design.
742. The principal rationale underpinning these submissions was the contention that this form of construction would result in lesser environmental impacts (be that in respect of traffic disruption, noise, or dust emissions).
743. MMRA has assessed the relative environmental impacts of mined cavern construction at Domain, as opposed to cut and cover. That assessment demonstrates that mined construction would:
- (a) generate largely comparable environmental impacts to cut and cover construction;
  - (b) result in a sub-optimal station design;
  - (c) result in delays to project delivery; and
  - (d) be considerably more costly than cut and cover construction.
744. The starting point in assessing the different methodologies is to recognise that it is not possible to eliminate surface impacts under either scenario. Indeed, even if the mined cavern methodology was to be adopted in respect of the construction of the principal station cavern, it would still be necessary to employ cut and cover construction in respect of significant components of the build (including in respect of parts of the station concourse, passenger vertical transportation access, and areas required to house operations equipment and ventilation plant).
745. The extent of cut and cover required would necessarily impede the operation of St Kilda Road in a similar way to that modelled in respect of the Concept



Design, and generate comparable levels of noise and dust emissions during construction.

746. St Kilda Road would need to be reconfigured regardless of the construction approach adopted in order to facilitate the relocated and longer Domain tram stop, vertical transportation to the station, and the provision of above ground infrastructure supporting the station. During construction, St Kilda Road would still need to be reduced to one lane of traffic in each direction.
747. A further important factor to take into account in any comparison between the two methodologies is that the adoption of mined cavern construction would require the station cavern to be lowered. This is because excavation by mined methods requires better rock conditions than required in respect of cut and cover construction. Based on MMRA's preliminary assessment, it is understood that the presence of relatively deep weathering in the Melbourne Formation bedrock at this location would necessitate the platform level being lowered by approximately 15 metres relative to the Concept Design.
748. This would result in a material increase in the time taken by passengers travelling to and from the station concourse (by in the order of 30 seconds). It would also impact the maximum design speed of trains approaching the station. Under the shallow (cut and cover) approach, design speed would be in the order of 70km/h. Under the deeper mined-cavern construction approach, design speed would be in the order of 60 km/h. Both of these factors would compromise the operational efficiency of Melbourne Metro at and around this location.
749. Because of the increased depth of the station, the mined cavern methodology would generate greater levels of spoil. This, in turn, would increase the number of truck movements associated with spoil handling and removal (estimated to be in the order of 35%).
750. It is noted finally that mined cavern construction would take approximately four to six months longer to complete than cut and cover construction. This

would have ramifications for overall Project delivery timetables. It would also cost substantially more than cut and cover construction.<sup>466</sup>

751. For these reasons MMRA submits that:

- (a) Cut and cover construction should be considered the most likely and practical construction method available at Domain;
- (b) It is unlikely that cavern construction would deliver material benefit in terms of environmental impact by comparison with cut and cover; and
- (c) The Committee should reject any proposal that cavern construction be mandated as the preferred construction technique, and should instead preserve design flexibility and innovation through the tender process.

#### **F.4 Arden Alternative – Vertical Alignment**

752. The Concept Design as it passes through North Melbourne ranges between 10.5 and 25 metres in depth (to the top of the tunnels). The shallowest point is near Laurens Street, close to the location of the Arden Station.

753. A number of residents in and around the Arden Precinct have asked for the vertical alignment of the tunnels to be lowered as they pass through North Melbourne.

754. They do so principally as a means of reducing the apprehended impact of Melbourne Metro both during construction and operation, particularly in respect of ground borne noise, vibration, and ground movement.

755. However, as discussed in Parts D.5 and D.7 above:

- (a) Whilst it is anticipated that there will be impacts in respect of ground borne noise and vibration during construction, those impacts will be relatively short-lived at this location, and are capable of being mitigated by other means (including, where necessary, pursuant to the

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<sup>466</sup> MMRA estimates, in this respect, that the additional cost would be in the order of \$136 million.

RIMG). They will arise at this location only as a consequence of the two passes of the TBM, and are not anticipated to give rise to structural damage to buildings. They may, however, impact upon human comfort (albeit only for periods of up to 10 days on two occasions at the most sensitive receivers).

- (b) It is not anticipated that there will be any unreasonable impacts, either in terms of ground borne noise or vibration, during operation. As Appendix E to the Noise and Vibration Impact Assessment (**NVIA**) demonstrates, subject to the selection of appropriate track forms, the levels of vibration and ground borne noise generated by the passage of trains within the tunnels will be within acceptable parameters.<sup>467</sup>
- (c) It is not anticipated that the construction of the tunnels will result in unacceptable levels of ground movement at these locations. Pre-construction condition surveys are required to be undertaken in respect of any building potentially at risk. Ground stabilisation measures may be required if any buildings are identified under those inspections as being particularly susceptible to structural damage.

756. In MMRA's submission, whilst it understands the nature of the concerns raised by local residents, the analysis undertaken to date demonstrates that the proposal to lower the tunnels at this location is not 'needed to address likely adverse effects or environmental risks' (as contemplated by clause 14(b)(ii) of the Terms of Reference).

757. Moreover, the vertical alignment of the tunnels must also be influenced by a number of functional considerations. These relevantly include (but are not limited to):

- (a) the topography of the land;
- (b) the geological and hydrogeological conditions of the alignment;
- (c) the location and preferred depth of the stations; and

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<sup>467</sup> See pages 55 and 56.

- (d) other operational considerations.

758. In this case:

- (a) Whilst the topography generally rises as the alignment travels eastward, there is a gully along Courtney / Harris / Haines Streets (covered by an SBO in the Melbourne Planning Scheme) that forms a low point along the route. This means that compared to other parts of the alignment, the depth of the tunnel at this location is relatively shallow.
- (b) The testing and investigations undertaken thus far, and as documented in the EES, support the contention that the geological and hydrogeological conditions along this part of the alignment can accommodate the tunnels at the depths modelled in the EES. Further detailed examinations (including further modelling) will be required in respect of the ultimate design of Melbourne Metro in each of these respects. This is appropriately provided for under the EPRs.
- (c) The safe and efficient operation of trains requires that the tunnels adhere to various geometric criteria, including in respect of the gradient and curve of tracks. A flat, straight tunnel is preferred wherever possible, and both vertical and horizontal curves within the Concept Design have accordingly been kept to a minimum. Deepening the tunnel within North Melbourne would necessarily result in the lowering of either or both the Arden and Parkville Stations (to accommodate appropriate gradients in the track). The lowering of either the Arden Station or Parkville Station alone would not result in a commensurate increase in cover at the shallowest section of tunnel, due to the distance between Arden and Parkville. The lowering of either or both of Arden and Parkville Stations would result in undesirable outcomes in terms of the future operation of these stations (and would necessarily result, amongst other things, in longer transit times for passengers and emergency service organisations, travelling

to and from the train platforms). It would also potentially be more difficult to construct a deeper station box in Arden owing to the geological conditions in that location.

- (d) Furthermore, as noted above in the context of the Domain Station, modifying the gradient of tracks approaching a station has the potential to impact upon train speed within the tunnels, which in turn has the potential to compromise the operational capacity of the network.

759. In short, given the topography of the land in Arden, the proximity of the location to station boxes, and the operational imperative to ensure that the stations are not situated too far below-ground, MMRA submits that the lowering of tunnel depth in North Melbourne is highly undesirable. Furthermore, for the reasons outlined above, the Committee should be satisfied in light of the detailed analysis undertaken as part of the NVIA and GMIA that the environmental effects that will be generated at these locations during both construction and operation can be maintained within acceptable levels.

760. Ultimately, the concerns of the residents of North Melbourne arise as a consequence of their perception of the impacts of living in proximity to rail infrastructure, in a location where none presently exists. However, it is to be borne in mind that underground infrastructure is common in modern cities (including in other parts of Melbourne) and, once in place, that it can be expected that occupiers of nearby land will be largely oblivious to it. Furthermore, residential areas are commonly proximate to surface rail services and main roads, which generate more significant noise and vibration impacts than those that would be generated by Melbourne Metro at this location.

**G. MMRA’S RESPONSE TO SUBMISSIONS: PROPOSED CHANGES TO THE PROJECT**

761. A number of submitters seek more substantial changes to the Project than those addressed in Part F above. These include, but are not limited to, the proposal by Stonnington City Council to include an additional station at South Yarra (or, in the alternative, to develop the Melbourne Metro in a way that would allow the delivery of a station at this location at some point in the future).
762. The Council was critical of the EES for not assessing this alternative. This criticism is misguided. The EES was properly undertaken in respect of the Project as declared by the Planning Minister to be public works pursuant to s. 3(1) EEA. Those works did not include the provision of a station at South Yarra.
763. Indeed, for the reasons identified above, it is submitted that the Council’s submissions in this regard fall outside the ambit of the Committee’s Terms of Reference. MMRA nevertheless provides the following response to this issue, and other issues of a comparable character, as a response to a number of submissions that have been made to the Committee.

**G.1 South Yarra Station**

764. MMRA first notes that:
- (a) The connection of Melbourne Metro to South Yarra Station was considered and rejected prior to the exhibition of the EES.
  - (b) The EES does not include or provide for a connection to South Yarra Station.
  - (c) The potential inclusion of a second South Yarra Station as part of Melbourne Metro is not specified within the Scoping Requirements, the evaluation objectives or the Committee’s Terms of Reference.
765. MMRA adopts in full the detailed written submissions presented to the Committee by PTV, and in particular the detailed written submissions by

PTV made on Day 21, in response to submissions made on this issue.<sup>468</sup> In its submissions, PTV sets out a compelling explanation of the previous consideration of the inclusion of South Yarra Station and the marginal benefit that would accrue if it were included within Melbourne Metro.

766. The draft *30-Year Infrastructure Strategy*, released by Infrastructure Victoria on 4 October 2016, specifically recommends against proceeding with a second station at South Yarra, principally because the benefits do not appear to outweigh the costs, and noting that South Yarra is already very well served by public transport.<sup>469</sup> The draft strategy further highlights that metropolitan railway stations with high passenger volumes be upgraded, subject to further assessment identifying priority locations. One of the nominated locations for upgrade is South Yarra, recognising its continuing importance in the transport network will not be diminished even with construction of Melbourne Metro.<sup>470</sup>
767. MMRA submits that the case for the inclusion of South Yarra Station advanced by Stonnington City Council was not rigorous. It was wholly focussed on perceived benefits or disbenefits to South Yarra Station, and ignored in its entirety the benefits and disbenefits in the context of the metropolitan network, and how the cost of a second South Yarra station might be better and more equitably be spent elsewhere.
768. The Council's case provided no submission, let alone evidence, showing an analysis of the cost implications of the inclusion of a second South Yarra Station in the project. It failed, in particular, to demonstrate whether those costs were justified in the context of local, metropolitan or state objectives.
769. The evidence of potential alternative works by Mr McDougall was openly stated to be preliminary, conceptual and uncoded. Tellingly, even at this relatively abstract level, those works were demonstrated to likely interfere

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<sup>468</sup> Document 161.

<sup>469</sup> Page 122.

<sup>470</sup> Action 10.4.6 on p. 115.

with a key design initiative of Melbourne Metro (being the avoidance of co-dependent lines south of South Yarra Station).

770. Furthermore, despite Mr McDougall advising the Council that it should engage expertise to cost the alternative proposal, no evidence was produced in this regard. Instead, based on preliminary estimates, Mr McDougall agreed that the likely cost of constructing an additional station at South Yarra would be in the order of \$700 - \$900 million.
771. There is no valid distinction to be drawn between the inclusion of a second South Yarra Station as part of the current project or future-proofing the Project for its inclusion at some point in the future. As was conceded by Mr McDougall, the substantial cost of including a second South Yarra Station is associated with the works and land acquisition required to create the necessary length of level track at or adjacent to South Yarra Station and the provision of a future station. This requires a wholesale redesign of the vertical (and potentially horizontal) alignments of Melbourne Metro west of the Eastern Portal towards Fawkner Park. Accordingly, even future-proofing Melbourne Metro for the potential inclusion of a second South Yarra Station would present a major design change to the project on which there has been no stakeholder consultation or assessment, and would likely have significant (and negative) implications for the business case.
772. South Yarra is, and will continue to be, well-served by public transport. Commuters commencing their train journey at South Yarra will be served by an increased frequency of Frankston and Sandringham services. In addition, commuters will be able to travel on the No. 8 tram to and from the new Melbourne Metro Domain Station to travel on the Sunshine - Dandenong Line. There are also ample on-road public transport options including tram and bus services operating through the South Yarra area.
773. Commuters using the new Sunshine - Dandenong Line will be able to access South Yarra by interchanging at Caulfield Station (if travelling from the east) or at the City Stations (if travelling from the west). Interchanging at



stations is already the norm for many commuters through Richmond, Footscray and North Melbourne.

774. The limited case put by Stonnington City Council was advanced notwithstanding substantial and open consultation between MMRA and the Council over a long period in the lead up to and throughout the EES process.
775. The Committee should conclude that the Council has fallen well short of demonstrating that:
- (a) its position in respect of South Yarra Station is relevant to the Terms of Reference; or that *even if it were*
  - (b) its proposal is of merit or that it warrants any further consideration.

## **G.2 Domain Alternative – Fawkner Park**

776. Mr. McIntosh made submissions that the Domain station should be relocated to Fawkner Park.<sup>471</sup>
777. MMRA opposes that proposal for the following reasons:
- (a) First, it would not accord with the declaration made by the Planning Minister pursuant to s. 3(1) of the EEA, which relevantly provides that the new underground station at Domain be ‘located generally under the road reserve of St Kilda Road and Albert Road, and including a train-tram interchange;’
  - (b) Second, the suggested location is not suitable as it would not provide for a public transport interchange as proposed at Domain;
  - (c) Third, the suggested location would pose significant interference to the use of public open space; and

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<sup>471</sup> Submissions of Mr McIntosh.

- (d) Fourth, the suggested location would not directly service the St Kilda Road tram corridor and provide an efficient customer interchange experience between modes.

### **G.3 Arden – Alternative Horizontal Alignment - Leach**

778. Mr Leach made submissions in respect of a substantially different horizontal alignment for the proposal between the Western Portal and Parkville (including the relocation of the Arden Station to a point beneath or immediately adjacent to Arden Street).

779. For the reasons that follow, MMRA does not support that alternative alignment:

- (a) First, it would result in significant and unnecessary disruption to traffic, businesses and residents, arising from the construction of a station under or adjacent to Arden Street;
- (b) Second, it would require the relocation and/or protection of significant utility services within the Arden Street Road Reserve, including a major gas transmission main and the North Yarra Main Sewer;
- (c) Third, the alignment raises potentially significant complications in respect of the interaction of the tunnel structures with numerous built form constraints on the west side of Moonee Ponds Creek. These include, but are not limited to, the substructure of the Arden Street Bridge, the piles of the CityLink structures, and the piles for the West Melbourne Terminal Station;
- (d) Fourth, locating the station away from the central part of the Arden Precinct would be inconsistent with the urban renewal of this area, and the realisation of important strategic planning objectives; and
- (e) Fifth, it would require two additional 300 metre radius curves between Arden and Parkville, which would add to the cost of the project,

increase ongoing maintenance costs, and reduce its operational efficiency.

#### **G.4 Arden – Alternative Horizontal Alignment – Miller**

780. Mr Miller made submissions in respect of a substantially different horizontal alignment for the proposal between the Western Portal and Parkville, generally following Haines Street before turning south to the Arden Station site.

781. For the reasons that follow, MMRA does not support the proposed alternative alignment:

- (a) First, the suggested horizontal alignment would result in track geometry to reach Arden Station from both directions, but particularly on the eastern approach from Haines Street, that would compromise train speed and safety. Even if the track geometry associated with the proposed scheme were significantly modified to improve train performance, they would still represent undesirable and atypical geometry that would lead to increased maintenance costs and reduce the overall operational efficiency of the train operations. This would run counter to one of the Project's objectives (outlined at Chapter 1.1.3 of the EES) to "optimise the efficiency and reliability of operations and improve the customer experience by moving towards a metro-style system."
- (b) Secondly, the proposed significant lowering of the vertical alignment at Parkville Station would lead to a station depth of around 50 metres, which would represent the deepest underground train station in Australia and be considered very deep on an international scale. This depth would materially reduce customer experience at the station. Although its flatter gradient would assist in performance of trains using the tunnel, it would conversely make Parkville Station a less desirable proposition for passengers due to the increased journey times to and from the surface. The lowering of Parkville Station by

approximately 20m, or five storeys, would also make it more difficult to obtain necessary consents from emergency services for the safe operation of the station.

- (c) Third, the alignment raises potentially significant complications in respect of the interaction of the tunnel structures, with numerous built form constraints between Arden Station and Western Portal. These include, but are not limited to, the piles of the CityLink structures, the piles of rail bridges crossing Moonee Ponds Creek (and located under the CityLink structures), and the piles for the rail bridges over Lloyd St.

## **H. CONCLUSION**

782. The task for the Committee is to prepare a report providing the Minister with the Committee's advice on the proposed planning scheme amendment and, with respect to the EES Inquiry, the matters set out in particular at clause 14(d) of the Terms of Reference.
783. The Committee has had the benefit of submissions from 397 submitters as part of the EES exhibition, various site inspections along the route of the Melbourne Metro and at specific locations, received presentations, and heard oral submissions, expert and lay evidence from or on behalf of numerous submitters over the previous 30 days of the public hearing.
784. The Committee has also heard extensive evidence on behalf of the MMRA and been provided further information and advice from 79 Technical Notes.
785. The process for the assessment of the Melbourne Metro was not a static one which was complete on the publication of the EES in April 2016. The approach of the MMRA has been to respond to issues and refine the Project as the issues raised in detailed submissions and those raised as a result of the on ongoing stakeholder engagement have been further explored.
786. It is submitted that as a consequence of the material before the Committee it ought to make the following recommendations:

### **H.1 The Planning Scheme Amendment**

787. It is respectfully submitted the Committee should recommend approval of the proposed planning scheme amendment GC45 be recommended for approval. In particular, the third version of the draft Incorporated Document, dated 26 September 2016 (Document 208) tendered on 23 September 2016, is the appropriate means by which to facilitate and implement the Project. The Committee should make recommendations to amend the draft Incorporated Document consistent with the modifications as set out in the

final version to be tabled by MMRA. For reasons given, MMRA submits that the EPRs should not be reproduced within the Incorporated Document.

788. Furthermore, the proposed DDO to the Melbourne Planning Scheme (DDO67), Port Phillip Planning Scheme (DDO030) and Stonnington Planning Scheme (DDO020) in accordance with the draft tendered on 6 September 2016,<sup>472</sup> is the appropriate overlay control to be imposed to protect Melbourne Metro infrastructure and operations, recognising that the extent of the DDO as identified in the accompanying planning schemes maps<sup>473</sup> will be refined when the detailed design of the Project is complete.

## **H.2 The EES Inquiry**

789. In accordance with the Terms of Reference at clause 14 (d) (i-viii) in respect of the EES Inquiry the Committee ought to conclude that:

- (a) It has demonstrated that the proposed EPRs tested by the Concept Design and changes to the Concept Design will provide a framework to ensure acceptable outcomes in terms of environmental impacts;
- (b) The commitment not to pursue specific aspects of the exhibited Concept Design removes significant potential for environmental effects;
- (c) the Project is capable of achieving acceptable environmental outcomes in the context of the applicable legislation, policy strategies and guidelines;
- (d) having regard to the draft evaluation objectives in the EES Scoping Requirements, the design and construction options for the various project components are suitable, by application of the EPRs to

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<sup>472</sup> See Attachment C to TN 56, Document 92.

<sup>473</sup> See the updated maps for the draft DDO which are Attachment D to TN 56, Document 92.

meeting the Project outcomes and at the same time delivering an appropriate balance of environmental, economic and social outcomes;

- (e) there are no further modifications to the Project which are needed to prevent or minimise adverse environmental effects of the Project, having regard to the applicable standards objectives and guidelines established under relevant legislation. The EPRs provide a sufficiently flexible framework for detailed design primarily within the Project Boundary;
- (f) the conditions which are set out in the Incorporated Document and the interconnection provided by the structure of that planning control with the EPRs are appropriate and provide the extent of control required to achieve environmental outcomes under applicable legislation and/or policy;
- (g) the proposed framework for environmental management of the project, including the proposed EMF, management plans and the EPRs are appropriate for approval under Victorian law; and
- (h) the testing of the evidence before the Committee demonstrates that the relevant EPRs can be met.

790. Consequently, in view of the foregoing, the MMRA submits that the Committee should confidently make the above mentioned recommendations in its report supporting the Melbourne Metro Project.

Michelle Quigley QC

Chris Townshend QC

Marita Foley

Barnaby Chessell

Instructed by Herbert Smith Freehills

6 October 2016