In the matter of the Melbourne Metro Rail Project

Planning Panels Victoria

Proponent: Melbourne Metro Rail Authority

Expert Witness Statement of

David Galwey

Arboriculture

Eastern Portal

11 August 2016

Expert of Melbourne Metro Rail Authority

1. Introduction

1.1. Name and address

This report is prepared by me, David Galwey of Tree Dimensions, 2/45 Watkins Street, Fitzroy North.

1.2. Qualifications and experience

My qualifications and experience are outlined in Appendix A. My expertise is in the management of trees in the urban environment.

1.3. Other significant contributors to this report

There are no other significant contributors to this report.

1.4. Instructions

I received the following written instructions:

- Review Environmental Effects Statement (EES)
- Identify any issues in the EES
- Summarise my opinions
- Review submissions
- Respond to submissions
- Identify and respond to any other relevant matters.

1.5. Methodology

In undertaking the arboricultural impact assessment at the Eastern Portal, I undertook fieldwork along with two other consulting arborists employed at Tree Dimensions (Theodor Glatthor and Clive Sorrell) to assess all trees within the precinct.

1.6. Reports

I rely on the following documents:

- Environment Effects Statement (EES)
- Chapter 16 Landscape and Visual
- Chapter 21 Biodiversity
- Appendix S – Arboriculture (City of Stonnington)
- Metro Plans – Eastern Portal

I prepared Appendix S of the EES following tree assessments and review of the project plans.

1.7. Departure from findings in reports

I have reviewed relevant parts of the Melbourne Metro Environment Effects Statement in preparing this expert witness statement. Save where otherwise indicated I adopt Appendix S as the basis of my evidence before the Inquiry and Advisory Committee. The only departure from the findings in Appendix S relates to the number of trees potentially impacted at the Eastern Portal, which I address in s 2.1 below.

1.8. Expertise

All of the questions asked of me, all work undertaken and the findings of my report all fall within my area of expertise.

1.9. Key assumptions

In assessing arboricultural impacts I have assumed that all trees within the Eastern Portal precinct may need to be removed to facilitate works. Depending on construction plans and assuming the application of Environmental Performance Requirement AR1, it is probable that not all of these trees will require removal.

1.10. Completeness of report

Apart from the issue regarding tree numbers (see s 2.1), the exhibited report (Appendix S) is complete and accurate.

1.11. Agreement with expert witness guidelines

I understand that I have a paramount duty to assist the Panel on matters relevant to my expertise. I agree to be bound by the Panel's expert witness guidelines.

2. Any corrections or additions to EES

2.1. Tree numbers

When assessing trees in the Rail Reserves we encountered masses of self-sown weedy species *Ailanthus* and *Acacia*. We grouped each of these species as one listing: EP217 and EP218 respectively.

EP217 represents approximately fifty *Ailanthus* trees. EP218 represents approximately forty *Acacia* trees. Together these two listings represent approximately 90 trees; i.e. there are approximately 88 more trees in number than listed.

The Arboricultural Impact Assessment report for the Eastern Portal states throughout that "up to 218 trees" may be impacted or removed. This was based on the number of listings in the data and did not take into account the multiple trees within the two listings described above. Including the additional 88 trees, it is more accurate to state that *up to 306 trees* may be impacted or removed. It should be noted that these additional 88 trees are self-sown and weedy in nature, with low environmental and amenity values. *Ailanthus* is declared a noxious weed in Victoria.

2.2. Tree plans

As above, individual trees within listings EP217 and EP218 were not plotted. On the numbered plans in Appendix B these two numbers indicated the areas where these two groups of trees are found.

3. Summary of opinions

3.1. Impacts of tree removal

In assessing the impacts I have assumed the worst-case scenario: that all trees within the Eastern Portal precinct may be removed. It is likely that construction methods will allow some trees to be retained, reducing the impacts somewhat. The extent to which this may be possible will not be known until construction methodology is further detailed. Environmental Performance Requirement (EPR) AR1 (Chapter 23 of the EES) specifies: "During detailed design, review potential tree impacts and provide for maximum tree retention where possible."

Up to 306 trees may be removed, as summarised in the following table.

Table 1. Summary of trees within the Eastern Portal precinct.

		MLTV[1] trees	Weedy self-sown	Others (non-MLTV, non-weedy)	Total
South Yarra Sidings	public realm	36	0	15	51
Osborne St and linear reserve	public realm	36	1	27	64
Rail corridors	non-public realm	25	158	8	191
TOTAL		**97**	**159**	**50**	**306**

[1] Medium and Long Term Viability tree

Most trees within South Yarra Sidings Reserve are Medium and Long Term Viability (MLTV) trees. These are established trees that could be expected to contribute to the landscape for at least ten more years. The overall landscape quality is relatively poor; there is an opportunity to improve the long-term landscape value and amenity of this reserve, including the quality of its tree canopy.

Street trees along Osborne Street, mostly ornamental pears, provide amenity to local residents. Most trees along the linear reserve to the east of Osborne Street are planted natives; several have short useful life expectancies. Trees here provide visual screening from the rail corridors for residents along Osborne Street.

Most trees within the rail corridors are weedy, self-sown species including the declared noxious weed *Ailanthus altissima*. There are several mature eucalypts, peppercorn trees and other species that are MLTV trees. They soften the landscape along the rail corridors and provide typical ecosystem services.

Removal of trees across the Eastern Portal will result in temporary loss of amenity as well as the loss of ecosystem services. However new plantings could replace this and it would be possible to have no residual loss of either landscape quality or tree canopy cover within 20-30 years. Of course, this relies on the development of high-quality landscape plans that include significant tree planting.

If all trees within this precinct are removed, this would include the removal of 189 trees with Useful Life Expectancies (ULEs) of 10 years or less, many of which are weedy and at least six of which are hazardous. Many trees also appear to have been selected on an *ad hoc* basis without an overall landscape character goal.

It is my opinion that the Project provides an opportunity to greatly improve the landscape amenity of South Yarra by planning and constructing a landscape that provides access to green space and tree canopy cover.

3.2. Protecting trees that are retained

Depending on construction methods and ultimate design, some trees may be able to be retained within the Eastern Portal during the duration of the project. EPR AR1 should contribute to this outcome by requiring the project to maximise tree retention. To ensure they remain viable, Tree Protection Plans must be prepared and implemented in accordance with AS4970-2009 *Protection of trees on development sites* (EPR AR4).

3.3. Local context

The Urban Design Strategy (Appendix M of the EES) recognises that (p 85) "The South Yarra Siding and Osborne Street Reserves are important community assets to protect and enhance, despite their small size and modest amenity at present."

Street trees along Osborne Street are mostly ornamental pears. They provide amenity for local residents. They are less visually significant, and provide fewer ecosystem services, than larger trees (such as plane trees) that are common in other streets within South Yarra (e.g. Davis Avenue). They could be replaced in a relatively short timeframe with established plantings.

Trees within Osborne Street Linear Reserve and South Yarra Sidings are managed by the City of Stonnington ('Stonnington'). However Stonnington does not own this land and therefore, based on my investigations, has no plans for undertaking significant landscape improvements (Simon Holloway, Manager Parks and Environment, City of Stonnington, pers. comm., July 2016). It is unlikely that landscape amenity would improve significantly in the foreseeable future were there no other changes.

Tree canopy forms a significant component of green infrastructure and is an effective measure for minimising the Urban Heat Island effect. Establishment of tree canopy is more likely to be successful when included in urban design from the outset. Technical Appendix L of the EES (Landscape and Visual) notes that the proposed design criteria at the Eastern Portal include (p 127) "Design retaining walls and backfill to provide generous soil depths to support the growth of trees."

Landscape plans have not yet been developed as they will require the input of various stakeholders including the City of Stonnington. Selection of trees must be a key component of that process. Technical Appendix L of the EES (Landscape and Visual) correctly identifies (p 137) that "Canopy trees are the most significant contributor to landscape and public realm character and quality." The Urban Design Strategy (Appendix M of the EES) recognises the need to (p 87) "Maximise the area of green, landscaped open space including canopy trees" at the Eastern Portal.

4. Response to submissions

The following submissions raised issues relevant to Arboriculture at the Eastern Portal or across the project generally: MM017, MM091, MM135, MM162, MM266 and MM354.

My detailed response to the matters raised in these submissions is set out in Appendix B.

5. Review of MMRA Technical Notes

I have reviewed MMRA Technical Notes numbers 1 to 18. I have no recommendations for changes to EPRs as a result of those Technical Notes.

6. Environmental Performance Requirements

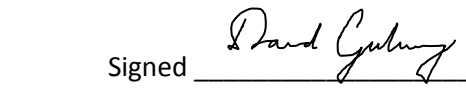
I have reviewed the EPRs relevant to Arboriculture at the Eastern Portal and recommend the following addition.

Canopy trees require sufficient soil volume for growth, which EPR AR2 recognises. Successful tree establishment also relies on tree roots having access to sufficient water. This EPR should include a requirement for installing irrigation. Using Water Sensitive Design (WSD) principles would minimise reliance on mains water.

EPR No.	Original EPR	Recommended EPR	Reason
AR2	Reinstate quality soils to sufficient volumes to support long-term viable growth of replacement trees.	Reinstate quality soils to sufficient volumes to support long-term viable growth of replacement trees. Install irrigation to ensure ongoing supply of water to tree root zones, especially during their establishment stage. Employ WSD principles where possible.	Trees require sufficient moisture for growth, especially during establishment. WSD can provide water security by minimising reliance on mains water.

7. Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

Signed 

Dated 11 August 2016

Appendix A. David Galwey's Curriculum Vitae

David Galwey

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Qualifications

- Bachelor of Applied Science (Urban Horticulture)
  University of Melbourne
- Associate Diploma of Applied Science (Arboriculture)
  University of Melbourne
- Certificate of Arboriculture *The Northern Sydney Institute*
- ISA Tree Risk Assessment Qualification (TRAQ)

Experience

David is experienced in all aspects of managing trees in the built environment.

Tree Dimensions
Since 1995 David has been the director and principal consultant with Tree Dimensions, a Melbourne-based consultancy specialising in arboriculture and urban forestry. Here he has developed expertise across all areas of arboriculture, but in particular focusing on tree policies and legislation, trees in the urban environment, urban forestry, GIS analysis, tree protection and tree risk assessment. Tree Dimensions is involved in the management of trees in both the public and private realms.

NSW Land & Environment Court
Since 2010 David has also been an Acting Commissioner with the NSW Land and Environment Court. In this judicial role he hears Court matters under the *Trees (Disputes Between Neighbours) Act 2006* and other Acts, making decisions and writing judgments.

University of Melbourne
David is a sessional lecturer at the University of Melbourne, giving lectures in Urban Tree Management subjects including Trees and the Law, Tree Valuation, Tree Protection and Tree Risk Assessment.

Standards Australia
As a member of the Standards Australia Arboriculture committee, David was active in the development and implementation of arboricultural standards at the national level, including AS4970 *Protection of trees on development sites* and AS4373 *Pruning of amenity trees*.

Memberships
David is a member of the University of Melbourne's ADUH Course Advisory Committee, the Treenet Advisory Board, and a past board member of ISA (Australia Chapter).

Appendix B. Response to submissions

Issue	Submission No	Response	Recommended New or Modified Environmental Performance Requirement
Entire project: temporarily lifting and storing trees that are proposed for removal, to be replanted in the landscape following construction.	MM017 p1	This technique is not suitable for the many large natives and evergreen trees throughout this precinct. Most of the deciduous trees that could be transplanted in this precinct are weedy or undesirable. The ornamental pear trees along Osborne Street are not individually significant and it would likely be more economical to plant new established trees following construction.	None required
Entire project: ensure that the final approved plan and construction schedule retains as many trees as possible.	MM091 point 32	Vegetation removal will be minimised where possible. This will depend on construction requirements. Many trees in the precinct have low value or short ULEs. See **EPR no. AR1**.	None required
Explore opportunities to integrate water harvesting as part of the project. Incorporate best practice water management and reuse. Use passive irrigation technologies. Ensure effective irrigation and water security to protect trees and minimise wastage.	MM091 points 36, 38 & 39	Supply irrigation for tree root zones, especially during their establishment stage. Use WSD principles where possible.	**EPR no. AR2**: Reinstate quality soils to sufficient volumes to support long-term viable growth of replacement trees. *Install irrigation to ensure ongoing supply of water to tree root zones, especially during their establishment stage. Employ WSD principles where possible.*
Concern with any loss of physical amenity in the abolition of nature reserves, nature strips, trees, planting and the like both during and after construction.	MM135 point 11	Vegetation removal will be minimised where possible. This will depend on construction requirements. Many trees in the precinct have low value or short ULEs. See **EPR no. AR1**.	None required

Please value and take into consideration much loved landscapes, and alter the plan accordingly, even if it costs more money to build around the trees.	MM162 p1	Vegetation removal will be minimised where possible. This will depend on construction requirements. Many trees in the precinct have low value or short ULEs. See **EPR no. AR1**.	None required
Removal of trees and subsequent replacement of trees	MM266 p5	The impact of this is identified in the report at Appendix S. The report explains that some trees have low significance and some have short ULEs but the overall loss of trees will affect local amenity for the duration of the project and for a period afterwards. Tree removal will be minimised where possible (**EPR no. AR1**) and new trees will be established afterwards (**EPR no. AR3**).	None required
Canopy trees in Osborne St linear reserve provide amenity to Osborne St residences. All trees are likely to be removed at the start of construction. Amenity and screening of the railway and construction zone will be lost for the duration of the project. Even if replanted at project completion, amenity will take decades to be restored.	MM266 p8	This impact is identified in the report at Appendix S. Loss of screening and amenity will be minimised if possible depending on construction requirements (**EPR no. AR1)**, but the report has taken a conservative approach and identified maximum potential losses. The report identifies that there is an opportunity to improve the overall landscape value of SY Sidings Reserve and Osborne Street, including tree canopy cover. Planting established trees will minimise time required for a mature landscape. An opportunity exists for all stakeholders to contribute to an improved long-term landscape (**EPR no. AR3**). The opportunity for landscape improvement should not be underestimated. At present, the landscape of SY Sidings reserve and the linear	None required

		reserve along Osborne Street are maintained by CoS but the land (and the trees) are not owned by CoS. There is no mechanism nor incentive at present for CoS to plan an improved landscape. It is likely that this situation (maintenance only and no long-term improvements) would continue for the foreseeable future.	
Vegetation removal should be minimised. Vegetation retention should be possible between TBM retrieval box and proposed truck bridge to SY Sidings Reserve.	MM354 p4	Vegetation removal will be minimised where possible. This will depend on construction requirements. Many trees in the area identified have low value or short ULEs. See **EPR no. AR1**.	None required
An appropriate tree protection plan should be prepared to manage and mitigate adverse impacts.	MM354 p4	The need for tree protection plans has been identified and recommended in **EPR no. AR3**.	None required
Tree replacement and re-landscaping should be incorporated into the planning process sooner rather than later. Reinstatement of the reserve should not diminish its value for the adjoining community.	MM354 pp4-5	The report identifies that there is an opportunity to improve the overall landscape value of SY Sidings Reserve and Osborne Street, including tree canopy cover. Planting established trees will minimise time required for a mature landscape. An opportunity exists for all stakeholders to contribute to an improved long-term landscape (**EPR no. AR3**).	None required