I am a qualified arborist with 25 years experience in the assessment and management of urban trees, 17 of those have been as the managing director of an arboricultural consultancy. I have extensive experience with large infrastructure projects and recently have provided advice and assessment reporting for the Gold Coast Rapid Transit project, both to GCCC during the early works and assessment phase and to MacDow during the detailed design and construction phase.

I offer the following comments in relation to the EIS and its attention to the matter of impacts on urban trees, specifically The Preliminary Tree Assessment report provided by Stuart Pittendrigh as an appendix to the EIS.

The EIS fails to provide a valid assessment of the trees or the impacts on them. To accept the preliminary tree assessment as a valid planning instrument is ill advised for a number of reasons which I explain hereunder.

The Preliminary Tree Assessment report is no more than an inventory of trees that are within the alignment. This is an inventory that does not include any detailed mapping or survey plan that can be used to accurately locate individual trees or to plan their management in relation to other works.

It is in effect misleading as to the true extent of impacts. The preliminary status reflects but does not acknowledge the absence of detailed plans from which to assess the actual extent of damage (to trees) that will be imposed by the project. Within my experience, the footprint of the project will extend beyond the alignment to account for changes in ground level, earthworks batters, incorporate broader changes to drainage and service alignments (above and in ground), changes to road alignments, lighting, pedestrian paths and other associated works resulting from the project.

All of these works have the potential to negatively impact on trees outside of the alignment including those on public and private lands peripheral to the works. There is no statement or acknowledgement in the EIS in relation to potential impacts on trees outside the study area of the alignment and works compounds, or discussion of effects on privately owned trees peripheral to the alignment.

The report uses an appraisal method (SULE) for ranking the suitability of trees that is arguably out dated and which has been publicly critiqued by it's own author (Jeremy Barrell). The SULE method was never intended as an assessment tool for street trees and has been superseded by Jeremy Barrell's TreeAZ methodology in any case. The choice of this method for the EIS report raises questions in relation to the scope provided in the commissioning of the expert report and the technical competency of its author.

In any case the use of the SULE rankings provided are meaningless in the context of effective planning and assessment for this project; they do not provide

a useful measure or realistic comparison of the amenity or environmental value of the individual trees. For instance; a Blueberry Ash with a stem diameter of 150 mm is given the same ranking as a Moreton Bay Fig Tree with a stem diameter in excess of 2 m. The ranking clearly does not accurately account for the benefits of tree size, maturity, canopy volume, landscape amenity, habitat or heritage value.

Completely lacking from the tree assessment report and the EIS is a meaningful and realistic monetary valuation of affected vegetation. It is critical to provide some measurable means of valuing the tree assets so that the cost of alternative alignments, mitigation measures, offsets and compensation may be tabled and negotiated in the design and construction process. A number of broadly accepted amenity tree valuation methods are available for use. Additionally there is not any real admission or recognition in the EIS of the immense value of the affected urban tree assets. Numerous studies point to the value and benefits of urban trees and their contribution to the liveability and future proofing of our communities. None of these are cited in the EIS.

The tree assessment uses AS 4970 to quantify the extent of tree root zone and the consequential impacts of the alignment on trees. The idealised symmetrical root zone radii calculated from formula provided within AS 4970 are used to justify the removal of trees that might otherwise be retained if given appropriate consideration in the detailed design process. This is contrary to the intent of AS 4970 which provides advice that formularised TPZ areas are a guide only and are to be ground tested and advised on a case by case basis by an experienced and appropriately qualified arborist, taking into account existing physical and biological constraints to root growth. Through this misinterpretation of the guidance the assessment is pre-emptive in dismissing the possibility of protection of trees where their root zones may be impacted to an extent of more than 10% of the TPZ area or where kerb and channel will impact the SRZ. Such impacts might not be critical where existing constraints to root growth already exist and where TPZ areas might be asymmetrically offset.

A primary purpose of this preliminary assessment and the EIS should be to provide some measure of the environmental and amenity value of the tree assets likely to be affected. It should provide some measurable and comparative means of determining which of those assets are more important and/or valuable than others. It should provide strong recommendations in relation to which of those assets warrant protection or at least further consideration in detailed design. The assessment should lay out the ways in which this will be undertaken. It should provide preliminary guidance in relation to design and construction methodology which will be employed to protect significant tree assets and mitigate impacts.

The Preliminary Tree Assessment report and EIS fail to provide the above information.

It is disappointing that despite the EIS acknowledging that community consultation has highlighted tree loss as being of great concern and one of the largest environmental impacts of the proposed light rail, it is dealt with overall in a very dismissive manner. There is no statement of commitment to best practice tree management or inclusion of arboricultural expertise within the detailed design process. No valid mitigation measures are offered and it does not demonstrate that significant tree assets were considered when determining the proposed alignment or that sufficient information has been gathered to inform any consideration of mitigation measures.

I submit to you that the applicant should be required to:

1. Undertake further investigation of the value of the affected tree assets and provide a measurable and comparative value of each tree potentially impacted, considering all trees in proximity to the alignment on both public and private land.

2. Clearly identify those trees which are of highest amenity and environmental value and demonstrate why it is not possible to retain them; or if impacts can be mitigated what protection measures will be implemented.

3. Provide clear mapping that indicates the accurate location of each assessed tree

4. Demonstrate that the value of the assets has been adequately considered in the assessment of the alignment and costing of the project to incorporate best practice tree management throughout.

5. Provide a commitment to ongoing employment of arboricultural expertise within the detailed design and construction phases

6. Demonstrate that the value of proposed offsets (i.e. new tree replacements) is a full measure of compensation for the mature trees that will be removed or damaged

7. Justify the use of overhead electrical lines as opposed to underground where they are proposed in proximity to existing tree canopies

8. Provide a set of preliminary measures that will be employed to mitigate construction impacts where they affect tree assets e.g. compaction and root bridging techniques, permeable paving, tunnel boring of services, hydro-excavation and judicious root pruning, etc

9. Demonstrate how adequate soil volumes will be provided to sustain mature tree growth within newly constructed landscapes, in particular where hardstand is increased and planting verges are decreased

10. Demonstrate how it will be possible to incorporate and sustain new shade tree canopies within a narrowed street verge which will require strict safety clearance distances from new electrical assets

I thank you for considering this submission.

Yours Faithfully

Jan Allen