URBAN TREE VALUATION – A CURRENT PERSPECTIVE AND PROGRESS REPORT

Dr G M Moore
Head of the School of Resource Management and Burnley Campus, University of Melbourne, Burnley Gardens, 500 Yarra Boulevard, Richmond, 3121

INTRODUCTION

The processes for developing an Australian Standard for amenity tree evaluation have been difficult, with the first attempts occurring over thirty years ago. An initial draft was released for comment as early as 1973, but was withdrawn in 1975 and never finalized. Sadly, this set a precedent that has been followed ever since. This standard on amenity or urban tree valuation is now the longest unresolved or unfinalised standard with which Standards Australia has been associated and the current attempt is likely to be the last – successful or otherwise.

Another draft Australian Standard that was circulated for comment in 1992 was never approved and has not been formally adopted (Anon,1992). This draft attracted an enormous response from all sorts of interest groups and industry sectors. The opposition of the powerful insurance and utility sectors virtually doomed it. However, the draft was quite widely and successfully used by many arborists in the period from 1992 to 1999.

In 1999 a new draft standard of amenity tree evaluation was circulated by Standards Australia for comment. This was a completely new approach to valuing amenity trees that did not build upon the earlier draft. It was widely criticized (Moore 1999, 2000) and did not achieve wide acceptance or use. Another draft (Anon 2004) was prepared in 2004 but was withdrawn by the committee before it was widely circulated as draft for public comment possibly due to negative informal feedback.

CURRENT SITUATION:

In 2005 Standards Australia convened another working committee for a final attempt at resolving a Draft on tree valuation. This committee has just circulated as document EV 01800-00-02 Draft Amenity Trees- Guide to Valuation (Standards Australia 2006) for discussion by the working committee and other expert industry stakeholders. The approach taken by this committee to date can be summarised as:

- use the framework of the 1999 draft as a framework for valuation (Figure 1)
- re-develop the 1992 version of the draft 'Standard' which was issued for public comment.
- incorporate a revised and abbreviated Burnley method.
- incorporate the latest Peter Thyer method (Thyer 2005).

Under this model, the 1999 framework of providing for Repair, Replacement and Non-Replacement options for valuation has been utilized. The framework seems logical and useful as it allows an easy and consistent navigation to an appropriate methodology. Furthermore, the Repair and Replacement components of the 1999 draft attracted little criticism – it was the non-Replacement component that proved both controversial and ultimately unacceptable. Both the Burnley and Thyer methods have performed well in various comparative studies of valuation methods (Garner 1999, Watson 2002, Fitzgerald 2005).

Once reviewed and approved by the working group this draft will be circulated for industry and other stakeholder comment and to determine their preferences for the future of the standard. This process of consultation is taking place over August 2006 and it is not clear at present what form the final draft might take.

This brief paper cannot and should not provide full detail of the methods proposed as they are still under consideration by the working committee and Standards Australia. However the paper does give an indication of what the current proposals include. It also provides sufficient information for arborists and other stakeholders to seek details of the methods that have been published and to test the valuation approaches proposed.

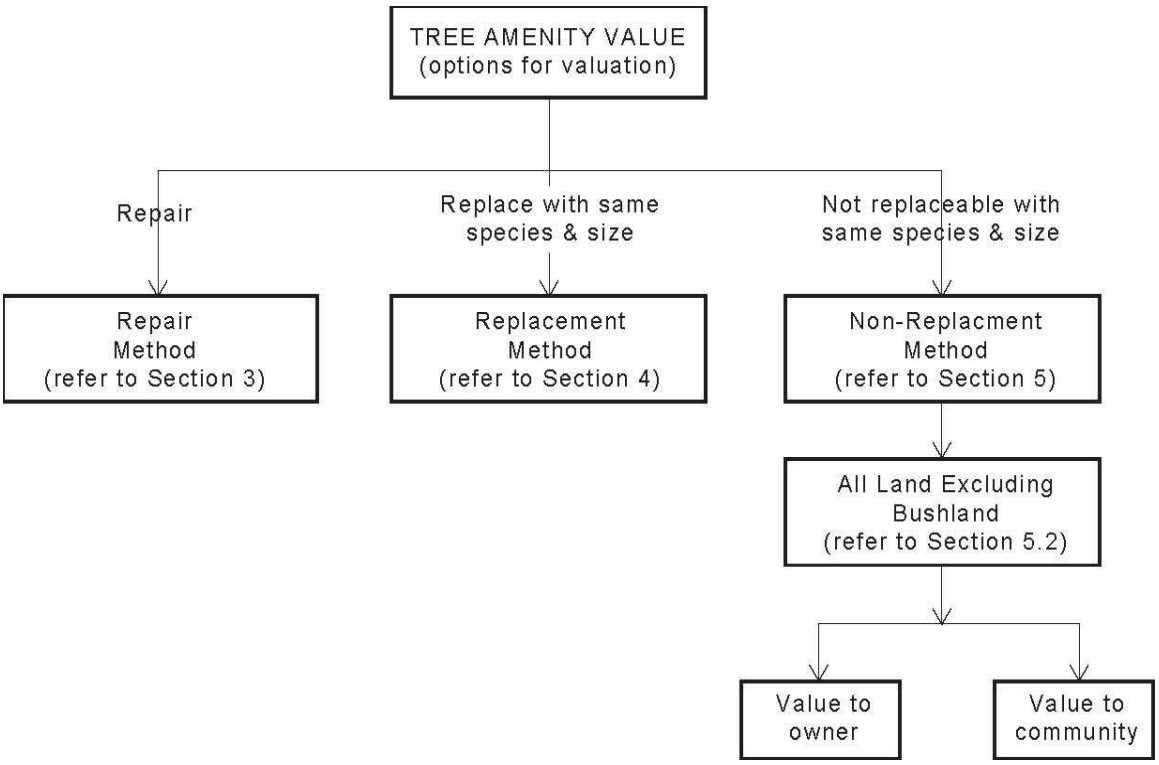

FIGURE 1 Guide to the use of different valuation formulae (Standards Australia 1999)

The methods for assessment of the value of trees under the 1999 Draft are as follows:

(a) Repair Method;
(b) Replacement with the same species, variety and similar size; or by agreement, replacement with a specimen of a different species or size.
(c) Where repair or replacement is not possible or applicable, a valuation formula for determining the value of amenity loss and of the value to the community and owner.

The Repair Method should be considered where damage to a tree occurs and it can be demonstrated by an arborist that the long term viability of the health of the tree will not be affected. The tree should be removed entirely if the damage is such that it destroys the tree's structural integrity or threatens its long term viability.

REPAIR METHOD

Valuations determined in accordance with this component of the method shall include, where applicable, the following costs: Inspections, consultations and reports carried out by qualified arborists. Repair work carried out on the tree by qualified arborists. Clean up and removal of tree debris required as a result of the initial damage or repair work. Future work recommended by a qualified arborist to best achieve repair of the tree for a period of up to a maximum of five (5) years. Any loss of amenity determined by subtracting the percentage of amenity lost from the original amenity value.

REPLACEMENT METHOD

Valuations determined in accordance with this Method shall include, where applicable, the costs of: inspections, consultations and reports carried out by qualified arborists. Clean up and removal of tree debris as a result of the replacement work carried out by qualified arborists. Preparation of the site to accommodate the new planting. The supply, transportation, planting and installation of the new tree. Formative pruning or other work required on the new tree to be done by qualified arborists in accordance with relevant Australian Standard. The maintenance of any new tree for a period of up to a maximum of ten (10) years. Loss of amenity is determined by use of the valuation formula before damage and after replacement.

NON-REPLACEMENT FORMULAE:

It has been proposed by the working committee that three different methods of non-replacement be circulated for broader comment

The formula proposed under the revised 1992 Draft, calculates the value of a tree as;

Value = P (ILC + FYSV)

where Value = valuation of tree in dollars (to the nearest dollar), P = unit value factor I = visual impact value L = site suitability value, C = cultural significance value, F = frequency of occurrence value, Y = life expectancy value, S = live crown size value and V = form and vigour value.

In the Burnley Method as modified in 2005, the value of an amenity tree is determined using the formula:

VALUE ($) = TREE VOLUME × BASE VALUE× (E)× (FV) ×(L),

where Value = valuation of tree in dollars, Tree Volume is calculated using the formula of a cone, Base Value is calculated from prices for advanced trees of the same or related species per unit of volume, E is useful life expectancy, FV relates to arboricultural determined form and vigour, L is the tree suitability to its particular location.

Under the latest version of the Thyer method, tree value is determined according to the formula:

TREE VALUE = S x A x Q x P ™

where Value = valuation of tree in dollars, S= size measures of height, side view of canopy area, dripline diameter, and girth. A = age of the tree. Q= a complex assessment of physical, location. And social benefits of the tree. P= planting cost.

The details of each of these methods are readily available elsewhere and to provide full detail would take many more pages than are available in this brief summary. However a more complete description of the formulae and their respective components is summarized in Table 1.

Following early feedback the Melbourne City Council valuation method has been proposed as a replacement for the revised 1992 Draft Australian Standard, but this has not been agreed by the working committee. However, for the purposes of providing an accurate current report the relevant formula has been included:

Value (V) = Basic Value ($) x Species (S) x Aesthetics (A) x Locality (L) x Condition (C)

Where the basic monetary value of a tree is determined by matching the trunk diameter at breast height (DBH) with its corresponding dollar value. s*pecies Factor (S)* is assessed according to its known natural life span and its rate of growth in a particular environment. Ae*sthetics (A)* is determined by the impact on the landscape if the tree were removed. This category is closely tied to the locality factor (L). *Locality (L)* is determined by the tree's geographical situation.

Table 1 Valuation Methods Proposed for use in the Non-Replacement Formulae

The 1992Australian/New Zealand Draft Standard Revised	
Value =P(I*L*C+F*Y*S*V)	Value = Tree Value in $AUD
	P = unit value factor
	I = visual impact value (1,5-15)
	L = site suitability value (1,5-15)
	C = cultural significance value (1,5-15)
	F = frequency of occurrence value (1,5-15)
	Y = life expectancy value (1,5-15)
	S = live crown size value (1,5-15)
	V = form and vigour value (1,5-15)
The Revised Burnley Method (2005)	
F = V * B * E * FV * L	F = Final Tree Value in $AUD
	V = Volume of Cone
	B = Base Tree Value $/m³
	E = Useful Life Expectancy (0.5-1.0)
	FV = Form and Vigour (0.00-1.00)
	L = Location Modifier (0.4-1.0)
The Thyer Tree Evaluation Method (2005)	
TV = S * A * Q * P Where: Q = H + Eb + L + R + Rt + Sb + F + Ss	TV = Tree Value in $AUD
	S = Size Factor
	A = Age Factor
	Q = Physical and Social
	P = Planting Cost in $
	H = Health (0-8)
	Eb = Environmental Benefit (0-8)
	L = Life Expectancy (0-8)
	R = Re-establishment Potential of Species (0-8)
	Rt = Rate of Growth (0-8)
	Sb = Social Benefit (0-16)
	F = Form and Features (0-16)
	Ss = Social Significance (0-16)

(Modified after Fitzgerald 2005)

CONCLUSION

The question that remains is whether this draft will be accepted and finalized. Given the events of the past and the history of failure, prospects would not seem bright. There are many powerful and effective groups that do not see placing an accepted monetary value on trees in their interests. It would seem highly likely that these interest groups will again exert enormous influence on the outcome of the process and once again see the process fail.

If such is the outcome then it is highly likely that Standards Australia would abandon any future attempts at developing an Australian Standard.

However, by providing a logical and efficient framework for evaluation and three alternative methods for the calculation of non-replacement value, it is highly likely that the draft will be used. It is possible that stakeholders in tree valuation could use all three non-replacement formulae for valuing trees, and present an average in more controversial circumstances. In short the committee is attempting to provide a useful document and process regardless of its fate as an Australian Standard. If the document is widely used and eventually is accepted in court it will have proved useful to arborists and other stakeholders. It is possible that even if it is not approved as an Australian Standard, it will *de facto* achieve this status through widespread use and legal approval. This would vindicate the working committee's efforts and aspirations.

ACKNOWLEDGEMENTS

I wish to acknowledge the work of all members of Standards Australia committee EV-018-00-02 and in particular its Project Manager, Chandima Nawela. I also acknowledge the invaluable assistance of my colleague David Galwey in progressing the work of this committee. I thank Peter Thyer for his willing assistance and constructive contribution to matters associated with tree valuation over many years. I also thank Mark Garner and Alicia Fitzgerald for the comparative studies that they have undertaken of different methods of tree valuation, and for their discussions of associated matters over the last few years.

REFERENCES

Anon, 1992, *Draft Australian/New Zealand Standard: Amenity Trees – Guide to Valuation,* Standards Australia, Sydney.

Anon, 1999, *Draft Australian/New Zealand Standard: Amenity Trees – Guide to Valuation*, Standards Australia, Sydney.

Anon, 2004, *Draft Australian Standard for Comment: Amenity Valuation of Urban Trees – A Guide*, Sydney

Fitzgerald A, 2005, *Assessment of Amenity Tree Valuation methods*, Honours Thesis University of Melbourne.

Garner, M. 1999, Determining an Appropriate Protocol for Amenity Tree Valuation in Australia, Honours Thesis, Australian National University, Canberra.

Moore G M (1999) *Regulation: Protection or Bureaucratic Vandalism*, in Ed B J Gould Arboriculture in a Changing Environment, p 28-38, New Zealand Arboricultural Conference, Auckland.

Moore G M (2000) Amenity Trees: Setting the Standards of Value, in Proceedings of the 3rd National Conference, 1-9, International Society of Arboriculture Australia, Brisbane.

Thyer P R (2005) *The Thyer Tree Valuation Method,* On Line.

Watson, G., 2002, 'Comparing Formula Methods of Tree Appraisal', *Journal of Arboriculture*, vol. 28, no. 1, pp. 11-18.