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Ms Julie Lee
Australian Institute of Landscape Architects (NSW)
10 McKeon Street
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Dear Ms Lee

Thank you for contacting the Minister for Roads, Maritime and Freight in relation to clear ways and the planting of trees in city areas. The Minister has asked me to respond on her behalf.

The space between the road and property is highly debated, especially in urban NSW. Roads and Maritime Services works with many organisations to provide room for electricity, telephone and internet cables, water and gas pipelines as well as our own roadside infrastructure such as signage, lighting, footways, cycle paths, fences, barriers and clear zones. We recognise the need for roadside trees and it is to be noted that Roads and Maritime is a significant provider of green infrastructure, planting many millions of trees on our corridors, and custodian to a vast landscape estate in NSW.

Roads and Maritime is also the government agency given responsibility for road safety (for both motorised and non-motorised transport) and has adopted a Safe Systems approach along with Austroads, the peak organisation of Australasia road transport and traffic agencies. The Safe Systems approach recognises that road accidents will occur and that roads and vehicles should be designed to reduce the incidence and severity of crashes when they occur.

The safe system approach requires:

- Designing, constructing and maintaining a road system (roads, vehicles and operating requirements) so that forces on the human body generated in crashes are generally less than those resulting in fatal or debilitating injury.
- Improving roads and roadsides to reduce the risk of crashes and minimise harm.
- Managing speeds, taking into account the risks on different parts of the road system.

This approach means that the road should be made safe for all users and if not, the speeds of users should be lowered until the road environment is safe.

State roads are generally posted above 50 kilometres per hour (km/h) for reasons of efficiency. Collisions with solid objects at speeds above 50km/h are very often fatal or can lead to substantial injuries. Unprotected large trees close to a roadside can be dangerous to drivers and passengers if a vehicle veers off the road.

If speeds cannot be reduced, there are two main ways of addressing infrangible roadside objects: to provide a barrier or provide a clear zone.

Barriers

In urban areas the kerb has a barrier or re-directive effect but is not a safety barrier. A higher more substantial kerb has a barrier effect for lower speed zones but is not conducive to pedestrians crossing the road. Full height safety barriers would be problematic in built up areas for a variety of reasons, including that barriers have deflection zones, block people needing to cross the road and are also not visually sympathetic to many urban environments. Therefore, a clear zone is often the preferred design solution to create a safer road.

Clear zones

Austrroads identifies the clear zone as 'the area adjacent to the traffic lane that should be kept free from features that would be potentially hazardous to errant vehicles. The clear zone is a compromise between the recovery area for an errant vehicle, the cost of providing that area and the probability of an errant vehicle encountering a hazard. The clear zone should be kept free of non-frangible hazards where economically and environmentally possible. Alternatively, hazards within the clear zone should be treated to make them safe or be shielded by a safety barrier.'

'Clear zones should be applied to both rural and urban road designs in greenfield sites. However, the application of the concept to well established urban environments, (ie brownfield sites) is usually problematic because of the lack of space, and objects (eg utilities and road furniture) that have been accommodated at the side of the road.'

For speeds of less than or equal to 60km/h, the clear zones Austrroads advises, are between 3.5m and 5.5m depending on traffic volumes and the flatness of the roadside landform. Clear zones dimensions are to 'provide only a general approximation of the needed clear zone distance. The values are based on limited empirical data that was extrapolated to provide information for a wide range of conditions. The values provided are not regarded as absolute but as a guide which designers may increase (and occasionally decrease) depending on site-specific conditions and practicality.' (Austrroads 2010)

Trees and Safety

Besides the safety issues, large trees too close to the road (within around 1m) do not have space to develop good trunks, crowns and root systems and are likely to be damaged by traffic and truck loads. A setback of between 3.5 and 5.5m circumference for a large tree would allow the trunk to expand and a good crown and root system to develop away from taller vehicles such as trucks and buses. Road corridors in built up areas generally do not allow for this space, verges are typically around 3.5m in total width and use of this space is highly contested, as noted above. While it would be beneficial to increase the width of

roadside areas, adjacent land owners or councils are often unwilling to impose conditions on development that allow space for street trees outside the clear zones set down in Austroads.

Nevertheless, Roads and Maritime considers that roadside trees play an important role in improving the quality of roads and roadsides. As well as their climatic, ecological and aesthetic benefits they are useful to transport in that they improve air quality, provide visual and noise screening, create wind protection, protect land from erosion, prevent weed infestations and help with wayfinding. For all these things they are valued by our customers, the community and Roads and Maritime stakeholders.

If space for trees is not provided in land adjacent to lower speed roads in towns and cities, then it is important to look at how they can be provided in the land available beside the road within the 'brownfield' clear zone. Trees have traditionally been planted within this zone in cities in Australia and around the world and it is noted there are some additional security benefits of mature trees alongside roads. Other roads authorities in Australia, most notably VicRoads, have a risk assessment policy for trees in built up areas. The VicRoads Tree Policy builds upon the Austroads clear zone policy of recognising the differing conditions between brown and green field sites, and the local context.

Roads and Maritime is updating its landscape design policy which endorses a similar risk assessment process to the VicRoads Tree Policy so that the clear zone guidelines are applied intelligently, with evidence and in accordance with Austroads guidelines.

It will encourage consideration of the alignment of the road (straights safer than curves), the quality and type of kerbs, the size of the tree proposed, the crash history, the presence of other objects like electricity and light poles and existing trees, off peak parking, the re-directive effect of kerbs and the operational speed of traffic. It will be a matter for each project team to analyse the place and the road safety environment to review the clear zone guideline and decrease or increase the clear zone depending on site-specific conditions and practicality.

Roads and Maritime will provide a copy of the updated landscape design policy when available. I hope this response has answered your enquiry, however if you have any further queries please contact Leigh Trevitt, Roads and Maritime Landscape Design Adviser, Centre for Urban Design (leigh.trevitt@RMS.nsw.gov.au.)

Kind regards,



Chris Harrison
General Manager, Engineering Services

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