



Passively Irrigated Street Trees: Leaping the Hype Cycle

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Passively irrigated street trees are becoming universally valued for delivering great benefits within increasingly harsh urban environments. These benefits mostly come from large healthy canopies and from using the stormwater excess that damages waterway ecology. As has happened with other WSUD based responses, its popularity may expose it to a hype cycle that might at first propel it beyond the current ability of designers to get it in the ground properly and then damage its reputation. Design tends to be spoken in the language of whoever leads the project; these projects need a blend of engineering, arboriculture, soil science, landscape architecture, urban ecology and more. This sounds complex, but the designs can be simple and robust if it's well considered from all these viewpoints. This presentation describes another step in the evolution of passively irrigated street tree design undertaken by a multidisciplinary team and recently applied to projects within Melbourne's inner suburbs and CBD as part of 'Living Infrastructure Design Typologies' and 'Green Blue Streetscape Guidelines'. Objectives are linked to design specifications through science and engineering procedures. Design typologies are presented and supported by water balance models and observations from research which provide quantified relationships between catchment, optimal soil moisture range, soil volume and canopy volume. The designs provide insights into structural soils, how drainage is applied to be supportive rather than constraining, how controlled saturation is advantageous, predictions of when trees will need other sources of water to maintain accelerated growth and how tree canopy targets in urban areas may make the use of streetscape bioretention redundant.

This presentation is proposed in conjunction with 'Beyond Stormwater to Multiple Environmental Benefits' by Sheridan Blunt and 'Solving Urban and Climatic Challenges with Green Blue Infrastructure' by Dale Browne.