

Stakeholder Perspectives of Alternative-water Urban Landscapes

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Nature-based Alternative-water Treatment Landscapes (NATL) in New Urban Fringe Development Fosters Multiple Benefits Alternative-water landscapes create potentials to mitigate the some of the risks from natural hazards including Urban Heat Island (UHI) or grassfires / wildfires. Understanding stakeholder perspectives about Alternative-Water Urban Landscapes (AWUL) & NATL is necessary to aid implementation.

Urban context

Climate change effects will impact new urban fringe development.

Many cities and regional towns across Australia are developing new urban growth areas to accommodate population increases. For example, in Melbourne, 60,000 houses are proposed to be built in the next decade within these growth areas (State of Victoria, 2023). In the west of Melbourne, UHI will continue to be an issue if there is not careful consideration of green infrastructure provision and climate independent water source options. The urban / rural interface in fringe areas also brings the risk of wildfire.

Alternative-water and Green Infrastructure

Nature-based approaches such as NATL provide a local source of climate independent water by treating partially treated wastewater or greywater through landscape-based methods. Associated co-benefits of NATL include contributing to the mitigation of UHI effects and possible grassfire or wildfire risk reductions. In addition to this, other benefits can include: biodiversity enhancement, low-energy use, low-chemical inputs, and landscape therapeutic qualities.

State of Victoria. (2023). *Victoria's Housing Statement* / vic.gov.au. State of Victoria.
<https://www.vic.gov.au/housing-statement>



Image: A design exploration of a NATL (treated greywater located within urban development acting as landscape cooling, possibly reducing the spread of fire and as a source of local water for fire-fighting (Anna Durkin, 2023).

Stakeholders' reactions to AWUL

Stakeholders connected with AWUL were interviewed about the urban integration of AWUL and there were found to be both resistance and positivity towards the use of AWUL.. The resistance included concerns over residual contaminants entering local water systems and landscapes and concerns about community backlash. The positivity included a realisation of the need for climate resilient tactics and the benefits of greater biodiversity.

Design iterations for stakeholder discussions

This research project has used a tactic of creating design iterations for NATL in urban fringe areas around Melbourne (the image above is for an area in Melton West). These design iterations were used in discussions with AWUL implementers.

Stakeholders' Response to NATL

In a workshop about the more specific topic of NATL, the design iterations were presented to stakeholders. The response also included both caution and positivity:

- Concern about impacts on local ecologies
- Concern about community resistance
- Positivity about UHI mitigation
- Interested in fire amelioration potentials

A journal article associated with a precedent analysis related to this work is:

Durkin, A. L., Roddick, F., & Fien, J. (2023). Nature-based alternative-water landscapes for water security and green space health. *Blue-Green Systems*, 5(2), 275–293.
<https://iwaponline.com/bgs/article/5/2/275/99203>



Further information

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