Sellicks Woodlands and Wetlands Action Network (SWWAN)

Inadequate Canopy Cover Targets in the Greater Adelaide Metropolitan Region (September 2023)

Sellicks Woodlands and Wetlands Action Network seeks urgent action to correct a grave error in the Greater Adelaide Urban Canopy Cover Targets in the 30-Year Greater Adelaide Plan (2017).

This error poses a significant immediate and future threat to the health of South Australians. It will result in a severe lack of adequate canopy coverage to protect South Australians from the health effects of increased urban heat due to climate change. This will not only cause an increase in heat related illnesses and deaths but come at significant social and economic cost. All the while, the community remains unaware that genuine targets for their future safety aren't being set or met.

Contemporary and current literature recommend canopy cover needs to be above 30% in future urban landscapes[1][2][3]. Sydney[4] and Melbourne[5] both set a specific future canopy cover **target** of 40%, by 2036 and 2040 respectively. Adelaide[6] has stated the desired outcome differently: that urban canopy cover "***be increased by 20%"*** by 2045.

The misinterpretation of this target as 20% of a current amount rather than an overall gain has resulted in most councils setting 2045 tree cover and planting targets 50-90% lower than recommended by the current literature. Councils with the least amount of canopy coverage have set the smallest targets. For example, the City of Onkaparinga has interpreted a 20 percent increase in canopy cover to mean a rise from 12.5 % to 15%. Yet the intent of the target was surely to increase canopy cover to 32.5%.

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[1] Urban Canopy Targets and Development Controls, GALLAGHER STUDIO, 2021
[2] The Urban Heat Island in Australian City Planning A. Elgendawy, P. Davies, Macquarie University, Dept. of Earth and Environmental Sciences, 2019.
[3] Where Should All the Trees Go?, Greener Places Better Places 2017.
[4] Greater Cities Commission
[5] City of Melbourne –Urban Forest Strategy
[6] 30 Year Plan for Adelaide (2017 Update) p150

Because of this miscalculation, not only has a vastly inadequate amount of shade been planted over the last four years across the metropolitan area, but developers have been building 25-50% more housing on sites than recommended by urban planners to protect our communities from urban heat. Additionally, as developers have had to retain or provide significantly less open space, this miscalculation has been a significant contributor to the loss of mature trees in our landscape. Further, the miscalculation has benefited developers to such an extent that it appears to be a strategic misinterpretation of the target rather than a simple mathematical or administrative error.

Due to the significant health threat that this poses, we ask that the Planning Minister take immediate steps to clarify the intent of the targets. In so doing, the government recognises that the mistake rests on a wrongly applied formula. It is not simply a difference of opinion.

We ask that these steps be immediately taken:

- the State Government immediately amend the Greater Adelaide Plan Target 5 to include a specific Urban Canopy Cover Target above 30%,
- all councils immediately reset their canopy cover targets in line with this new target,
- the State Government/Planning SA halts all development approvals until the error is corrected,
- all project approvals not yet under construction be reviewed in line with the new targets by Planning SA once the new targets are legislated,
- an investigation be initiated into how such an error occurred.

The Problem

The problem is that there are two possible interpretations of the phrase “increased by 20%” as set out in Target 5 of the 30-Year Greater Adelaide Plan.

This should be understood in comparison to Sydney and Melbourne: both of their Plans state a specific future canopy cover **target** of 40%:

- ***City of Melbourne Target*** – *“Increasing canopy cover from 22 per cent to 40 per cent by 2040.”* [7]
- **Greater Sydney Target** – *“A target has been set to increase tree canopy cover to 40 per cent, up from the current 23 per cent.”* [8]

[7] City of Melbourne –Urban Forest Strategy
[8] Greater Cities Commission

However, the Greater Adelaide Plan does not specify a specific target figure, but rather sets a **target increase**.

> " *30 Year Plan for Greater Adelaide (2017 Update) Target 5*
>
> *Target 5: Urban green cover is increased by 20% in metropolitan Adelaide by 2045.*
>
> *Therefore, the following is proposed:*
> • *For council areas with less than 30% tree canopy cover currently, cover should be increased by 20% by 2045.*
> • *For council areas with more than 30% tree canopy cover currently, this should be maintained to ensure no net loss by 2045."* [9]

By only defining the target as "a 20% increase in coverage", rather than stating a recommended specific target of 40% as Sydney and Melbourne have, a situation is created where two contradictory mathematical interpretations arise.

One interpretation sets 2045 urban canopy cover targets that are aligned with the intent and context of the 30-Year Greater Adelaide Plan (2017).The other sets vastly inadequate targets that pose a significant threat to the health of South Australians.

Interpretation 1: *An increase in the overall canopy by 20 percentage points.*
SWWAN believe that this was the intent and spirit of the legislation. This is supported by scientific literature on urban heat island effects, current and contemporary urban planning recommendations and the context that Adelaide has one of the lowest canopy coverage percentages in Australia as described earlier.

Table 1. Table of 2045 Urban Canopy Cover targets under Interpretation 1 for an example range of current canopy covers of 5-25%.

Example Current UCC	Increase of 20% overall	2045 target
25%	20%	45%
20%	20%	40%
15%	20%	35%
10%	20%	30%
5%	20%	25%

[9] 30 Year Plan for Adelaide (2017 Update) p150

<u>Interpretation 2:</u> *An increase in canopy cover by 20% of the current amount.*
This interpretation provides a literal interpretation that contradicts the spirit and intent of the legislation. The very low targets resulting from this interpretation are far below the recommendations supported by scientific literature and contemporary urban planning guidelines and are dangerous to community health in the future. It is also illogical to consider that the State Government would propose a guideline that resulted in councils with the ***lowest*** amounts of current canopy cover and the most in need of large increases, planting the ***least*** amount of trees over the next 20 years. This interpretation ignores all context and good sense.

Table 2. Table of 2045 Urban Canopy Cover targets under Interpretation 2 for an example range of current canopy covers of 5-25%.

Example Current UCC	Increase by 20% of current	2045 target
25%	5%	30%
20%	4%	24%
15%	3%	18%
10%	2%	12%
5%	1%	6%

It is obvious that Interpretation 2 is inconsistent with the intent of the legislation to adequately improve Urban Canopy Cover across metropolitan Adelaide and that Interpretation 1 is the only reasonable method for setting the 2045 Canopy Cover targets for Adelaide Councils.

It is this second interpretation, in which the target is calculated as only 20% of the current amount, that has been used to set urban cover targets, allocate planting programs and guide development approvals by the majority of councils in Greater Adelaide for the last 6 years. A partial list is presented in Table 3 (next page).

The targets set by the majority of Greater Adelaide Councils are significantly below the recommended standards, both current and contemporary for 2017. This means that for the last 6 years, most councils have been planting only a tiny amount of the required amount of future canopy cover, while builders have been chopping down trees and filling blocks with eave to eave housing. This has resulted in significant budgetary savings to councils and boosted profits for developers, but at what cost to society?

Council	Current Urban Canopy Cover (Trees >3m)	Target Increase in Urban Canopy Cover	Target (% UCC 2045)
Adelaide Hills Council	n/a	n/a	n/a
City of Adelaide	n/a	n/a	n/a
City of Burnside	31.0%	n/a	n/a
City of Campbelltown	18.4%	n/a	n/a
City of Charles Sturt	14.0%	3% (20% of current)	25% (higher target set than 17.4%)
City of Onkaparinga	12.5%	2.5% (20% of current)	15% (Not stated on Website)
Town of Gawler	15.00%	15% (100% of current)	30% (Double current)
City of Holdfast Bay	15.3%	1.5% (10% of current)	16.8% coverage by 2030
City of Marion	15.00%	19% (More than double)	34%
City of Mitcham	42.00%	0	42% no net loss of canopy
City of NPSP	24.0%	4.8% (20% of current)	29%
City of Playford	15.0%	5% (33% of current)	20%
City of PAE	12.0%	3.5% (30% increase of current)	16% (not given on website)
City of Prospect	20.4%	4.1% (20% of current)	24.50%
City of Salisbury	20.4%	4.1% (20% of current)	24% (not stated on website)
City of Tea Tree Gully	28.00%	na	na
City of Unley	26.0%	5.2% (20% increase of current)	31%
Town of Walkerville	25.0%	5% (20% increase on current)	30% (not stated on website)
City of West Torrens	12.6%	2.5% (20% increase on current)	15%

Table 3. Greater Adelaide Council Urban Canopy Cover Targets and Increase.

Based on the City of Onkaparinga's targets and 2023/4 planting budget of approximately $1million, SWWAN estimates that the cost for all councils to adopt an appropriate tree planting program will cost Onkaparinga an extra $7million annually, and the state an extra $100m-$150m. Over the coming 20 year length of the program, this represents a cost of $1.5bn-$2bn. In our opinion, the health, social and economic costs of not rectifying the problem will be much, much higher.

Urban Canopy Cover

Increasing urban canopy cover is a key method to reduce the health and economic impacts of climate change. Increased canopy cover in urban areas reduces urban heat effects by creating shade.

Over the coming decades the climate will become hotter and drier with an increase in extreme events such as heatwaves. Heatwaves and extreme heat already kill more people each year in Australia than any other natural hazard. Research shows there are significant public benefits associated with greater urban canopy coverage, with improved physical and mental health for residents and a lower economic health burden for the state. A 2022 University of Adelaide study of heat related mortality (HRM) showed that there is great potential to reduce HRM in Adelaide by increasing tree coverage.[10]

Urban heat causes significant economic impacts. Increased sick days, loss of productivity, equipment and infrastructure failure, all come at an economic and social cost as shown in Figure 1, from a study of Western Sydney Councils. Increasing canopy cover in our urban and built environments is essential to adapting to climate change and protecting our communities.

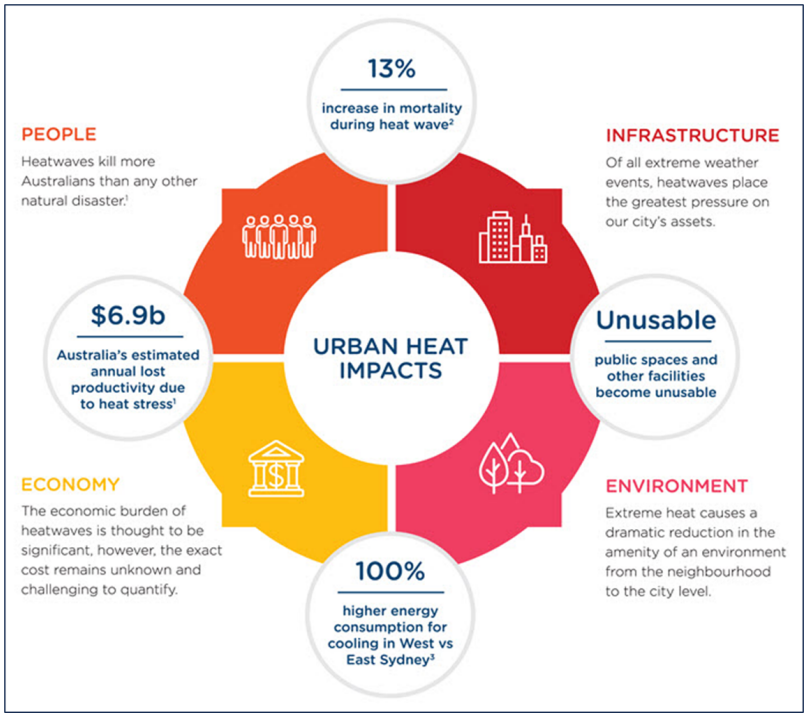
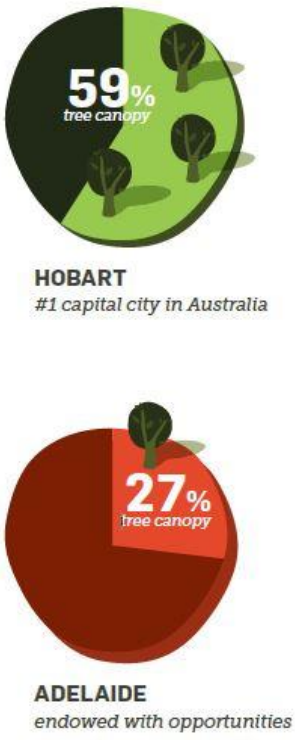


Figure 1.Diagram of key urban heat impacts in Western Sydney[11]

[10] The Potential for Urban Canopy Cover to Reduce Heat-Related Mortality in Adelaide. Carlos et.al. 2022
[11] Western Sydney Region of Councils: Turn Down the Heat. 2018

Canopy Cover- Context and Industry Recomendations

A major resource in the setting of Adelaide's Urban Canopy Cover Targets was "Where Are All The Trees?" (WAATT?), produced by Greener Spaces, Better Places in 2014. Urban Canopy Cover in Greater Adelaide was reported as 27%, much lower than most other Australian capital cities and the national average of 39%.[12] The majority of Adelaide councils fell into the low range of 10-20% (Fig. 2).[13]



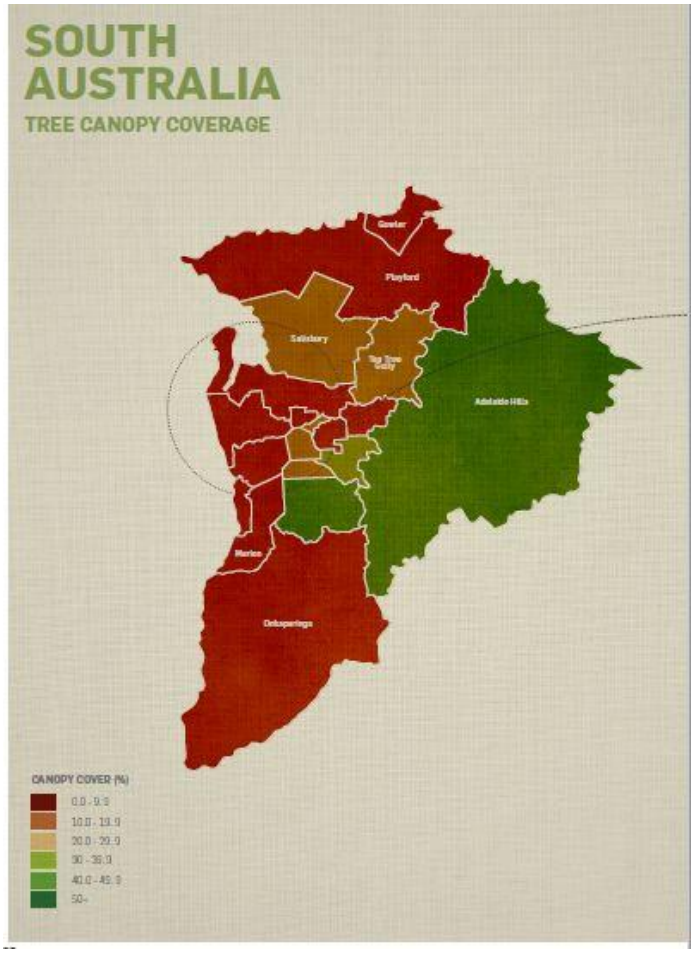


Figure 2. Comparison of UCC Hobart/Adelaide

Figure 2. Adelaide LGA's Canopy Cover

"Hobart is the highest ranking capital city in terms of the proportion of tree canopy to other kinds of ground cover. Hobart boasts 59% tree canopy cover. By comparison, Adelaide has the lowest proportion of tree canopy among Australia's capitals with 27%." WAATT?, 2014.[14]

[12] Where are all the Trees? Greener Spaces Better Space P9
[13] Where are all the Trees? Greener Spaces Better Space P9
[14] Where are All the Trees? Greener Spaces Better Spaces. p18

In 2019 Greener Spaces Better Places released the follow up report, “Where Should all the Trees go?”. The method for calculating canopy cover was changed and Adelaide’s average cover in 2013 was adjusted to 21.37%. Shockingly though, by 2017 this had declined to 19.45%, a loss of nearly 10% on the previous figure (Fig. 3) [15]

Figure 4. SA Snapshot. Where Should All the Trees Go? Greener Places Better Places 2019. p52

“Where should all the trees go?” also introduced a vulnerability index that measures a community’s risk to urban heat that takes into account a range of factors and effects. South Australia is one of the most vulnerable states on the National vulnerability Index(Fig. 4).

Figure 5. National Vulnerability Index. Where Should All the Trees Go? 2019. p7

[15] Where Should All the Trees Go?, Greener Places Better Places 2017.

Scientific literature and the urban planning industry all agree that to protect the health of the population and infrastructure in the future, urban canopy cover needs to be at least 30%[16], and preferably as high as possible, as every increase in cover sees a reduction in ambient temperature. The Urban Canopy Targets and Development Controls report used by the NSW Government to set its target of 40% outlines generic targets in a typical Australian suburb for each different urban zoning(Fig. 5). [17]

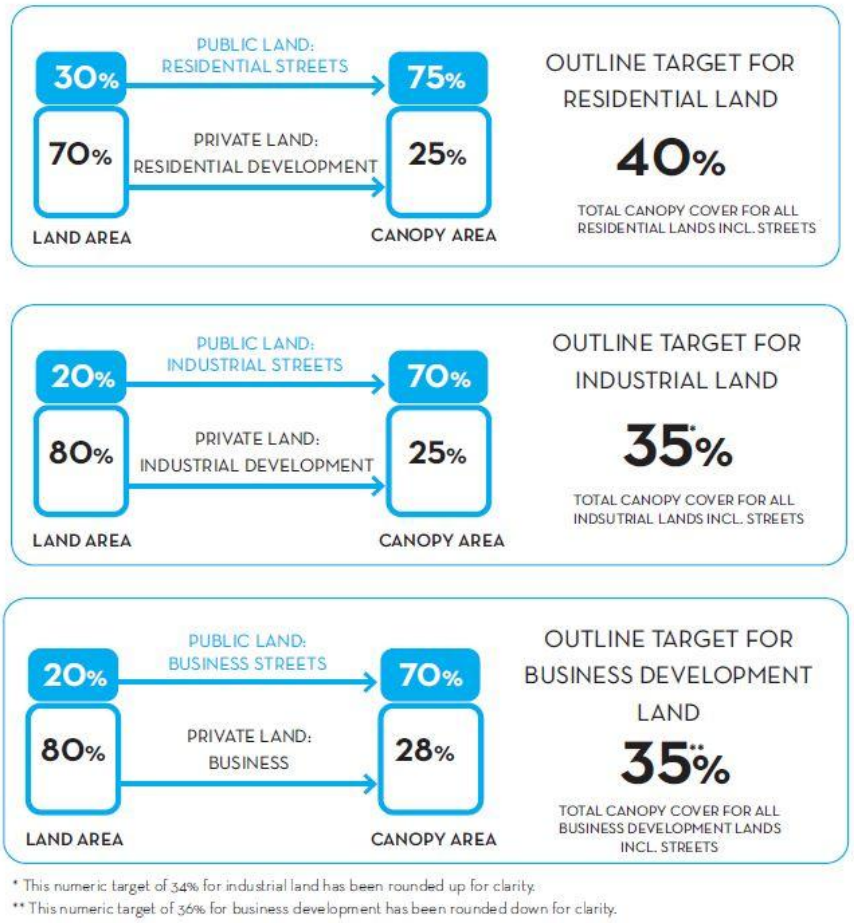


Figure 6. Outline canopy cover targets for residential, industrial and business development. GallagherStudio. 2021.

It can be seen from these examples that Adelaide has the lowest canopy cover relative to the rest of the nation. This, along with other factors, makes us very vulnerable to the effects of increasing urban heat. Contemporary and current literature recommend targets of at least 30% urban canopy cover to protect the health of residents and workers in urban environments in the future. Climate forward states have set targets that surpass 30%. South Australia should act immediately to do so too.

[16] The Urban Heat Island in Australian City Planning
[17] Urban Canopy Targets and Development Controls, GALLAGHER STUDIO, 2021

SWWAN's Suggested Amendment

SWWAN proposes the following suggestion to amend the wording of the Greater Adelaide Plan and remove the ambiguity in the current wording of Target 5.

Suggested new wording for 30 Year Plan Target 5

Target 5:

Urban green cover is to be at least 30% coverage within each metropolitan Adelaide council by 2045. to ensure that the overall average for metropolitan Adelaide is above the current National average of 39% by 2045.

- *Therefore, the following is proposed:*

  • For council areas with less than 30% tree canopy cover currently, total cover should be increased by a total of 20% to above 30% total coverage by 2045.

  • For council areas with more than 30% tree canopy cover currently, total cover should be increased by a total of 15% to above the current National Average of 39% by 2045

  • For councils with greater than 39% canopy cover should increase by 20% of the current amount.

Under our amendment, the City of Onkaparinga would set a target of 32.5%, just above the state average and the 30% threshold but still below the national average. The City of Unley would have set a target of 46% placing it just above the national average. (Table 6)

Table 4. Comparison of canopy coverage target setting methods for 3 Adelaide councils.

	City of Onkaparinga	City of Unley	City of Mitcham
Current Canopy Coverage	12.5%	26%	42%
Current 2045 Target (increase)	15% (2.5%)	31% (5%)	42% (0%)
2045 SWWAN Targets (increase)	32.5% (20%)	46% (20%)	50% (8%)

Conclusion

We understand the scale and cost of what we are asking. The scale is simply what is needed; the cost much less than the health, economic and social costs of following plans that are inadequate to address the urban heat effects of climate change.