# WHAT'S HAPPENING TO ADELAIDE STREES?

June 2020

# **EXECUTIVE SUMMARY**

Adelaide is losing its significant, regulated and mature trees at an alarming rate.

The true level of harm has been difficult to capture or recognise, because it is often caused by incremental loss on private land. Despite this, there is increasing public concern at the scale and speed of change.

The evidence is clear: big trees improve our health and wellbeing, increase property values, and reduce the build up and trapping of heat. They are arguably the single best infrastructure investment to prepare our streets and suburbs for a changing climate.

While Councils and communities are working hard to plant new trees, there is not enough available space on public land to replace what we are losing from people's backyards. And it will take many years for a newly planted tree to provide similar benefits to one that is mature.

There is no city-wide, comprehensive data on the scale of the loss, but what we have been able to collate in this report indicates between a 1–6% reduction in tree canopy (depending on the area and the timeframe).

For example, the City of Campbelltown has an estimated tree canopy loss of over 6% from 2006–16, while the suburb of Burnside has experienced a similar loss in half that time. This trend is completely at odds with local and state government targets.

The causes are many, including inadequate protection through our planning system and a lack of appreciation by some in the community of just how valuable our trees are.

Potential solutions include planning law reform, better valuation and incentives, improved assessment practices involving arborists, and stronger reinforcement of the community's love of big trees.

This report has been prepared by community, non-profit and professional organisations concerned with what's happening to our trees. We hope government and council decision-makers will recognise the value of preserving big trees in Adelaide's landscape and take all necessary steps to reverse this damaging trend.

We need to act - and act quickly - before it's too late.



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# INTRODUCTION

Trees form the backdrop to our lives.

They mark our crossroads, home our wildlife, shade our children and cool our air. They outgrow us in height and age, and have witnessed events and centuries before our time.

Trees help improve our mood, reduce our power bills and increase the value of our houses. In a warming climate, they are the single best investment we can make in keeping our cities cool, beautiful and liveable.

Despite all that our trees give and do for us, we are cutting down more across Adelaide's suburbs than we are replacing.

We must turn this around – and quickly.



When European colonists arrived at the Adelaide Plains in 1836, they found ancient and dense woodlands interspersed with open, grassy plains: the result of hundreds of generations of skillful Kaurna land management.

The suburb now called Blackforest was a woodland so dark the sun could not be seen at midday.<sup>1</sup>

Since then, we have been progressively destroying Adelaide's trees and ignoring people's pleas to stop this for more than a century.

This report captures the latest data on the level of urban tree cover in metropolitan Adelaide, explains why trees are so valuable, and explores how we can stop the decline in urban tree canopy cover. "Spare those trees! It would not cost a great deal to secure a few allotments on which some of these kings of the old forest are growing – but it must be done soon or never."

The Unley Register, 1911

# WHY ARE URBAN TREES ESSENTIAL?

# **KEEPING US COOL**

Trees play a vital role in reducing urban heat build-up and help protect us from the increasing temperatures that mark our changing climate.

Metropolitan landscapes are filled with hard surfaces like roads and buildings that absorb and retain heat.

'Urban heat islands' – areas of our cities where temperatures are at least 2°C above the surrounding average – can be as small as 125 square metres and lead to a disproportionate build-up of urban heat.<sup>2</sup>

The densifying urban form of Adelaide has resulted in 17% of the local council areas of Adelaide, Burnside, Campbelltown, Norwood Payneham and St Peters, Prospect, Salisbury, Tea Tree Gully, Unley and Walkerville being identified as urban heat islands.<sup>3</sup>

Trees are known to be the most effective mitigation strategy for the urban heat island effect, with greater impact than light-coloured roads and pavements, and green roofs and walls.







Tree coverage does not only impact daytime temperatures. During the day, these surfaces absorb and store solar radiation; this energy is released when the sun goes down, thereby maintaining higher ambient temperatures throughout the night.

In comparison, non-urban areas (typically with fewer heat absorbing surfaces and more trees and greenery) cool down during the night through trees' evapotranspiration process.

The cooling effects of urban tree canopy are clear.



# **MONEY DOES GROW ON TREES**

Trees in urban landscapes have an economic value which outweighs their planting and maintenance costs over the lifetime of the tree.

A study on the effect of street trees on property value in Perth found that a broad-leafed tree on the street verge increased the median property price by about \$16,889, or 4.2% of the median value of the property (\$395,000) in the study area. Other studies show property values can be increased between 5% and 20% by the presence of trees.<sup>5</sup>

Urban trees improve outdoor retail areas by making them more attractive to customers.<sup>6</sup> People spend more time and money in commercial areas with trees because they are more pleasant environments.

Trees can also reduce commercial operating costs by mitigating urban heat; there is a positive impact on worker productivity by reducing heat-related fatigue.<sup>7</sup>

The correct placement of trees around residential and commercial buildings can improve energy efficiency, reducing the need for summer air conditioning by 30% and winter heating costs by 20-50%. Evidence suggests that in extreme heat events, shading provided by large trees can reduce energy use and associated costs by 10%.<sup>8</sup>

The reduced financial burden of energy consumption is hugely beneficial for financially disadvantaged people, while the cooler temperatures created by trees and green infrastructure reduces maintenance costs for built assets such as roads and stormwater infrastructure.<sup>9</sup>

# **HISTORY AND CULTURE MATTERS**

Trees play a vital role in our state's heritage.

Many historic buildings, streetscapes and landscapes owe much of their character and charm to trees. They contribute significantly to the city's character and help create a unique sense of place for residents and visitors to our city.

Historic significance relates to a tree's (or an avenue's) value in relation to its association with important historical events, eras or individual people. Historic value underlies aesthetic, social and scientific value.<sup>10</sup>

In particular for the Kaurna people, trees are an essential part of the relationship with their country – a relationship that extends well beyond the preservation of particular marked trees like 'canoe trees'.

Many of the plantings of the early settlers have reached a considerable size and outstanding form, and some are now rare in cultivation.

Trees and avenues are often considered aesthetic in their own right apart from issues of history or science, and old trees in particular are often considered venerable for their size and form. Due to their significance, they may be listed under our laws as local heritage.

Average tree canopy cover for urban SA is **19.45%** down 1.92% from **21.37%** in 2013

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### HOMES FOR WILDLIFE

Nature has an important home in our built-up areas, with big trees playing a key role in increasing urban biodiversity and providing animals with habitat, food and shelter.

Urban trees increase local food and nutrition security for native fauna, and provide them with important habitat and movement corridors.

Trees take 80-100 years to form hollows for wildlife to use. Birdboxes are not a substitute for natural hollow loss as living trees provide thermal insulation and other unique features species need to survive.

### **CLEANING OUR WATER**

Trees help prevent flooding and are essential for regulating water capture and storage.

They can capture up to 60% of rainfall<sup>12</sup>, thus reducing surface water runoff entering our drainage systems and allowing rainfall to be absorbed back into the ground. A mature evergreen tree can intercept more than 15,000 litres of water per year.<sup>13</sup>

Trees can slow and temporarily store runoff and reduce pollutants by taking up nutrients and waste from soils and water through their roots. This also helps protect aquatic and marine environments downstream.



### 'NATURE'S MEDICINE'

Trees help people live longer, healthier, happier lives.

Urban trees have strong positive impacts on our social, physical and mental health and wellbeing, and help mitigate some of the negative impacts of urbanisation.

Spending time in the green space provided by trees can strongly protect against depression, anxiety and stress-related issues, helping people feel happier and more relaxed.<sup>14</sup>

Trees help to reduce air pollution by releasing oxygen and absorbing  $CO_2$ . A mature tree can absorb up to 150 kg of per year.<sup>15</sup>

Large trees also absorb other pollutant gases, such as carbon monoxide, and filter fine particles of dust, dirt and smoke from the air. This has a positive impact on illnesses such as skin cancer and asthma. Trees provide shade and help mitigate urban heat which improves people's thermal comfort and quality of life. Urban cooling during extreme heat waves prevents heat-related deaths, which are most prevalent among elders, people with health issues and those with limited mobility.

Trees and green space can also provide relief from urban noises like air conditioners and traffic.

The presence of trees in urban environments encourages people to spend time outdoors undertaking physical activities or active travel, such as walking and cycling, all of which are known to have health benefits.

Active travel has the added benefit of reducing traffic congestion and fossil fuel-reliant vehicle trips, thus reducing emissions and improving air quality.

Research has shown that roadside trees can help calm traffic and reduce drivers' stress, making streets safer for pedestrians and cyclists.<sup>16</sup>

# WHAT'S HAPPENING TO OUR TREES? (DATA)

Adelaide is seeing a reduction in tree numbers across every suburb.

The rapid expansion of our city has put Adelaide's urban tree canopy under great pressure. Adelaide is losing unprecedented amounts of tree canopy cover from both public and private land, resulting in a hotter, less liveable city.

Recent research from Adelaide's western local councils shows that residential land makes up 20% of urban land, but contains more than 40% of the area's tree/shrub canopy.<sup>17</sup>

Backyards contain significantly higher tree canopy cover than open spaces and parks.<sup>18</sup> But this won't last: most tree loss is occurring on private land as a consequence of development policies.

Poorly planned development is increasing urban infill and reducing block sizes, resulting in less space for trees on private land.

Although local and state governments are planting new trees, there is simply not sufficient public space available to plant enough trees to compensate for the loss of trees from private land.

The following graphics illustrate the loss of tree canopy in several local government areas where good data exists.

# **CAMPBELLTOWN COUNCIL** TREES between 2006 - 2016 **PUBLIC LAND** HARD SURFACES **.67%** 1.62% **PRIVATE LAND** 4.18% 52% **TOTAL CITY** 6.19%



from 2010 – 2015

# **GLENSIDE** -2.08% TREE CANOPY +2.33% HARD SURFACES

from 2010 - 2015



from 2010 – 2015

# **KURRALTA PARK**<sup>23</sup>

2008: 21% tree cover



2018: 20% tree cover

2008: 20% tree cover

(上)↓ 3.0%

2018: 17% tree cover

# **URBAN HEAT ISLAND MAPPING**

An urban heat island is an area that heats up more than - and stays hotter than - its surrounding areas due to human impact of hard surfaces and development.

Colours are used below to differentiate intensity of urban heat islands.

Legend

Hottest Areas



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Punthar

Ponde

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# WHAT'S HAPPENING TO OUR TREES? (CASE STUDIES)

Too many mature trees are being removed for public infrastructure projects and private developments.

# **CASE STUDY 1: GOLDEN GROVE ROAD**

In late 2019, the Department of Planning, Transport and Infrastructure (DPTI) felled approximately 180 significant redgum trees adjacent to Golden Grove Road to enable road widening.

These trees, with trunks six to eight metres in circumference, were estimated to be hundreds of years old.

Not all of the trees removed were in the path of the widened road, and concept images show that some of removed trees were intended to be retained.

Under current and proposed state planning requirements, DPTI does not require approval to remove significant trees from roadsides, so the public is denied the opportunity to have a say.





# **CASE STUDY 2: MT BARKER SPORTS GROUND**

In late 2019, the Mount Barker District Council 'relocated' four significant river red gums – some estimated to be up to 300 years old – to make way for a public sports ground on Springs Road on the outskirts of Mt Barker.

Three of the trunks were cut off at the base and craned into nearby holes (approx. 20 metres away), killing the trees but keeping the structure as wildlife habitat. The fourth tree was used for landscaping on the rest of the site.

Despite Mount Barker Council including the fate of the trees in their consultation process for the sport hub, the first many heard about this was when the trees were already in the process of being cut down. There was an enormous public reaction, with many residents horrified at such ancient trees being destroyed. This case study emphasises the importance of clearer community consultation.

The council paid \$19,623.92 into the Native Vegetation Fund to offset the environmental impact of the tree loss. This example also raises the question as to whether this valuation meets community expectations. "I was devastated to see the unnecessary removal of ancient gums to make way for the Mount Barker Sports Hub.

Working around such trees should be a higher priority, even if developments have to be redesigned and modified, as no amount of replanted 'young' trees can replace the environmental values and habitat provided by these old heritage trees.

It is really important to value and maintain old trees, and programs such as i-Tree are available to partially quantify the structural value and environmental benefits which come from these trees, ranging from air pollution reduction to carbon storage.

We should value and preserve these old trees for future generations to enjoy, as well as adding more trees for 50 to 100 years hence. "

### **SOPHIE THOMSON**

MT BARKER RESIDENT, AUTHOR AND GARDENING AUSTRALIA PRESENTER

### Between 2016 and 2019



of applications to remove significant trees from private land in

Unley Council were

approved

# CASE STUDY 3: PRIVATE RESIDENTIAL DEVELOPMENT

Clearing blocks for sale or re-building by 'mum and dad' developers is driving many applications for tree removal.

The vast majority are approved.

There are also a significant number of applications for tree removal for non-development reasons, e.g. dropping leaves in gutters, shading solar panels and fear of limb fall. If we are to continue to receive the benefits of big trees, public perceptions of risk and property impact need to change.

These images are of a sugar gum that was recently felled in Hawthorndene after the owner cleared the site for a new house.

The tree was on the property boundary and would not have been in the way of the new house, but it was still removed.



# **IS PLANTING NEW TREES ENOUGH?**

The 30-Year Plan for Greater Adelaide has a target of increasing urban green cover by 20% in metropolitan Adelaide by 2045, from a baseline of 27.28%.<sup>27</sup>

The plan recognises that the target will be achieved in partnership with local councils through their tree strategies.

Most metropolitan councils have strong tree canopy targets and annual tree planting programs. They are actively engaging their communities in planting more trees on public and private land.

The recently-released draft Planning & Design Code contains a welcome focus on encouraging new green infrastructure (GI) and water-sensitive urban design (WSUD) which will guide planting and landscaping on private land.

Although new tree planting is welcome and essential:

- replacing an existing mature tree with one or even several young trees does not account for the many years of inadequate canopy cover as the trees grow,
- climate change is adversely affecting the ability of trees to grow and mature, emphasising the critical importance of already established trees, and
- there is simply not enough public space for councils to plant new trees to compensate for the loss of mature trees from backyards and other private land.

Planting new trees is not enough.

We must also stop the loss of mature trees across our suburbs if we have any chance of increasing our urban canopy cover.

# **43%**<sup>28</sup>

of urban SA local councils have had a significant loss in tree canopy cover



# **IDEAS TO EXPLORE AND DEVELOP**

Immediate action needs to be taken to stop the decline in urban tree canopy cover.

This section explores how this might be done.

# **IMPROVE PLANNING LAWS**

The proposed new Planning and Design Code should shift the priority towards retention of trees when development decisions are being made. Ideas include:

- encouraging tree retention in design, siting and setback requirements, and making removal the last resort,
- changing the definition of significant and regulated trees (tree circumference is not a good measure of ecological or environmental value), and expanding the list of common and important street trees to be protected,
- reviewing blanket exemptions for removal, such as the 10 metre set-back rule and 20 metre rule for properties in a medium or high risk bushfire zone, and
- requiring mandatory tree plantings for new developments and accompanying this with guidelines for tree type and maintenance.

# **INVOLVE QUALIFIED ARBORISTS**

Arborists play a critical role in the decision to retain or remove a tree.

As well as better accreditation standards, the arboricultural industry and councils need to standardise arboricultural assessments as part of development applications to minimise ambiguity and conflicts of interest.

# **USE TRUE VALUE**

It is vital that we capture the true worth of significant and mature trees, using credible valuations by Urban Forest, i-Tree, Treenet or similar.

The Waite Arboretum trees are currently being valued using i-Tree tools on the basis of species, size, location, environmental benefits. The estimated value is \$13,000,000.

## **GIVE INCENTIVES FOR TREE RETENTION**

Provide monetary and other incentives for developers, councils and homeowners to retain and/or plant larger trees as part of the landscaping plan for any urban consolidation development.

An independently-managed government-funded tree fund could support the further planting of trees, and provide incentives to landholders to retain regulated and significant trees (especially those listed on the National Trust Significant Tree Register). An infill tariff could help deliver linear parkways, pocket parks and green spaces.

# **INSPIRE A LOVE OF TREES**

Ideas such as promoting Adelaide as a National Park City reminds developers and homeowners of the value and personal benefits of trees, including the money saved and health benefits of living in leafy streets.

# CHANGE THE LAW TO INCREASE PROTECTION

Legislation to protect the right to a healthy environment would give legal protection to trees and be enforceable through the court if needed.

More than 100 different countries enshrine the right to a healthy environment in their Constitutions. Amending the Australian Constitution or enacting Commonwealth and/or state legislation could enshrine the rights of trees.



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## **IMAGE CREDITS**

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Australian In

Australian Institute of Landscape Architects











# HOW CAN YOU HELP?

To turn the tide, we need everyone – homeowners, developers, arborists and decision-makers – to stand up for our precious trees.

Use this report to talk to your local Member of Parliament and local government councillors and explain how much trees mean to you (if you would like a hard copy of this report, please get in touch via our website).

Talk to your neighbours and make sure your street supports its trees.

Write to your local paper, share your thoughts on social media or call talkback radio.

Get involved with the Conservation SA's Protect our Trees campaign.

VISIT CONSERVATIONSA.ORG.AU/TREES2020 FOR MORE INFORMATION