NOTICE OF MEETING

COUNCIL AGENDA & REPORTS

for the meeting

commencing at 07:00 PM on Monday, 23 October 2023

Council Chambers
72 Woodville Rd, Woodville SA 5011

PAUL SUTTON
CHIEF EXECUTIVE OFFICER

Dated 19 October 2023

Please advise Kerrie Jackson if you are unable to attend this meeting or will be late. Phone 8408 1115.

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Brief
Council endorsed the Tree Canopy Improvement Strategy at the meeting of 8 November 2021 with a target of 25% canopy across the City by the year 2045. This report provides information about the progress of the Strategy to date, current actions underway and the future directions of the implementation of the Strategy including resourcing requirements.

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Brief

It is anticipated that Football Park will be vested to Council as early as 2026, which will coincide with the completion of the West development. In readiness for this date, it is proposed that public consultation is undertaken on a draft Community Land Management Plan for Football Park. Further, Council has recently received a formal request from the South Australian Football League (SANFL) to licence a portion of Football Park through a non-exclusive licence for a period of 21 +21 years. This report seeks Council approval to commence formal community consultation for both processes.

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Brief

Each year the City of Charles Sturt holds an End of Year dinner for the Elected Members, Freeman of the City, Chief Executive Office, and Council Leadership Team. This function is held in recognition of the years achievements and to recognise the effort and the out of hours commitment provided by Elected Members and Management Staff at the City of Charles Sturt. This report outlines the suggested arrangements for the 2023 End of Year Dinner, including changes from prior years functions having considered the recommendations and principles from the Ombudsman SA's report into Employee Recognition Practices that was published in 2023 and the South Australian Auditor-General examination of credit card use and management that was published in 2020. While each of these reports have focussed on employee's recognition and expenditure, the Ombudsman has indicated the principles apply to Elected Members also.

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11.08 AGENT ENGAGEMENT PROCESS AND REVISED VALUE ESTIMATES REGARDING DISPOSAL OF 318 SEAVIEW ROAD, HENLEY BEACH 432

Brief

The property known as 318 Seaview Road, Henley Beach has been held in the City of Charles Sturt Property Services commercial portfolio as a tenanted interest and more recently a site office for the Military and Main St upgrades. The property was resolved to be sold as part of the resolution dated 14 June 2022 Item 6.43 - Ngutungka Henley Project. This report will inform the purposed next steps in the process to dispose of the asset.

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1. COUNCIL OPENING

1.1 OPENING PRAYER

Almighty Father from Whom all goodness flows, grant unto us qualities of wisdom justice and tolerance, that we the civic leaders of this community may govern in harmony and concord.

This we ask in Thy name.

We also remember and give thanks for those, our sons and daughters, who gave their lives for Australia.

Lest we forget.

Niina Marni is Kaurna for ' Welcome'. The City of Charles Sturt acknowledges and pays respect to the traditional custodians of the land, the Kaurna people of the Adelaide plains. We pay our respect to Elders past, present and emerging. We respect their spiritual beliefs and connections to land which are of continuing importance to the Kaurna people of today. We acknowledge the contributions and important role that Aboriginal people continue to play within our local community in Charles Sturt. We also respect the culture of Aboriginal people visiting from other areas of South Australia and Australia.

1.2 APOLOGIES AND LEAVE OF ABSENCE

2. CONFIRMATION OF MINUTES

2.1 COUNCIL

Brief

Confirmation of the minutes of the previous meeting held on Monday, 9 October 2023.

Recommendation

That the minutes of the previous meeting held on Monday, 9 October 2023 be taken as read and confirmed.

2.2 REPORTS OF COMMITTEES - PART I

2.2.1 ASSET MANAGEMENT COMMITTEE

Brief

The Asset Management Committee was held on Monday, 16 October 2023.

Recommendation

That having considered the recommendations of the Committee which has read and considered the reports in the agenda related to items:

3.09 DEPUTATION - MS JULIE JOHNSON - HENLEY AREA DOG PARK PROPOSAL
4.70 PROPOSED NEW DOG PARK IN HENLEY WARD - RESULTS OF COMMUNITY ENGAGEMENT
4.71 RESERVE NAMING REQUEST - CROYDON AVENUE RESERVE
4.72 WEST LAKES STORMWATER MANAGEMENT PLAN UPGRADE PROGRAM - GRANT ACCEPTANCE
4.73 COMMUNITY GARDENS - RESPONSE TO MOTION ON NOTICE
4.74 ASSET MANAGEMENT SERVICES CAPITAL WORKS & OPERATING PROGRAM VARIATIONS

Council adopts the recommendations of the Committee as printed in the Minutes of this Committee.

2.2.2 CITY SERVICES COMMITTEE

Brief

The City Services Committee was held on Monday, 16 October 2023.

Recommendation

That having considered the recommendations of the Committee which has read and considered the reports in the agenda related to items:

4.27 RESPONSE TO PETITION - NOISE COMPLAINT AGAINST THE GRAND BALLROOM - 443 TAPLEYS HILL ROAD, FULHAM GARDENS
4.28 PRESENTATION - TRANSITION TO THE SUPPORT AT HOME PROGRAM
4.29 PREPARATION OF A DESIGN STANDARD - RESIDENTIAL DRIVEWAY CROSSOVERS - AMENDMENT TO THE PLANNING AND DESIGN CODE BY THE STATE PLANNING COMMISSION - DRAFT SUBMISSION BY COUNCIL
4.30 HERITAGE CONSERVATION GRANT APPLICATIONS

Council adopts the recommendations of the Committee as printed in the Minutes of this Committee.

3. REPORTS

Nil

4. DEPUTATIONS

5. PETITIONS

Nil

6. BUSINESS

6.100 CITY OF CHARLES STURT - NATIONAL AWARD RECIPIENT - AUSTRALIAN INSTITUTE OF ANIMAL MANAGEMENT

TO	Council
FROM:	Manager Public Health and Safety - Adam Filipi
DATE:	23 October 2023

Brief

This report is to inform Council on the City of Charles Sturt's Community Safety Team being recognised at the National Australian Institute of Animal Management Awards for it's Workplace Wellbeing Program.

Recommendation

That Council formally recognises and congratulates the City of Charles Sturt's Community Safety Team for winning the Australian Institute of Animal Management National Awards for its Workplace Wellbeing Program.

Our Community - A strong and connected community

In our City no one gets left behind; everyone has access to quality resources, services, programs, information and social infrastructure to fully participate in their community.
People embrace healthy living, physical activity and ageing well.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.
We provide excellence in customer experience by ensuring our customers are at the heart of everything we do.
We care about our people ensuring we support, develop and motivate our workforce to meet Community needs with capability and confidence.
Open and accountable governance.

Relevant Council policies are:

- Nil

Relevant statutory provisions are:

- Dog and Cat Management Act 1995
- Work Health and Safety Act 2012

Background

The Australian Institute of Animal Management (AIAM), Getting to Zero (G2Z) and the Animal Management in Rural and Remote Indigenous Communities (AMRRIC), as the three more active and influential organisations at the intersection of community health and safety and companion animal welfare and management, collaborated to deliver the 'Big Hair People and Pets Summit and Workshops' held between 10-14 October 2023 at Surfers Paradise. The Summit provided an opportunity for the AIAM to present their National Animal Management Awards, with the City of Charles Sturt's Community Safety Team being awarded winner of the 'Workplace Wellbeing Program'.

The Australian Institute of Animal Management (AIAM) recognises that workplace health and wellbeing programs have real potential to positively influence the health of Community Safety staff involved in animal management, while making good business sense through increasing employee engagement and team cohesiveness, whilst reducing absenteeism and increased productivity in the long term. AIAM's National Workplace Wellbeing Program Award is presented to an organisation that demonstrates evidence of fostering healthy workplace policies, practices and supportive environments that promote healthy lifestyles that enhance positive social outcomes.

An Awards Sub-Committee made up of members of the AIAM Board and representatives from G2Z and AMRRIC reviewed nominations based on the selection criteria, and selected winners for each award category.

Report

The City of Charles Sturt's Community Safety Team were awarded as the National winners of the 'Workplace Wellbeing Program' award by the Australian Institute of Animal Management (AIAM) at the recent 'Big Hair People and Pets Summit' held at Surfers Paradise. In being presented with the award, the President of AIAM, Brenton Thomass, commented that the City of Charles Sturt places significant value on its employees, ensuring their wellbeing and work experience is prioritised in order to deliver positive outcomes for its community.

Over the last 12 months, the Community Safety Team have restructured a number of positions and piloted an alternative working pattern for its Community Safety Officers to deliver increased community patrols whilst providing more work life balance for its staff. It is these initiatives that were included in our nomination to the Australian Institute of Animal Management, that were assessed by the judging panel and ultimately recognised in receiving the National Workplace Wellbeing Program award. This award complements the recent award provided to the team by the South Australian Authorised Persons Association in July 2023.

The award nomination can be viewed in **Appendix 1**.

Photo 1: Brenton Thomass (President Australian Institute of Animal Management) presenting the National 'Workplace Wellbeing' award to Adam Filipi (Manager Public Health & Safety) & Dani Scuteri (Team Leader Community Safety) from the City of Charles Sturt.

Financial and Resource Implications

There are no financial or resource implications.

Customer Service and Community Implications

There are no customer service or community implications.

Environmental Implications

There are no environmental implications.

Community Engagement/Consultation (including with community, Council members and staff)

There is no requirement for community engagement or consultation.

Risk Management/Legislative Implications

There are no risk management or legislative implications.

Conclusion

That Council formally recognise and congratulate the City of Charles Sturt's Community Safety Team on their National Australian Institute of Animal Management Workplace Wellbeing Award.

Appendices

#	Attachment
1	Appendix 1 - AIAM Award Nomination - Workplace Wellbeing

APPENDIX 1

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PO Box 1, Woodville SA 5011
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Workplace Wellbeing Program

The City of Charles Sturt is situated west of the Central Business District of Adelaide, South Australia extending from the Adelaide city to the coast with a population of approximately 120,000 people and approximately 16,000 and 3,000 registered dogs and cats respectively. We are an incredibly diverse community who's companion animals mean the world.

As we know, this industry and the role of animal management officers is incredibly challenging, therefore it is critical that there is an ongoing focus on workplace culture and enhancing job satisfaction. Gaining satisfaction from work has been highlighted as one of the ways to reduce the impacts of compassion fatigue and burnout. As such, over the last year, we have been reviewing the way we do things in our Community Safety team to maximise potential satisfaction and mitigate risk.

Towards the end of 2022, the Community Safety team were involved in an engagement activity, facilitating a conversation about the activities of the team, agreed service standards and ensuring our external communications (e.g. website, social media platforms etc) reflected our roles to the community. This process has had a significant and somewhat unexpected impact on job satisfaction within our team. A heightened focus on community engagement, education, and delivering exceptional customer experience, has resulted in the receipt of increased positive, insightful and rewarding feedback from our customers.

Parallel to our commitment for increased job satisfaction for all team members in the Community Safety Team, we are also currently trialling two dual Senior Officers and general officer roles to increase officer support in the team. This has allowed for increased productivity with community requests by offering greater senior officer support and overall team assistance. It has also provided our senior officers some reprieve in responsibility, and the ability to chat, decompress and debrief with each other where required after particularly challenging incidents and events. Both our senior officers are excelling in these combined roles, and collaborate effectively and efficiently with each other to provide comprehensive support to their team. We are currently 6 months into this trial and at this stage the team are thrilled with the results. While we will conduct an official review at the completion of the trial in a further 6 months, we foresee this structure becoming a long term arrangement.

One of our biggest achievements in our commitment to workplace wellbeing this year is our transition to a 9 day fortnight for our Community Safety Officers. Our officers now rotate work on 2 separate shifts (7:15 to 4:05 or 8:10 to 5:00), Monday to Friday, with an RDO every fortnight. This was instigated by an officer led review of the times our officers were working, and resulted in the current trial of a fortnightly RDO to enable an increase of service to our community over a larger span of hours worked. This change to working times has also increased flexible working, decreased possible burn out and increased staff satisfaction. This is being received very positively by the team, increasing staff work satisfaction and overall performance.

Along similar lines, our Community Safety Administration staff are also provided with flexible working arrangements, and are able to work from home as they need. Again, we have seen an improvement in overall job satisfaction, engagement and performance since this transition to more flexible working arrangements.

The Community Safety Team are a team who strive on excellence in everything we do. Everyone involved in this department is hardworking and only want the best for our customers. We are incredibly proud of the exceptional work our team does every day and are grateful to them for their

commitment to continual improvement, innovation, customer experience and community safety. As such, we love that we are able to support them more fully in their roles, to greater achieve their desired work-life balance, and customer-centred positive outcomes for our community. We are also immensely proud and protective of our internal culture as we lean on each other to ensure that we are continuously supported and also challenged in the way we work to ensure successful outcomes for our community.

6.101 PRESENTATION - TREE CANOPY IMPROVEMENT STRATEGY - PROGRESS REPORT, FUTURE DIRECTIONS AND RESOURCING REQUIREMENTS

TO	Council
FROM:	Strategic Planner - Open Space Environmental Mgmt - Mark Hannan
DATE:	23 October 2023

Brief

Council endorsed the Tree Canopy Improvement Strategy at the meeting of 8 November 2021 with a target of 25% canopy across the City by the year 2045. This report provides information about the progress of the Strategy to date, current actions underway and the future directions of the implementation of the Strategy including resourcing requirements.

Recommendation

1. **That the report be received and noted.**

2. **That Council note the presentation by Council's Strategic Planner - Open Space Environmental Management.**

3. **That Council note the City of Charles Sturt declared Climate Change Emergency in December 2019 to undertake action to prepare and mitigate the impacts within our community. Implementing the Tree Canopy Improvement Strategy builds our resilience to the effects of a changing climate and is an effective mitigation approach.**

4. **That the progress of the implementation of actions contained within the Tree Canopy Improvement Strategy be noted.**

5. **That Council note the endorsed motions of the Council meeting of 08/11/2021, being:**
   - **That Council endorse "Growing Green: Tree Canopy Improvement Strategy 2021-2045".**
   - **Council supports the preparation of future budget bids to allow for the implementation of the Strategy.**
   - **Council acknowledges endorsement of the implementation of the future directions of the Tree Canopy Improvement Strategy and the target therein; and**
   - **re-affirms the target to achieve 25% tree canopy by 2045.**

6. **That Council acknowledges its recognition of the provision of additional resources as the key requirement to implement the Tree Canopy Improvement Strategy to reach the canopy target.**

7. **That Council endorses the preparation of a budget bid for OPTION 1: $724,475 for the financial year 2024/2025 to deliver a staged implementation of a significantly enhanced tree planting program, planting an additional 1,500 trees in 2024/25 and then an additional 3,000 trees in 2025/26 and every year after until 2036/37 to deliver the Tree Canopy Strategy.**

   OR

   That Council endorses the preparation of a budget bid for OPTION 2: $1,213,950 for the financial year 2024/2025 to implement a significantly enhanced tree planting program, planting an additional 3,000 trees in 2024/25 and every year after until 2036/37 to deliver the Tree Canopy Strategy.

8. **That the Tree Canopy Strategy funding, as detailed in this report, be made available in recurrent budgets from 2025/26 to deliver an additional 3,000 trees per annum and the Long Term Financial Plan be adjusted accordingly.**

9. **That the future years Tree Canopy Strategy capital equipment (Fleet) requirements as detailed in this report are noted, and the Fleet AMP and the Long Term Financial Plan be adjusted accordingly.**

10. **That the funding for the current whole street planting program that currently deliver approximately 700 trees per annum through an Annual Operating Project be made available in recurrent budgets from 2025/26.**

11. That Council endorse the changes to the Tree and Vegetation Policy (Appendix 1) and the Tree and Vegetation Management Plan (Appendix 2) as detailed in this report to move the street planting to an 'inform' consultation methodology, so as to facilitate the optimal delivery of the Tree Canopy Improvement Strategy.

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Community - A strong and connected community

In our City no one gets left behind; everyone has access to quality resources, services, programs, information and social infrastructure to fully participate in their community.

Our Liveability - A liveable City of great places

A well-designed urban environment that is adaptive to a diverse and growing City.
City assets and infrastructure are developed and enhanced on a strategic and equitable basis in collaboration with local communities and other relevant parties, including industry and government.
Drive an integrated, responsive transport system and well-maintained network of roads and paths that facilitate safe, efficient and sustainable connections.
Enhance the diversity of open spaces to create innovative, accessible and flexible community spaces.

Our Environment - An environmentally responsible & sustainable City

Greenhouse gas emissions significantly reduce, and we adapt to our changing climate.
Our city is greener to reduce heat island effects and enhance our biodiversity.
Charles Sturt is recognised as a leading partner and educator pursuing a sustainable future with our community.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.
The management of our city is progressive, responsive and sustainable to ensure a united and unique place for future generations.
Open and accountable governance.

Relevant Council policies are:

- Tree and Vegetation Policy
- Public Consultation Policy
- Environmental Sustainability Policy
- Path Policy
- Telecommunications and Electricity Infrastructure on Council Land Policy
- Memorials Policy

Relevant statutory provisions are:

- Planning, Development and Infrastructure Act 2016
- Local Government Act 1999
- Electricity Act 1996
- Electricity (Principles of Vegetation Clearance) Regulations 2021
- Water Industry Act 2012

Executive Summary

The tree canopy throughout the City of Charles Sturt is an important issue for our community, and through the current engagement process for the new Community Plan it is becoming evident that this level of importance is increasing. There is a consistent theme that improved tree canopy, open space, greening, and biodiversity are key areas of interest and concern within our community. The issues of climate change and urban heat have also been frequently mentioned in the engagement with our community as areas of concern. The Tree Canopy Strategy is designed to address these areas growing concern within our community and address the communities desire for Council to drive improvement in these areas.

This report outlines the resourcing requirements to implement a tree planting program to meet out Tree Canopy Improvement Strategy. If endorsed, the financial implications will be built into the Long Term Financial Plan to allow Council to deliver this strategy.

Background

The recognition of the myriad of benefits of trees to the wellbeing of people and communities and to the protection and enhancement of the environment is increasing nationally and globally. Parallel to this recognition, is the observed decline in the urban forest and tree canopy cover in the City of Charles Sturt and other Councils within South Australia, having been impacted primarily by the effects of a changing urban environment such as infill development.

Our communities are relying on action by Governments to halt this decline and increase our resilience through the provision of Canopy Targets to respond to the impacts of climate change and urban heat island effects.

"Growing Green: Tree Canopy Improvement Strategy 2021-2045" builds upon the significant achievements and efforts undertaken by our organisation over many decades and provides a framework to deliver long-term, sustainable, and significant gains to our urban forest.

This strategy was endorsed by Council 8/11/2021 (refer CL 8/11/21, Item 6.114) and sets an ambitious, yet achievable vision that: The City of Charles Sturt has an extensive, healthy, diverse and sustainable urban forest which grows to reach a City-wide canopy cover target of 25% by 2045. In essence, Growing Green: is our plan for a greener, cooler City.

Given the significance of this strategy to our community of ratepayers, residents, businesses and visitors, as well as the administration and operation of Council, community consultation was undertaken, using a number of techniques and engagement methods. Following this extensive engagement, the plan was refined and subsequently endorsed.

Council Report History

21 June 2021 - Draft TCIS presented to Council, and endorsed for community engagement - this included identification that implementation of the strategy requires additional funding subject to future budget bids.

9 August 2021 (CL) Recommendation to participate in recapture of Urban Heat and Canopy Capture and tree canopy cover mapping repeat capture.

8 November 2021 (CL) Endorsement of Tree Canopy Improvement Strategy and endorsement of recommendations:

1. *That Council endorse "Growing Green: Tree Canopy Improvement Strategy 2021 - 2045"*
2. *Council support the preparation of future budget bids to allow for the implementation of the Strategy.*
3. *That money received through developer contributions under the Planning, Development and Infrastructure Act 2016 for tree removals will be allocated to the "Trees for the Future" budget to facilitate appropriate Council tree plantings.*

Report

In broad and simple terms, increasing tree canopy across the City requires the existing tree population to be retained and protected as well as additional trees to be planted, and nurtured and maintained so that they reach maturity.

Our Growing Green: Tree Canopy Improvement Strategy (**Appendix 3**) provides a framework to deliver long-term, sustainable, and significant gains to the urban forest. Our vision is to nurture an extensive, healthy, diverse and sustainable urban forest which grows to reach a City-wide canopy target of 25% by 2045. The strategy generates a new mandate for tree planting, tree protection and resourcing directed to trees to improve the amount of tree canopy City wide for the benefit of our community and environment in the face of a changing climate.

We will achieve this vision by increasing resources with a dedicated focus on planting more trees, whilst maintaining, protecting and retaining our existing trees, and engaging our community to enable action to protect and retain trees in both the public and private realm. We will generate a new mandate for tree planting, tree protection and resourcing directed to trees to improve the amount of tree canopy City wide, for the benefit of our community and environment in the face of a changing climate.

Since the adoption of the Strategy, significant progress has been made in implementation of the Strategy within existing resources. To facilitate and accelerate urban tree canopy increases, provision of additional resources is required for direct service delivery of increased tree planting and the associated tree establishment as well as the ongoing maintenance of the urban forest. In addition to this, further resources are required for the provision of support for the protection and retention of existing trees and the planting of new trees on lands where Council has no direct operational control.

Modelling and analysis have been undertaken to consider the size, location and quantum of plantings required to achieve the target, in consideration of land tenure, with Council having direct control on Council land and varying degrees of influence on lands not owned by Council - residential, commercial, education, State Government and Crown lands.

To reach the endorsed canopy target of 25% by 2045, the actual increase in tree numbers required to be planted across the City (total public and private land) has been modelled at an estimated 10,000 trees per year for 13 years, and replacement planting thereafter.

Given the constraints relating to private tree canopy retention and improvement, significant tree canopy gains will rely on Council planting on Council land. It is therefore proposed that 6000 trees per annum be planted on Council land per annum and undertake parallel approaches to encourage tree planting and retention on private land including incentives, education and partnering (e.g. with schools).

For the Council lands planting, two cost models including operating and capital resources, of which a summarised version is shown below and a full version is available in **Appendix 4**, have been developed to inform the 2024/25 Budget bid process and the LTFP. This model is discussed in more detail in relation to the impact on Council rates in the Finance and Resources Implications section of this report. Option 1 models planting 1,500 additional trees in 2024/25 and then 3,000 trees per annum until 2036/2037 (this softens the start-up financial impact), and Option 2 models a slightly more aggressive strategy planting 3,000 additional trees per annum from 2024/25 until 2036/37.

Option 1

TREE CANOPY TARGETS - COST MODEL (1,500 TREES IN YR 1 & 3,000 PER YEAR AFTER YR 1)

Tree Size CCS Land	Recommended %	Nos.	
Very Small	10%	300	Streets
Small	25%	750	Streets
Medium	45%	1,350	Streets
Large	10%	300	Reserve
Very Large	10%	300	Reserve
Total	100%	3,000	Increase required

Owner	Tree Nos.	Current	Increase
CCS Land	6,000	3,000	3,000
Non-CCS Land	4,000		
Total (Avenue	10,000		

Street Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Very Small	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Small	25%	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Medium	45%	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Total Trees Increase	80%	2,400	1,200	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	-	-	-	-	-	-	-
Total	100%		$ 444,613	$ 783,142	$ 802,929	$ 823,001	$ 843,492	$ 863,558	$ 881,516	$ 900,783	$ 924,296	$ 945,505	$ 967,303	$ 989,553	$ 1,012,310	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Street Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Total	100%		$ 257,657	$ 521,811	$ 533,277	$ 546,358	$ 1,341,037	$ 1,371,401	$ 1,402,067	$ 1,468,467	$ 2,443,888	$ 2,500,066	$ 2,991,193	$ 3,058,991	$ 3,130,370	$ 3,202,369	$ 3,273,871	$ 3,344,873	$ 3,147,258	$ 3,184,498	$ 3,243,777	$ 3,292,118

Reserve Trees - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Very Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Total Trees Increase	20%	600	300	600	600	600	600	600	600	600	600	600	600	600	600	-	-	-	-	-	-	-
Community Lead Planting Initiatives			50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total	100%		$ 108,241	$ 169,407	$ 172,686	$ 175,515	$ 178,323	$ 181,094	$ 184,197	$ 187,525	$ 190,803	$ 193,934	$ 197,234	$ 200,611	$ 204,065	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000

Reserve Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43
Total	100%		$ 9,966	$ 20,832	$ 21,471	$ 22,002	$ 22,895	$ 22,880	$ 23,524	$ 24,115	$ 24,681	$ 25,226	$ 25,816	$ 26,403	$ 27,011	$ 27,612	$ 28,212	$ 28,813	$ 4,025	$ 4,114	$ 4,204	$ 4,297
Total			$ 820,478	$ 1,495,193	$ 1,530,164	$ 1,566,877	$ 2,384,346	$ 2,437,044	$ 2,511,334	$ 2,582,929	$ 3,581,669	$ 3,664,905	$ 4,181,540	$ 4,276,566	$ 4,373,777	$ 3,280,081	$ 3,351,033	$ 3,423,656	$ 3,201,284	$ 3,248,613	$ 2,296,982	$ 2,346,415

Option 2

TREE CANOPY TARGETS - COST MODEL (3,000 PER YEAR)

Tree Size CCS Land	Recommended %	Nos.	
Very Small	10%	300	Streets
Small	25%	750	Streets
Medium	45%	1,350	Streets
Large	10%	300	Reserve
Very Large	10%	300	Reserve
Total	100%	3,000	Increase required

Owner	Tree Nos.	Current	Increase
CCS Land	6,000	3,000	3,000
Non-CCS Land	4,000		
Total (Avenue	10,000		

Street Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Very Small	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Small	25%	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Medium	45%	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Total Trees Increase	80%	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	-	-	-	-	-	-	-
Total	100%		$ 764,226	$ 783,142	$ 802,929	$ 823,001	$ 843,492	$ 863,558	$ 881,516	$ 900,783	$ 924,296	$ 945,505	$ 967,303	$ 989,553	$ 1,012,310	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Street Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Total	100%		$ 257,657	$ 521,811	$ 533,277	$ 546,358	$ 1,341,037	$ 1,371,401	$ 1,402,067	$ 1,468,467	$ 2,443,888	$ 2,500,066	$ 2,991,193	$ 3,058,991	$ 3,130,370	$ 3,202,369	$ 3,273,871	$ 3,344,873	$ 3,147,258	$ 3,184,498	$ 3,243,777	$ 3,292,118

Reserve Trees - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Very Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Total Trees Increase	20%	600	600	600	600	600	600	600	600	600	600	600	600	600	600	-	-	-	-	-	-	-
Community Lead Planting Initiatives			50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total	100%		$ 166,483	$ 181,407	$ 172,686	$ 175,515	$ 178,323	$ 181,094	$ 184,197	$ 187,525	$ 190,803	$ 193,934	$ 197,234	$ 200,611	$ 204,065	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000

Reserve Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43
Total	100%		$ 19,933	$ 20,832	$ 21,471	$ 22,002	$ 22,895	$ 22,880	$ 23,524	$ 24,115	$ 24,681	$ 25,226	$ 25,816	$ 26,403	$ 27,011	$ 27,612	$ 28,212	$ 28,813	$ 4,025	$ 4,114	$ 4,204	$ 4,297
Total			$ 1,372,713	$ 1,495,193	$ 1,530,164	$ 1,566,877	$ 2,384,346	$ 2,437,044	$ 2,511,334	$ 2,582,929	$ 3,581,669	$ 3,664,905	$ 4,181,540	$ 4,276,566	$ 4,373,777	$ 3,280,081	$ 3,351,033	$ 3,423,656	$ 3,201,284	$ 3,248,613	$ 2,296,982	$ 2,346,415

The resource plan will require additional capital resources in the form of truck and equipment for planting, watering and maintenance of the additional trees, and operating resources in the form of personnel within teams to conduct the planting, watering and maintenance, as well as the trees to be planted.

As previously noted and endorsed (refer AM 21/06/21, Item 4.38), implementation of the Strategy will require additional funding subject to future budget bids. This will ensure the actions outlined within the strategy can be realised and momentum gained to both achieve the target and educate and work with our community to deliver the outcomes. Failure to provide additional resources will result in the canopy target not being realised.

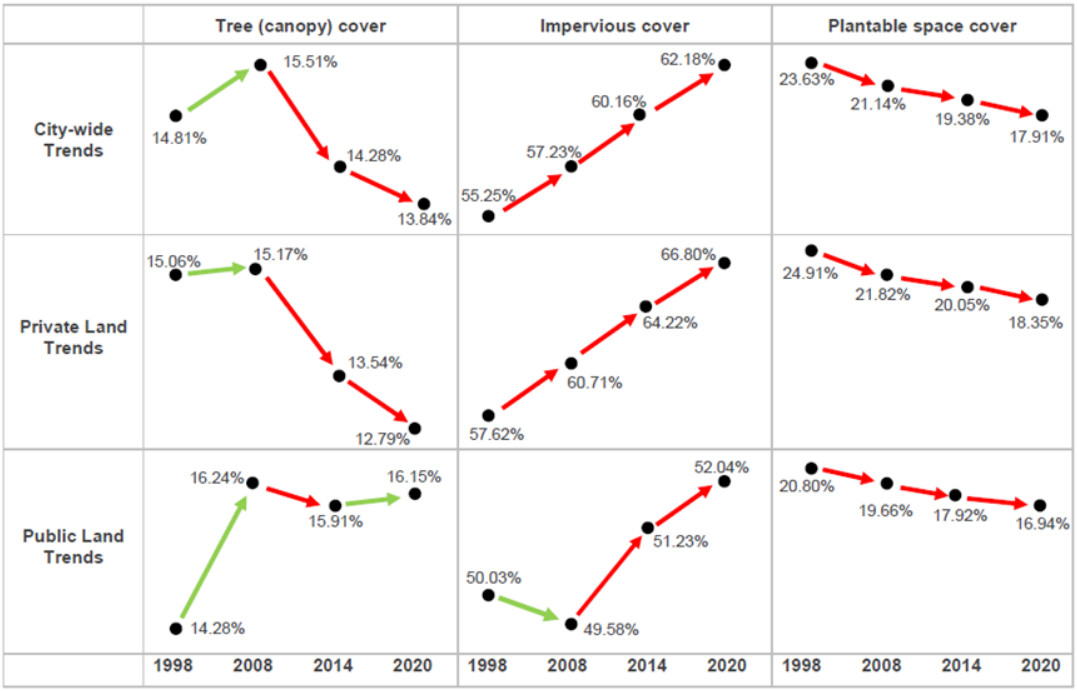
<u>Canopy Cover - City Wide Analysis -1998 to 2020</u>

The 2020 (being the most recent year of measure) update to the tree canopy and other land cover analysis provides a current measure of tree canopy and adds to the trend data intervals of 1998, 2008, 2014 giving a comprehensive long-term understanding of canopy changes in the City on public and private land (**Appendix 5**). While improvements to tree canopy cover on Council land are evident, there continue to be declines to canopy cover across the City overall.

A summary of the trends and percentage measures of tree canopy, impervious surfaces, and plantable space over the time intervals of the years of measure and land tenure is provided in the figure below. The three categories are:

1. **tree canopy cover** - this is the measure of how much of the land is covered by trees;

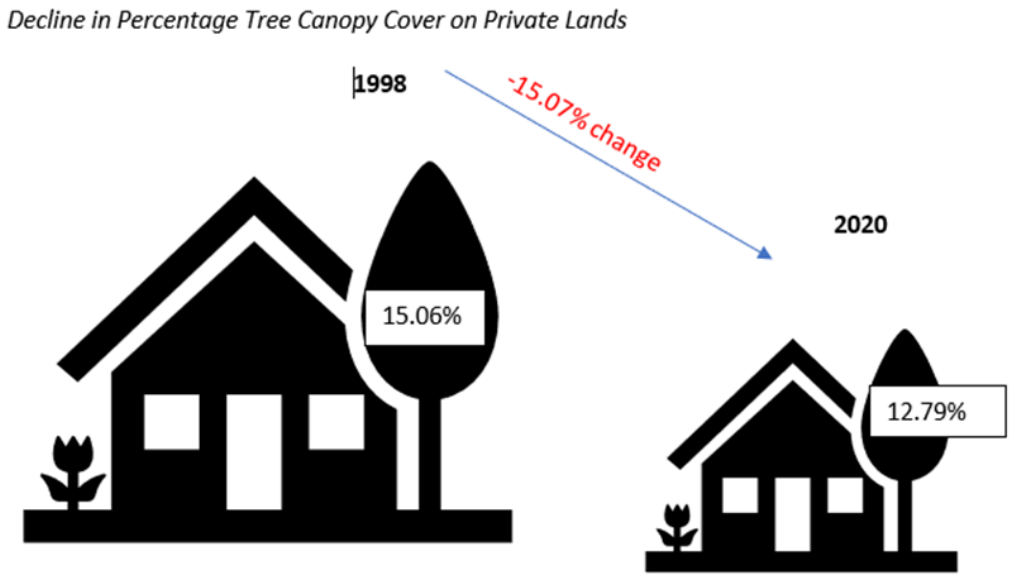
2. **impervious cover** - this is the measure of how much of the land is covered by buildings, driveways, paved courtyards, footpaths and roads; and
3. **plantable space cover** - this is the measure of how much of the land *could* be planted with trees.



Comparison of high-level land cover change trends across the City as a whole and on private and public land, between 1998, 2008, 2014, and 2020. Values shown indicate the percentage of the tenure type comprised by the land cover type.

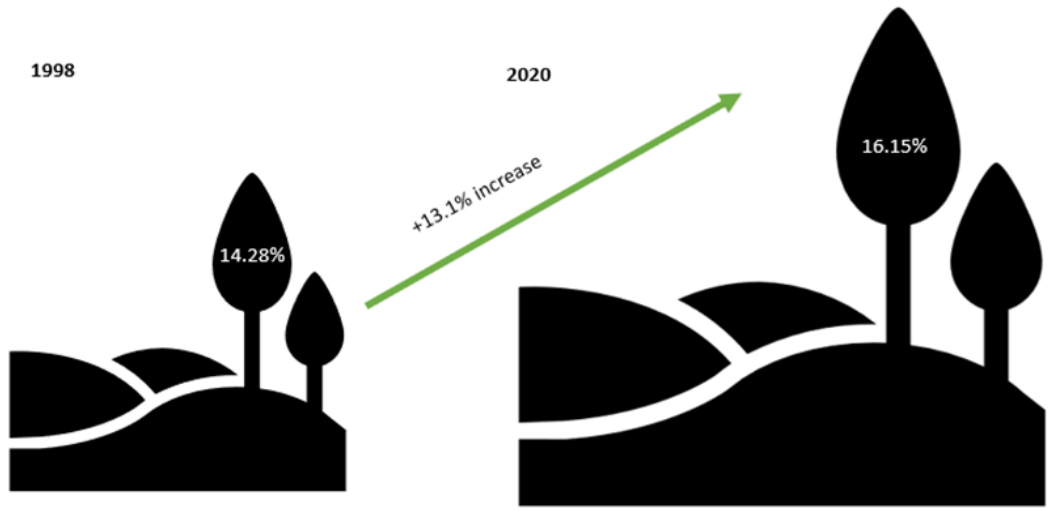
Overall, tree canopy levels are declining from the 1998 baseline measure to the present day. A key driver of this decline is the removal of trees on private land as a result of infill development.

63% of tree canopy cover across the City is on privately owned land. State Government policy and planning instruments and legislation enabling a significant increase of infill development and 'densification' of residential neighbourhoods coupled with a lack of tree protection legislation has seen the significant decline in tree canopy across the City on private property.



Council's tree planting efforts and ongoing care of the urban forest has seen canopy cover increase on public land.

Increase in Tree Canopy Cover on Council Lands



Council has partnered with Green Adelaide and other metropolitan councils for a new update to the canopy measure. This will be using a new and different measurement technique which will see Council transition from "i-tree canopy" (the tool used for measures to date) to LiDAR. The differences in methodology limit a direct like-for-like comparison of cover. Once this new update has been received (expected in late 2023) a further report will be provided to Council. LiDAR methodology is expected to be the State Governments ongoing method for canopy measure.

It is expected further representations will be made in regard for better outcomes for tree canopy in the planning system through the consultation for the Greater Adelaide Regional Plan (GARP) which will replace the 30-Year Plan for Greater Adelaide. The GARP will determine how urban growth will be managed over the next 30 years by investigating and

guiding where houses and employment land will go and what infrastructure is needed. A draft regional plan will be prepared in early 2024 giving consideration to the feedback received through the Discussion Paper.

Tree Canopy Improvement Strategy - Progress against Actions

The Tree Canopy Improvement Strategy comprises 6 overarching principles and 42 actions.

1. Plant more trees
2. Have a plan and set a target
3. Protect more trees
4. More tree maintenance and management
5. Appreciate trees more
6. Monitor and evaluate our progress (and change course if we need to)

Significant progress has been made since the adoption of the strategy in November 2021 and widespread understanding and awareness of the strategy exists in the community. The progress of actions to 30 June 2023 is as follows:

Completed or completed and ongoing - 17 Actions

These are actions which are wholly completed and a discrete body of work or wholly complete and have an ongoing nature of implementation being part of 'business as usual'. These are predominantly actions within the strategy that are listed as 'High' priority and noted as to be actioned within 1-2 years of the strategy commencement in November 2021 or were identified as an 'ongoing' action.

Commenced and in progress - 18 Actions

These are predominantly actions within the strategy that are listed as 'High' priority and noted as to be actioned within 1-2 years of the strategy commencement in November 2021 and have substantially progressed, though not finalised.

Not Started - 7 Actions

These are primarily actions within the strategy that are listed as 'Low' priority and noted as to be actioned within 5 or more years of the strategy commencement in November 2021.

For detailed Progress against Actions reporting refer to **Appendix 6**.

Current Tree Planting Programs of Council

Council plants approximately 3000 trees per annum (*4 year average)* through a number of programs to maintain and increase tree canopy on Council land.

These form key contributions to implementation of actions within the Tree Canopy Improvement Strategy and has primarily relied on the provision of resources within the limits of existing recurrent and operational approaches which have reached capacity.

Whole Street Planting – 700 trees
The annual whole street planting program includes 30-40 primarily residential streets, which will be planted with approximately 700 semi-advanced trees.

Street tree planting by request (reactive planting) – 500 trees
We generally plant approximately 500 trees in streetscapes through this program. This program is contingent on a planting request being received by the property owner immediately adjacent the potential planting site, and the resident agreeing to water the tree for a minimum of the first 3 years, to assist in the establishment of the tree.

Reserve tree planting program – 600 trees
We are planting an additional 600 trees annually (species selected to be large or very large at maturity and consistent with our new approach to include more larger growing species into our planting mix) on reserves that will support and benefit from additional trees and tree cover.

Open Space Trees – varies annually (915 trees in 2022/23)
Maintenance planting and capital works programs that include tree planting (915 in total to end of June 2023). Examples of which are playground renewals and reserve upgrades (such as at William Atkins Reserve, Sandpiper Reserve, West Beach Surf Life Saving Club).

Trees in Contributed Assets – varies annually
In addition to maintenance and capital works tree planting also occurs on Council land by way of contributed assets e.g. Bowden Urban Village, Ovingham Level Crossing, St Clair and West Development. Tree numbers from contributed assets are not captured within the End of Quarter Reporting.

Whole of City Street tree pruning program – approximately 52,000 trees over a 3 year period
This program ensures trees are regularly inspected and required pruning is undertaken on a proactive basis.

Establishment maintenance for newly planted trees approximately 3000 trees per annum

Small tree maintenance for management of stakes, weed removal, formative pruning, water table management to help a tree grow into a balanced shape with a strong single trunk and a canopy of healthy branches and to remove competition from the tree.

Support for Tree Planting on Private Land to increase Canopy Cover

Council administers a number of programs to protect and enhance tree canopy on private land as follows:

Treebate: Tree Rebate Scheme A rebate of 50% of the purchase price of a tree you plant on your property up to a maximum rebate of $50 per tree for up to three (3) trees per property to encourage our residents, businesses, schools, landlords and strata groups to plant more trees on their properties to help reach our tree canopy target of 25%.

The Heritage Conservation Program recognises the important role Regulated and Significant trees (as defined by the Planning, Development and Infrastructure Act 2016) play in contributing to the character of the City and provides financial assistance to assist in their ongoing maintenance. The Program provides financial assistance for their ongoing maintenance. Up to 50% of the total costs of a single grant application up to a maximum of $500.

New Dwelling Tree Planting Requirements Where the application is for or includes a new dwelling in an area subject to the Urban Tree Canopy Overlay in the Planning and Design Code. Tree(s) must be planted and/or retained in accordance with DTS/DPF 1.1 of the Urban Tree Canopy Overlay in the Planning and Design Code (as at the date of lodgement of the application). New trees must be planted within 12 months of occupation of the dwelling(s) and maintained.

Future Directions and Resourcing Provisions

The implementation of actions within the Tree Canopy Improvement Strategy to date has relied on the provision of resources within the limits of existing recurrent and operational approaches which have reached capacity.

As discussed earlier in this report to provide an increase to tree canopy an increase in the provision of resources is necessary and vital to deliver upon the commitments made within the endorsed Strategy. The provision of additional funding for the implementation of the Strategy (subject to future budget bids) was previously noted and endorsed (refer AM 21/06/21, Item 4.38).

This will ensure the actions outlined within the strategy can be realised and momentum gained to both achieve the target and educate and work with our community to deliver the outcomes.

Modelling and analysis have been undertaken to consider the size, location and quantum of plantings required to achieve the target of 25% canopy cover by 2045 (**Appendix 7**).

Key findings of the analysis are as follows:

- Council's current planting programs (BAU planting numbers and species mix) will not achieve the 25% canopy cover target by 2045;

- A number of 'planting scenarios' were modelled, varying the numbers of trees to be planted and the proportion of species (sizes at maturity) in the 'planting mix';
- The only scenario modelled that achieved the 25% canopy cover target by 2045 was the combination of a 'more larger trees' planting mix and a very high planting rate of 10,000 trees per year, each year from 2023 to 2035;
- A significant increase in current investment will be required to achieve the canopy cover target;
- Achieving the canopy cover target will require collaborative planting efforts on public and private land.

After the year 2035, additional plantings were not required to reach the target, though ongoing replacement plantings will be required to ensure the 25% canopy cover is at least maintained after 2045.

The five planting rates scenarios examined were:

1. **BAU**: 3,000 trees planted per year to 2045. This reflects Council's current average annual planting rates continued through to 2045, which is when the canopy cover target needs to be met;

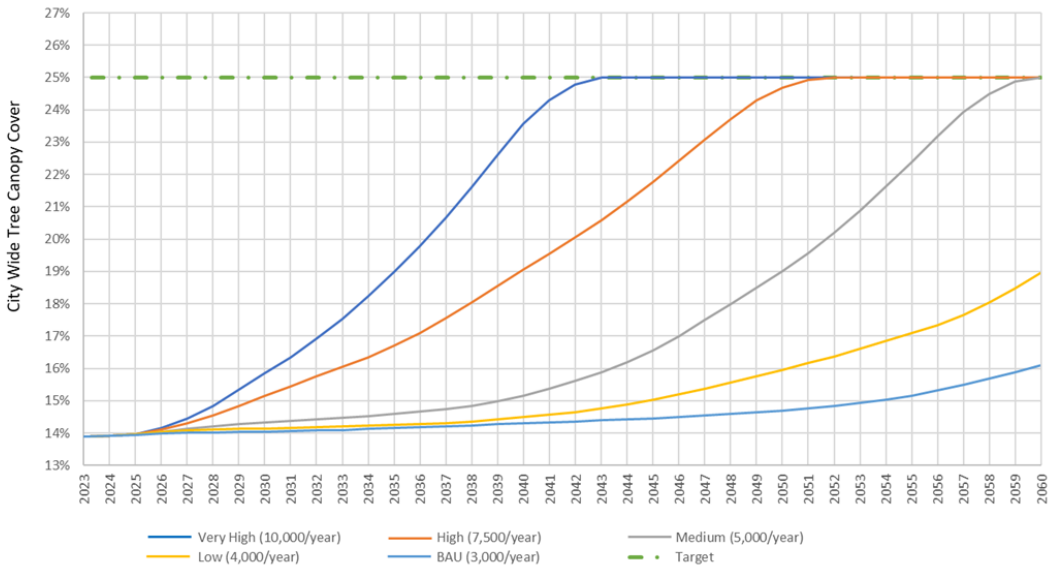
2. **Low**: 4,000 trees planted per year through to 2045;

3. **Medium**: 5,000 trees planted per year through to 2045;

4. **High**: 7,500 trees planted per year through to 2040 (total 142,500 trees planted). This rate tests the benefit of greater initial planting rates; and

5. **Very high**: 10,000 trees planted per year through to 2035 (total 140,000 trees planted). This rate tests an even greater accelerated initial planting rate compared to the high planting rate.

The components and potential tree canopy impact of information from the modelling and analysis is represented visually below.

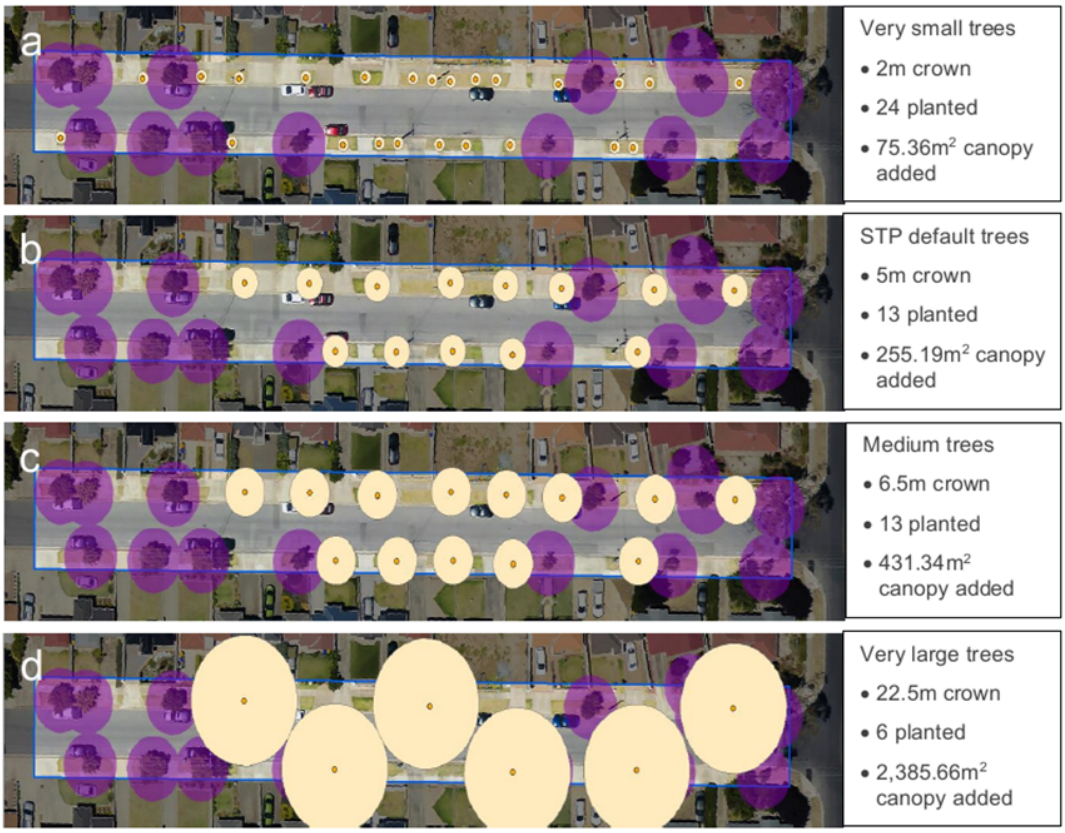


Achieving the canopy cover target will require collaborative planting efforts on public and private land. To reach the 25% cover target requires an additional 6.18km2 of canopy

cover. With 9.92km2 of plantable space across the Council area there is enough space to meet the target. However, there is not enough plantable space on public land alone to achieve the canopy cover target.

Planting more trees which at maturity are large or very large can have a major impact on the magnitude and rate of change in future tree canopy.

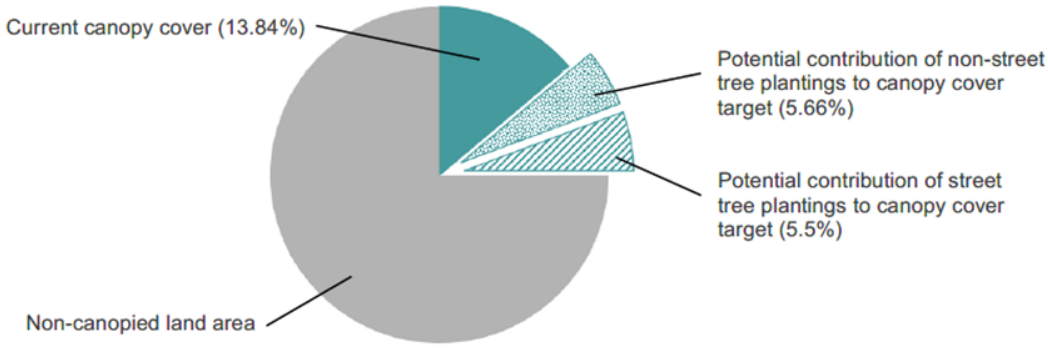
The impact of varying the size of trees planted in road corridors on the number of trees able to be planted and the resulting canopy cover within the road corridor, demonstrates the difference between canopy planting more smaller canopied trees (less overall canopy) compared to planting fewer larger canopied trees fewer trees (significantly more overall canopy) is visualised below.



Focus Areas of Future Tree Plantings

Potential future tree planting sites within the City can be categorised into areas:
1/ directly within Council's ownership and control.
2/ areas outside of Council's direct control but has capacity for Council to influence outcomes for an increase in tree plantings (such as private residential, education and business lands, State Government land).

The below pie chart shows Council's current canopy cover (2020 benchmark study) at 13.84% (equating to 7.67 km^2). To reach the canopy target of 25% an additional 11.16% cover is needed (equating to 6.18 km^2).



For an intensive tree planting programme to be successful, careful consideration of resources required throughout the lifecycle is necessary. To achieve a significant gain to the urban forest, planting in a staged approach, over a successive number of years, is economically sustainable and makes optimum use of available resources.

Understanding that some parts of our City have lower levels of tree cover and are hotter than others give a method of prioritising and focussing efforts. While City wide-benefits are derived from trees, inequity in current tree cover means a "catch-up" provision will change the focus to have an equal spread of tree planting programs across each ward and will be focussed in areas of greatest need. This shift from equality of planting across wards to equity allows for a new strategic driver to mandate this approach to greening to be realised.

Street Tree Plantings

Street tree planting provides a key opportunity to increase the urban forest. A total of 34,667 potential plantable opportunities were identified within Council's road corridors. It should be noted though that as this number is potential planting opportunities and needs to be further ground-truthed and so the actual number of plantable opportunities are likely to be lower due to site-specific constraints such as overhead or underground utilities.

Given the significance of the street tree planting network of Council, and the potential to provide significant increases in canopy through these plantings a 'road map' examining the whole street network has been developed (refer **Appendix 7 – Pages 24 to 27**).

This identifies all of the streets within the City that have potential for additional tree planting, by virtue of available space for potential tree planting, subject to further ground-truthing, particularly in relation to constraints created by proximity and location of underground services, key being SA Water infrastructure, as well as stormwater, telecommunications, gas and other services. In addition, proximity of above ground infrastructure, primarily electricity network infrastructure, is a key limiting constraint.

Open Space Reserve Plantings

Open Space Reserve Plantings provides a key opportunity to increase the urban forest. The total open space excluding beaches, streetscapes and land that is not open space is 403 hectares and will be further considered for additional tree planting where opportunity exists.

Consultation Requirements of Tree Planting

Requirements for consultation in relation to tree planting are governed by the Local Government Act 1999. The Act specifically states (Division 11 – Miscellaneous, Section 232 – Trees, Subsection (b):

> *"if the vegetation may have a significant impact on residents, the proprietors of nearby businesses or advertisers in the area, follow the relevant steps set out in its public consultation policy"*

While no definition of 'significant' is provided in this context within the act the application of this aspect of the legislation varies amongst councils.

For the City of Charles Sturt matters relating to tree planting which are considered to potentially have a "significant" impact apply to situations where:

- tree removal may initially be required.
- health reasons.
- redevelopment where an existing planning or development approval exists.
- impacts on access to property.
- a new tree planting would obstruct commercial 'billboard' style signage that is a stand-alone element as opposed to street facing shop-window or hoarding / awning signage denoting the name of business premises.

The City of Charles Sturt consultation for whole street planting programs has typically been conducted with a consultation level of 'consult' which provides affected residents with the ability to provide feedback on the choice of tree species for their street.

This consultation strategy has an extremely high resource and time requirement, and severely limits the ability to forward order tree stock. Without forward ordering tree stock years in advance, Council may not be able to gain access to the trees needed to deliver this program.

To triple the annual street tree planting and retain this level of consultation will be expensive and potentially jeopardise the delivery of the program, and as a result it is recommended that the Tree and Vegetation Policy and the Tree and Vegetation Management Plan be altered as per **Appendix 1** and **Appendix 2** respectively to an 'inform' consultation level. It is a requirement under the Local Government Act 1999 and Council's Public Consultation Policy to consult regarding street tree planting if the vegetation may have a significant impact on residents. An 'inform' consultation still meets these requirements and allows residents to advise Council of any significant impacts whilst managing the resource requirements necessary to deliver the targets.

Financial and Resource Implications

The financial cost models are detailed in **Appendix 4**, with two implementation options available. The impact of these two implementation options on the LTFP is detailed below.

The existing LTFP is shown in the table below:

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
CPI Increase - Deloitte Access Economics (DAE)	2.44%	2.48%	2.53%	2.50%	2.37%	2.26%	2.32%	2.41%	2.38%
Extra Impost DFP 2023	0.50%	0.30%							
Rates Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Total General Rates Increase	**3.94%**	**3.78%**	**3.53%**	**3.50%**	**3.37%**	**3.26%**	**3.32%**	**3.41%**	**3.38%**
Operating Surplus	**1,260**	**742**	**1,101**	**1,842**	**1,923**	**1,573**	**522**	**2,116**	**647**
Borrowings	**49,552**	**49,666**	**41,903**	**34,762**	**25,659**	**18,316**	**10,415**	**0**	**0**

Option 1:

Option 1 involves the staged implementation of the strategy in 2024/25 to deliver 1,500 additional trees in 2024/25 and then 3,000 additional trees in 2025/26 and every year beyond this until 2037/38. The table below shows the impact this has on the annual rate increase each year for the next 10 years of the LTFP. This scenario also applies 4 years of a 0.5% rate impost and the forecast surplus in 2024/25 is reduced from $1260K to $1,166K and from $742K to $679K in 2025/26.

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
CPI Increase - Deloitte Access Economics (DAE)	2.44%	2.48%	2.53%	2.50%	2.37%	2.26%	2.32%	2.41%	2.38%
Extra Impost DFP 2023	0.50%	0.30%							
Extra Impost 2025 Tree Canopy	0.50%	0.50%	0.50%	0.50%					
Rates Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Total General Rates Increase (incl Tree canopy impost)	**4.44%**	**4.28%**	**4.03%**	**4.00%**	**3.37%**	**3.26%**	**3.32%**	**3.41%**	**3.38%**
Operating Surplus	**1,166**	**679**	**1,494**	**3,003**	**2,783**	**2,513**	**1,001**	**2,611**	**710**
Borrowings	**49,508**	**49,558**	**41,334**	**33,003**	**22,967**	**14,674**	**6,194**	**0**	**0**

Option 2:

Option 2 involves the implementation of the full strategy in 2024/25 to deliver 3,000 additional trees in 2024/25 and every year beyond this until 2036/37. The table below (all figures in $,000) shows the impact this has on the annual rate increase each year for the next 10 years of the LTFP. This scenario applies a 0.5% rate impost for 4 years to fund the strategy, and it should be noted that the forecast surplus in 2024/25 is reduced from $1260K to $663K and from $742K to $655K in 2025/26.

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
CPI Increase - Deloitte Access Economics (DAE)	2.44%	2.48%	2.53%	2.50%	2.37%	2.26%	2.32%	2.41%	2.38%
Extra Impost DFP 2023	0.50%	0.30%							
Extra Impost 2025 Tree Canopy	0.50%	0.50%	0.50%	0.50%					
Rates Growth	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Total General Rates Increase (incl Tree canopy impost)	**4.44%**	**4.28%**	**4.03%**	**4.00%**	**3.37%**	**3.26%**	**3.32%**	**3.41%**	**3.38%**
Operating Surplus	**663**	**655**	**1,473**	**2,981**	**2,766**	**2,496**	**987**	**2,602**	**707**
Borrowings	**49,928**	**50,084**	**41,881**	**33,572**	**23,554**	**15,278**	**6,812**	**0**	**0**

The financial models include the additional FTE in the years indicated in the table below:

Additional FTE	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	Total
Tree Canopy Lead	1															1
Tree Planting, Establishment & Maint	3	2	2											-6		1
Arborist (Maintenance)					3		3		3		3					12
Total	**4**	**2**	**2**	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**0**	**-6**	**0**	**14**

Long term forecast labour requirements to be re-assessed with next iteration of the AMP & LTFP.

The financial models include additional capital equipment in the years indicated in the table below:

Plant/Equipment	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	Total
Light Vehicle - Tree planting	1											1
Dual Cab Chipper Truck					1		1		1			3
Chipper					1		1		1		1	4
EWP											1	1
Water Truck			1									1
Trailer		1	1									2
Spray Unit	1											1
Total	**2**	**1**	**2**	**0**	**2**	**0**	**2**	**0**	**2**	**0**	**2**	**13**

Long term forecast equipment requirements to be re-assessed with next iteration of the AMP & LTFP.

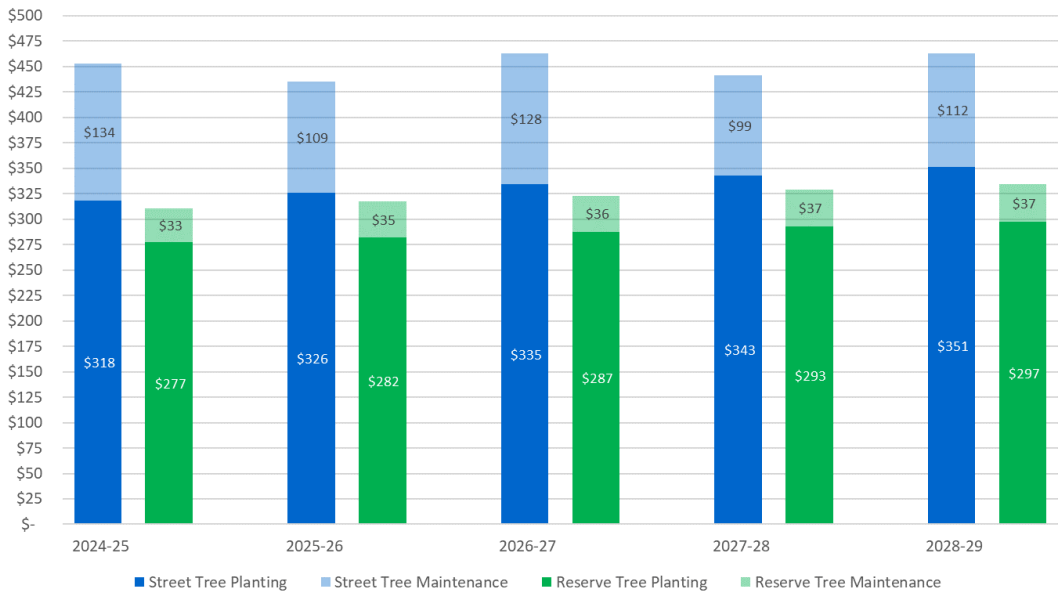
The existing annual recurrent budget for 2023/24 and actual spend for prior years for Tree Management and Maintenance is detailed below:

Project	Budget 2023/2024	Accum Actual 2022/2023	Accum Actual 2021/2022	Accum Actual 2020/2021	Accum Actual 2019/2020	Accum Actual 2018/2019
1001201 - Tree Maintenance	2,554,839	1,709,026	1,581,936	1,650,885	1,246,969	1,466,096
1001203 - Tree Maintenance Reserves	-	6,836	13,724	10,517	7,033	14,501
1001301 - Tree Replacement (Reactive Tree Planting)	160,444	106,966	88,569	102,854	100,730	95,497
1001500 - Nursery	119,770	127,142	61,999	55,249	53,635	55,544
1001600 - Admin Arboriculture	1,135,784	1,441,416	1,844,219	1,830,081	2,221,509	1,758,069
Tree Maintenance - sub-total	**3,970,837**	**3,391,386**	**3,590,447**	**3,649,585**	**3,629,876**	**3,389,707**

The Annual Operating Projects for tree planting for the last 5 years are detailed below:

Project	Budget 2023/2024	Budget 2022/2023	Budget 2021/2022	Budget 2020/2021	Budget 2019/2020	Budget 2018/2019
Wholes Street Planting	200,000	200,000	200,000	200,000	175,000	175,000
Planet Ark-Trees for The Future	0	30,000	40,000	40,000	49,000	40,000
Tree Canopy Improvement - Council Lands	210,000	0	0	0	0	0
Tree Operating Projects - sub-total	**410,000**	**230,000**	**240,000**	**240,000**	**224,000**	**215,000**

The cost per additional tree to support the Tree Canopy Improvement strategy is shown graphically below. There is significant amount of work that is required to deliver a tree planting program over and above just buying a tree, digging a hole and then planting a tree. The cost per tree below includes all costs for planning, procurement, scoping, consideration of overhead and underground services, consulting, reporting, planting, watering, and maintenance of the trees.



It should also be noted that street trees do cause damage to hard infrastructure such as footpaths, kerb and gutter, and roads. Annually over the last 8 years we have averaged just under $250,000 per annum of infrastructure repairs that is directly attributed to tree growth activity (predominantly tree root damage). However, this data in our asset management system is heavily reliant on Field Services teams correctly identifying and entering the root cause of damage, so may be understated somewhat if this data is not correctly entered or the cause of damage is not clear. With additional street tree planting and an increase in street tree canopy, it is reasonable to expect this maintenance cost to increase in the future. However, this cost will be minimised by our arboriculture team by ensuring the most suitable trees are selected and planted to suite the verge width and growing conditions, but still maximise canopy cover.

Customer Service and Community Implications

The Charles Sturt community be they ratepayers, residents, businesses, visitors, workers or students are the ultimate receiver of services provided by Council. Implementation of the Tree Canopy Improvement Strategy is necessary and expected by our community as evidenced by community feedback.

Endorsement of the strategy demonstrates bold leadership and reflects the aspiration of our community to respond to this very real challenge of diminishing canopy through significant tangible action. It will position our community as being more resilient in the face of a changing climate, enable participation in this collective action and recognition that this is a shared responsibility.

The need to protect and enhance our tree canopy has certainly been a major topic of discussion through engagement to date on the Community Plan. The need to increase tree canopy has been raised repeatedly throughout community engagement sessions, particularly in the context of tree loss as a result of poorly planned general infill development and the need to increase our canopy to respond to climate change impacts and improve street quality and appearance.

Environmental Implications

Our City is getting hotter from the impacts of climate change and the urban heat island effect. Trees provide cooling benefits, mitigating the impacts of heat, which reduces heat-related illness and death. Trees and vegetation reflect heat and actively cool and clean the air by evapotranspiration.

The City of Charles Sturt declared Climate Change Emergency in December 2019 to undertake action to prepare and mitigate the impacts within our community.

People need trees for their health and mental wellbeing. They provide a sense of place and liveability.

Planting trees is an investment in the future of our City. The mature trees we enjoy and benefit from today, were planted by those generations before us, many decades ago.

By selecting the right tree for the right place and making sure the trees we plant now will establish well, and grow to maturity for future generations, ensures our investment is realised as planned and not vulnerable to failure. The species that we currently plant and maintain, may be vulnerable to a changing climate. New and different options for species should be considered which are better adapted for greater resilience.

To achieve our vision and increase canopy cover to 25% by 2045 we will undertake an extended and intensive tree planting programme over many decades and enable our community to work with Council to achieve this target. We will educate our community and enhance liveability whist reducing the urban heat island effect and mitigating the impacts of climate change across the City.

Community Engagement/Consultation (including with community, Council members and staff)

Significant community engagement has been undertaken in the development of the Tree Canopy Improvement Strategy. Community engagement commenced on 21 July 2021 and concluded at the end of September 2021. The approach to community engagement was documented and endorsed by Council (refer AM 21/06/21, Item 4.38) and was undertaken in the manner described in that document. Community interest in the Tree Canopy Improvement Strategy was very high, with a total of 330 people having responded, and two organisations.

Consultation for the tree canopy improvement strategy identified a high need and desire for private property tree planting incentives and education of the community about trees. Tree Canopy Cover on private lands is continuing to decline, and this scheme will create a canopy cover increase on these lands, which comprise approximately 2/3 of our City and where the greatest potential for net benefit to Canopy cover can be achieved.

Risk Management/Legislative Implications

Strategic planning allows us to identify the risks of a declining urban forest and changing climate and allows us to put in place measures to mitigate these risks by significantly increasing our urban forest to achieve a canopy cover of 25% by 2045.

Conclusion

Our desire and vision for the City of Charles Sturt to be a "Leading, Liveable City" is further advanced by the implementation of the Tree Canopy Improvement Strategy. Significantly boosting tree canopy cover across all of our City improves the liveability of our suburbs and builds our resilience to changing climate.

Increasing the amount of tree canopy across the City requires a strategic approach and the appropriate provision of resourcing to leave a lasting positive legacy for our community and future generations of Charles Sturt residents, workers and visitors for decades to come.

Appendices

#	Attachment
1	Appendix 1 - Tree and Vegetation Policy
2	Appendix 2 - Tree and Vegetation Management Plan
3	Appendix 3 - Growing Green Tree Canopy Improvement Strategy - 2021-2045
4	Appendix 4 - Tree Canopy Strategy Cost Model
5	Appendix 5 - Tree Canopy Cover in the City of Charles Sturt 2020 Update
6	Appendix 6 - Progress Against Actions
7	Appendix 7 - Meeting our Canopy Cover Targets - How Many Trees?

APPENDIX 1

Tree and Vegetation Policy

Reference Number:	5.1
Type:	Council
Category:	Environment & Open Space
Relevant Community Plan Outcome:	• A well-designed urban environment that is adaptive to a diverse and growing City • Enhance the diversity of open spaces to create innovative, accessible and flexible community spaces • Our city is greener to reduce heat island effects and enhance our biodiversity
Responsible Officer(s):	Manager Open Space, Recreation and Property
First Issued/Approved:	May 1990 (Policy 28/5/90, Item 19)
Minutes Reference:	CL~~oS~~ 23~~4~~/10/202~~2~~3, Item 6~~4~~.1033~~1~~
Last Reviewed:	October ~~2022~~2023
Next Review Due:	October ~~2024~~2025
Applicable Legislation:	• Local Government Act 1999 • Development Act 1993 and Development Regulations 2008 • Planning, Development and Infrastructure Act 2016 • Electricity Act 1996 • Environment Protection and Biodiversity Conservation Act 1999 (C~~ommonweal~~th) • Heritage Places Act 1993 • Environment Protection Act 1993 • Natural Resources Management Act 2004 • South Australian Water Corporation Act 1994 • Road Traffic Act 1961 • Native Vegetation Act 1991 • Disability Discrimination Act 1992 • Landscape South Australia Act 2019 • 30 Year Plan for Greater Adelaide
Related Policies:	• ~~City of Charles Sturt~~ Memorials Policy • ~~City of Charles Sturt~~ Path Policy • ~~City of Charles Sturt~~ Environmental Sustainability Policy • ~~City of Charles Sturt~~ Public Consultation Policy

Related Procedures:	• Australian Institute of Horticulture (AIH) - *A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister).* • Australian Standard for Risk Management (AS/NS 4360-2004). • Australian Standard for Pruning Amenity Trees (AS 4373/2007). • City of Charles Sturt Tree Canopy Improvement Strategy ("Growing Green") 2021-2045 • City of Charles Sturt Biodiversity Action Plan 2017-2030. • City of Charles Sturt Living Green to 2020 Refresh. • City of Charles Sturt Open Space Strategy 2015 - 2025. • City of Charles Sturt Risk Management Framework • City of Charles Sturt Tree and Vegetation Management Plan. ~~• City of Charles Sturt Public Consultation Policy.~~ • River Torrens Linear Park Management Plan. • Trees: Legislation and Risk Management Guidelines for Local Government (Local Government Association Mutual Liability Scheme, 2004). • Western Adelaide Urban Heat Mapping Study. • AdaptWest Western Adelaide Climate Change Adaptation Plan 2016

1. Purpose

We value our trees and environment in the City of Charles Sturt. All trees and streetscapes owned or under Charles Sturt care are maintained according to our Tree and Vegetation Policy.

Our Tree Canopy Improvement Strategy provides a framework to deliver long-term, sustainable, and significant gains to the urban forest.

Our vision is to nurture an extensive, healthy, diverse and sustainable urban forest which grows to reach a City-wide canopy target of 25% by 2045.

We will achieve this vision by increasing resources with a dedicated focus on planting more trees, whilst maintaining, protecting and retaining our existing trees, and engaging our community to enable action to protect and retain trees in both the public and private realm.

The City of Charles Sturt Tree and Vegetation Policy has been developed in line with the strategies, actions and objectives of:

- Community Plan 2020~~16~~ – 2027
- Living Green to 2020 Refresh
- Open Space Strategy 2015 – 2025
- Biodiversity Action Plan 2017 – 2030
- AdaptWest Western Adelaide Climate Change Adaptation Plan 2016

It is the intention of this ~~p~~Policy to both formalise and clearly state Council's commitment to the greening of the City:

- To document the principles by which trees and other vegetation in streets, reserves and other areas of public open space will be developed and managed with a consistent and equitable approach, and within an appropriate risk management framework.
- To ensure that street trees, reserve trees and streetscapes are cared for, nurtured and protected within the City of Charles Sturt.

- To ensure the creation of connected, biodiverse and resilient landscapes.
- Contributing to the wellbeing of the community.

1.1 The role, value and importance of trees and other vegetation

The City of Charles Sturt values the role and function of trees and vegetation within the City, and recognises the environmental, aesthetic, economic and cultural benefits they contribute.

Trees and other forms of vegetation are important in:

- The creation of a sense of place, unifying architectural forms and creating a sense of unity while linking and softening streetscapes and determining the character of our City.
- Improving the local climate by reducing the air temperature, increasing humidity and collectively reducing the urban heat island effect, that is, where urban centres have higher temperatures due to the high number of heat absorbing surfaces with little shade.
- Releasing oxygen and removing carbon dioxide from the atmosphere through the natural process of photosynthesis and storing the carbon in their leaves, branches, stems, bark and roots. Approximately half the dry weight of a tree's biomass is carbon.
- Providing habitat and biodiversity opportunities.
- Improving soil characteristics, including soil volume, chemistry and texture, which then improves vegetation characteristics, including productivity and structure.
- Creating streetscapes that are conducive to and encourage active transport.
- Contributing to the wellbeing of the community.

2. Scope

This ~~p~~Policy provides a strategic framework for the planting, management, protection and preservation of trees and other vegetation and streetscapes within public open space (including streets) under the control and management of Council.

3. Policy Statement

3.1 Vision

The City of Charles Sturt declared a Climate Emergency in December 2019, seeking to drive urgent action to reduce carbon emissions and support climate change risk management and adaptation initiatives.

Trees and vegetation help to absorb and store carbon dioxide emissions (that are driving global heating) and provide natural shading and cooling in the landscape which is a key function when adapting to a warming climate. Trees and vegetation also help to absorb rainfall which forms another important feature in the landscape when with climate change, rainfall is declining. Green infrastructure can also help ease pressures on the stormwater system by absorbing more into the landscape.

The streetscapes and public open space within the City of Charles Sturt provide for the aesthetic, amenity, habitat and biodiversity needs of the city while maintaining a sustainable and sensitive approach in context with the natural and built environment. The vegetation in these spaces provide a range of ecosystem benefits and area a critical component of climate change adaptation.

3.2 Goal

To protect, conserve, nurture and value the existing trees and other vegetation within the public open space and streetscapes of the City of Charles Sturt and to enhance, improve and develop these sites in a sustainable and functional manner, ensuring the provision of attractive, well-maintained trees, streetscapes and public open space for present and future generations.

3.3 Objectives

3.3.1 Primary Objective

To ensure that effective and strategic management, maintenance, replacement and improvement programmes are developed and implemented for vegetation in all streetscapes and areas of public open space within the City of Charles Sturt.

These programmes include consideration of community safety and wellbeing, amenity, biodiversity, habitat, environmental sustainability, and climate change adaptation, addressing the future impacts of climate change and building our resilience to such changes.

3.3.2 Secondary Objectives

- To provide a framework for the Tree and Vegetation Management Plan for all vegetation in streetscapes and areas of public open space within the City of Charles Sturt.
- To protect, establish and maintain biodiversity and habitat plantings where appropriate.
- To maintain and protect sites of cultural significance.
- To incorporate, wherever practical, tree planting and water sensitive urban design into new streetscapes and plantings.
- To advocate to appropriate bodies and levels of Government to ensure adoption of policies, procedures and legislation to achieve the primary objective.
- To ensure the protection, preservation, and maintenance in a healthy condition of established large, historic, regulated and significant trees.
- To ensure the protection, preservation, and maintenance in a healthy condition of coastal native and locally indigenous vegetation across the City.
- To encourage and support community interest in the planting and healthy growth of trees and vegetation.
- To develop community awareness and encourage involvement and education programs which emphasise the benefits to the community of planting and maintaining trees and vegetation across the City.
- To give preference to the planting of natives (particularly species indigenous to the Council area) along Council's waterways, open spaces and coastal zone.
- To minimise conflicts between trees and vegetation, roads, footpaths, kerb, water table and other built forms and to ensure the health and protection of all trees and vegetation (privately and publicly owned) during public works and to optimise the life of adjacent infrastructure assets.

3.4 Management of Trees and Vegetation

All trees and vegetation owned by or under the control of Council will be managed, maintained and developed in accordance with the City of Charles Sturt's *Tree and Vegetation Management Plan* and the appropriate risk management framework to ensure that the risk and liability to Council associated with trees and vegetation is minimised.

3.4.1 Significant and Regulated Trees

Section 68 of the *Planning, Development and Infrastructure Act 2016* establishes the legislative requirements in relation to the management of significant trees and defines where approvals from the Council Assessment Panel (CAP) are required. All Significant and Regulated Trees within the City of Charles Sturt shall be managed within this legislation.

Details of all Significant and Regulated Trees assessed as requiring removal, with the exception of those trees removed as a matter of urgency due to public safety risks or risks to property will be included in the Quarterly Report to Council.

The urgent removal of any significant or regulated tree will be undertaken under Division 3, Part 136 of the *Planning, Development and Infrastructure Act 2016:*

> *Urgent work in relation to trees*
> *(1) If a tree-damaging activity must be undertaken in relation to a regulated tree as matter of urgency;*
> *(a) to protect any person or building*

Any tree removed under Division 3, Part 136 of the *Planning, Development and Infrastructure Act 2016* will be reported to Elected Members via e-mail, prior to its removal.

3.4.2 Trees on Private/Non Council Property

Responsibility for trees on private property will remain with the property owner. Significant and Regulated Trees, as defined by the criteria set out in the *Planning, Development and Infrastructure Act 2016*, will be subject to the requirements of this Act. The City of Charles Sturt encourages the retention, protection, planting and maintenance of trees on private property through education and advice.

3.4.3 Trees Spanning Council and Private Property

Any tree having a trunk of such a size that it spans both Council and private property and is on Council property by greater than 50%, shall be considered Council property and therefore managed in accordance with the Tree and Streetscape Management Plan in consultation with the adjacent resident/property owner.

Where a tree spans both Council-owned and privately-owned property:

- Council can negotiate with the land owner to share the costs of the pruning works required if undue hardship will be placed upon the property owner.
- Council will only consider sharing the cost to remove a private tree if the tree is structurally compromised and posing a risk to public safety.

When assessing eligibility for 'undue hardship' we will consider indicators including (but not limited to) whether:

(i) The resident is on a Centrelink income and holds a Pensioner Concession Card or holds a Centrelink Low Income Health Care Card
(ii) The resident is eligible for a South Australian Government concession
(iii) The resident has been referred by an accredited financial counsellor or welfare agency
(iv) The resident advises they have previously applied for emergency relief (irrespective of whether or not their application was successful)

3.4.4 Trees Encroaching from Private Property

Trees that are overhanging or encroaching on public property and are presenting a risk to public safety will be managed in accordance with the *Local Government Act 1999*.

3.4.5 Works Adjacent Trees and Vegetation on Council Property

Where public works (undertaken by contractors, service providers and/or Council Officers) are planned a full assessment of the potential impact of the proposed works on all vegetation shall be completed and alternative design and/or work methods will be employed, with a view to retaining healthy and structurally sound trees and vegetation.

Where a tree has been assessed as being worthy of retention, a site-specific Tree Protection Zones (TPZ), in accordance with the requirements of AS 4970 2009, shall be developed, implemented and maintained by the person responsible for the affected work site.

In the case of protecting other vegetation, reference should be made to Council's *Tree and Vegetation Management Plan* to establish measures appropriate to site-specific conditions.

In the case of Protection Zones relating to development applications, resources will be dedicated to ensuring that the direction and conditions within the Protection Zones are adhered to and maintained.

3.4.6 Avenues of Trees

Council has several tree lined avenues, these trees have a significant visual and physical presence in the streetscape and Council is committed to the strategic succession planning and resourcing required to retain, maintain and enhance our avenue trees into the future. Avenue trees will also be protected from construction works and other activities that threaten tree health and stability. A list of Avenues of Trees that meet these criteria within the City of Charles Sturt is included in **Appendix B** to this ~~p~~Policy.

3.5 Tree and Vegetation Removal

The removal or pruning of trees or vegetation on Council property is to be carried out only by Council staff or contractors engaged by Council.

All requests for the removal of any tree or vegetation under the care and control of Council must be made in writing, preferably using the City of Charles Sturt approved Tree and Vegetation Removal request form (refer **Appendix A**), clearly stating the reason for removal and should include any supporting documentation. The application will be formally assessed by appropriately qualified and experienced Council Officers who will take into consideration the health, condition, structural integrity, level of risk and management options against specific criteria. This clause does not apply to horticultural maintenance activities undertaken by Council staff or contractors; however, staff and contractors must abide by the requirements of this Policy and Council's *Tree and Vegetation Management Plan.*

Where a tree or other form of vegetation is of good health and condition, all alternative measures should be fully investigated, and any legislative requirements fulfilled. Council will not remove a tree or other form of vegetation unless the person making the request can demonstrate to Council a valid reason.

Where a request for a tree or other form of vegetation removal is health based, evidence must be provided by a suitably qualified and relevant medical practitioner. Documentation must confirm that any health complications are directly attributable to a particular species of tree or vegetation which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.

If a claim is made for damage to property, this must be substantiated by an engineer's report. Suitably qualified Council staff may assist the owner with further investigation and where there is undue hardship, Council may contribute to the cost of an Engineers Report, however it remains the responsibility of the property owner to demonstrate that the tree (or trees) is causing damage to the property.

When assessing eligibility for 'undue hardship' we will consider indicators including (but not limited to) whether:

(i) The resident is on a Centrelink income and holds a Pensioner Concession Card or holds a Centrelink Low Income Health Care Card
(ii) The resident is eligible for a South Australian Government concession
(iii) The resident has been referred by an accredited financial counsellor or welfare agency
(iv) The resident advises they have previously applied for emergency relief (irrespective of whether or not their application was successful)

A valid reason will **NOT** include:

- Householder preference for no street tree or for a different species;
- Complaints about appearance (unless these are related to very poor health or structure);
- Interruption of views:
- Interruption of view to advertising/signage (general maintenance pruning may be undertaken for clear visibility of any legislative and/or traffic management signage. Requests to prune trees for business signage will be considered on a case by case basis);
- Complaints about leaf litter, twigs or other debris;
- Complaints relating to tree roots protruding above the ground or competing with lawns;
- Bird or Animal noise and associated mess;
- Shading of solar panels; and
- Property damage where the damage is not substantiated by an engineer's report.

Where the removal of trees is approved outside of the criteria for tree removal as documented in this policy, community feedback and comment will be invited in accordance with section 3.7 of this Policy. Suitable replacement plantings will be considered wherever possible, adjacent or as close as possible to the site of the removed tree/s.

3.5.1 Removal of Unsafe Trees

Trees assessed as being a risk to either public safety or property, including those damaged in storms or emergency situations, and significant or regulated trees are to be removed from roads, streets and public reserves as soon as practicable following identification and replaced in accordance with Council's *Tree and Vegetation Management Plan.*

Any Significant or Regulated Trees removed as a matter of urgency, must be in accordance with section 3.4.1 of this Policy.

In emergency situations Council may clear vegetation that has fallen from private property onto Council property.

3.5.2 Delegated Authority

The exercise of Council's delegated authority to approve the removal of trees and other forms of vegetation on Council property is to be in accordance with the following:

- Trees are to be assessed in accordance with the assessment processes documented in the *Tree and Vegetation Management Plan*. All assessment processes should be based on sound and current arboriculture principles and employ risk control measures as a first option to tree removal.

- Trees that are declining in health, deformed and/or assessed as being structurally unsound or not contributing to the habitat value of an area, where all reasonable remedial treatments and measures have been determined as being ineffective in increasing the trees life expectancy. This includes trees that:
    - form a notable visual element to the landscape of the local area, or
    - provide links to other vegetation which forms a wildlife corridor of trees.

- Trees presenting a risk to public safety or Council property and all reasonable, remedial treatments and measures have been determined as being ineffective.
- Council approved projects where;
    - All remedial treatments and measures have been determined to be ineffective.
    - Where it is demonstrated that all reasonable, alternative development options and design solutions have been considered to prevent substantial tree-damaging activity occurring.
- Trees showing clear evidence of damage to private property. Where it can be demonstrated by the applicant, with supporting documentation from a suitably qualified professional that the tree is the cause of the damage and there are no appropriate remedial options.
- Where evidence-based documentation has been provided from a suitably qualified and relevant medical practitioner, confirming health complications directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.
- Declared pest plants under the *Natural Resources Management Act 2004*.

Elected Members are to be informed of the use of delegated authority through quarterly reports to Council, detailing the reason for removal.

Requests for tree removal that have been refused under delegated authority, for which the resident requests further consideration shall be the subject of a report to Council.

3.5.3 Tree Removals for The Purpose of Driveways, Electricity Supply, Services or Access to Property during Development.

Should the installation of a driveway, services or other property access be proposed and have the potential to negatively impact an established tree, consideration must first be given to design and construction methods with the intent of retaining the tree.

If, following the consideration of all options, the development cannot be accommodated while retaining the tree, removal may be considered subject to the owner/property developer compensating Council for the following:

- The value of the trees removed based on the McAlister method of assigning a monetary value to amenity trees (with the unit value to be reviewed and updated in accordance with CPI increases or decreases on an annual basis).
- The replacement costs of an appropriate specimen to be planted preferably adjacent to the affected property or as close to the property as possible.
- Any costs incurred in relation to removal process.

3.5.4 Dead Trees

Dead trees should be retained, and consideration given to the size, location, historical significance, habitat value and potential for use in nature play settings. Any dead tree over 6 metres should be assessed by an appropriately qualified Council Officer prior to removal being undertaken.

3.5.5 Unauthorised Removal of, Damage to, or Deliberate Poisoning of Trees or Vegetation

All unauthorised tree or vegetation removals, acts of vandalism, deliberate poisoning or any other intentional or unintentional tree or vegetation damaging activity will be thoroughly investigated and where appropriate, prosecution will ensue in accordance with the relevant legislation. Should clear evidence be obtained, an Amenity Tree Evaluation will be undertaken using the McAlister method, and costs will be forwarded to the person responsible for the activity. In the event of unauthorised removal of vegetation, the tree will be assessed, and remediation costs will be forwarded to the person responsible for the activity. Additional expiation costs may be

incurred should the matter be investigated under the *Planning, Development and Infrastructure Act 2016* and it be determined that Tree Damaging activity occurred without relevant approvals being granted.

3.6 Tree and Vegetation Planting

Tree planting shall be carried out in accordance with the *Tree and Vegetation Management Plan*.

3.6.1 Whole Street Planting

Council will allocate funding for the Whole Street Planting programme on an annual basis. Street and species selection, consultation and planting will occur in accordance with the Tree and Streetscape Management plan.

Where it has been identified in the Tree and Streetscape Management Plan that formal avenues of trees are to be maintained or created, the option of having no planting outside individual properties will not be provided.

Where a street has a streetscape designed to incorporate trees and other forms of vegetation, the option of having no planting outside individual properties will not be provided.

3.6.2 Reactive Street Tree Planting

Reactive street tree planting will be carried out on a request basis. Prior to tree planting, the resident/ ratepayer must agree to the planting and to watering the tree for a minimum of three years.

Requests for individually/reactively planted street trees will only be accepted from the resident/ratepayer of the requesting property address.

Street and species selection, consultation and planting will occur in accordance with the *Tree and Vegetation Management Plan*.

3.6.3 Reserve and Open Space Planting

Reserve and open space planting will be in accordance with reserve master plans (where they exist), the City of Charles Sturt *Parks and Arboriculture Maintenance Guidelines* and the *Tree and Vegetation Management Plan* and to enhance council's climate change adaptation capacity.

3.6.4 Unauthorised Planting on Council Property

Juvenile trees or other vegetation which have been planted by residents/ratepayers and are inappropriate for the location will be assessed for removal and replaced with appropriate species (where appropriate) during the next planting season at Council's cost. If the planting is assessed as inappropriate and requiring removal, the resident/s of the affected property will be consulted and where possible, the resident may be given the opportunity to transplant the tree or vegetation onto their own property.

3.6.5 Species Selection

Street, reserve and streetscape trees and vegetation will be selected in accordance with the *Tree and Vegetation Management Plan* and, where appropriate, individual reserve master plans.

3.6.6 Authority to plant trees and vegetation

Council has authority to plant trees and other forms of vegetation in streetscapes, reserves and other open space and will plant unless the person making a request for refusal of a tree or other form of vegetation planting can demonstrate to Council a valid reason, noting that during consultation, the option of having no planting outside individual properties will not be provided.

A valid reason will **NOT** include:

- Householder preference for no tree or vegetation or for a different species;
- Complaints about appearance (unless these are related to very poor health or structure);
- Interruption of views;;
- Interruption of view to advertising/signage* including street facing shop-window or hoarding / awning signage denoting the name of business premises, the only *exception being a new tree planting would obstruct commercial 'billboard' style signage that is a stand-alone element
- Complaints about leaf litter, twigs or other debris;
- Complaints relating to tree roots protruding above the ground or competing with lawns;
- Bird or Animal noise and associated mess;
- Shading of solar panels; and
- The potential for property damage as this can be managed through appropriate tree selection, and tree branch and root management.

Where a request for refusal of a tree or other form of vegetation planting is health based, evidence must be provided by a suitably qualified and relevant medical practitioner. Documentation must confirm that any health complications are directly attributable to a particular species of tree or vegetation which has been or is proposed to be planted in the immediate vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.

All requests for the for refusal of a tree or other form of vegetation planting on lands under the care and control of Council must be made in writing, clearly stating the reason and should include any supporting documentation. The application will be formally assessed by appropriately qualified and experienced Council Officers.

3.7 Consultation and Notification

Community feedback and comment will be invited, in accordance with the City of Charles Sturt Public Consultation Policy and the Public Consultation Implementation Procedure in the following circumstances:

- Where a request has been made to Committee /Council to consider removal of a tree which is deemed to be structurally sound and healthy and worthy of retention but where Committee / Council believe there may be a good reason for removal other than the health of the tree and where the tree is a Significant, Regulated or non-regulated large tree in a streetscape or reserve.

- Where a Significant, Regulated or non-regulated large tree is to be removed in keeping with the criteria in 3.5.2.

All other processes or activities requiring community consultation, such as Whole Street Planting, will be in accordance with the Public Consultation Policy, Public Consultation Implementation Procedure and the *Tree and Vegetation Management Plan.*

3.8 Planning and Development

3.8.1 Planting of Trees and Vegetation in New Developments

All streetscape plans and streetscape designs associated with new developments will be approved by the Manager Open Space, Recreation and Property.

3.8.2 Tree Pruning and Maintenance

All pruning works are carried out in accordance with Australian Standard AS 4373-2007 'Pruning of amenity trees'.

3.9 Support for Community Based Greening Groups and Projects

Council encourages and will provide support for community based greening groups involved in the planting of trees and vegetation on public land within the City of Charles Sturt. Assistance may occur through the supply of propagating materials, supervised use of Council's Nursery (subject to the Manager Field Services authorisation), transportation of plants and equipment, supply of hand tools, provision of staff technical advice and similar in-kind actions. Additionally, a community awareness and education programme which emphasises the benefits to the community of planting and maintaining trees and other vegetation shall be implemented and maintained.

4. Definitions

Nil

Appendix A

Tree Removal Request Form

This application form is for the removal of trees under the care and control of the City of Charles Sturt. The application will be assessed by Councils Technical Officer Arboriculture or Arboricultural Officer, in accordance with Council's Tree and Vegetation Policy.

Council will not remove a tree or other form of vegetation unless the person making the request can demonstrate to Council a valid reason. All requests are assessed against the Tree and Vegetation Policy. Where a request for a tree or other form of vegetation removal is health based, evidence must be provided by a suitably qualified relevant medical practitioner. If a claim is made for damage to property, this must be substantiated by an engineer's report.

A valid reason for removal will NOT include:

- Householder preference for no street tree or for a different species;
- Complaints about appearance (unless these are related to very poor health or structure);
- Interruption of views;
- Interruption of view to advertising/signage (general maintenance pruning shall be undertaken or clear visibility of any legislative and/or traffic management signage. Pruning trees or vegetation for business signage will be considered on a case by case request basis);
- Complaints about leaf litter, twigs or other debris;
- Complaints relating to tree roots protruding above the ground or competing with lawns;
- Bird or Animal noise and associated mess;
- Shading of solar panels; and
- Damage to property, unless the damage is substantiated by an engineer's report.

Applicant Details

Name of Applicant:

Address of Applicant:

Contact Details for Applicant
Mobile Phone:
Home Phone:
Business Phone:
E-mail:

Property Details – The land on which the tree(s) and/or vegetation is growing Property

Address:

What is the land currently used for?

Owner of the Property
Is the Applicant the owner of the Affected Property? Yes / No
Yes (if 'yes' no further owner details are required)
No (If 'no' provide owner details below)

Name of Property Owner:

Address of Property Owner:

Contact Details for Property Owner
Mobile Phone:
Home Phone:
Business Phone:
E-mail:

Signature of Owner:

Date_____/_____/_____

Tree Removal Request

Total number of trees: _____

The location of each tree must be shown on a plan (example provided overleaf). Please identify each tree by a common name or by their genus and species (if known).

Tree #1_____

Tree #2_____

Tree #3_____

Please attach a separate sheet if required.

Reasons for removal:

Please note, if your reason for removal is for health reasons, documentation must confirm health complications are directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate. If a claim is made for damage to property, this must be substantiated by and engineers report.

Tree #1_____

Tree #2_____

Tree #3_____

Appendix B

City of Charles Sturt
Avenues of Trees Register
Updated: July 2020

Register of known avenues or stands of established and mature street trees that make a significant contribution to the character and amenity of the area.

This list is subject to change as existing street trees mature.

Name of Street, Road or Avenue	**Suburb**	**Predominant Species**
East Terrace	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
North Street	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Military Road (Henley Beach Road to Kent Street)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Military Road (Henley Beach Road to Lexington Road)	Henley Beach South	Norfolk Island Pine *(Araucaria heterophylla)*
Seaview Road	Henley Beach South, Grange	Norfolk Island Pine *(Araucaria heterophylla)*
White Street (Atkin Street to Cluse Street)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Main Street (centre median)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
North Street (Seaview Road to Wright Street)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Marlborough Street, (Seaview Road to East Terrace)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Reedie Street (Military Road to Wright Street)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
North Street (Military Road to Wright Street)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Charles Sturt Avenue (Grange Road to Terminus Street)	Grange	Norfolk Island Pine *(Araucaria heterophylla)*

Jetty Street (Seaview Road to Kentdale Street)	Grange	Norfolk Island Pine *(Araucaria heterophylla)*
Beach Street (between Esplanade and Military Road)	Grange	Norfolk Island Pine *(Araucaria heterophylla)*
Esplanade (South Street to Henley Square)	Henley Beach	Norfolk Island Pine *(Araucaria heterophylla)*
Lexington Road	Henley Beach South	Chinese Elm *(Ulmus parvifolia)*
Rodgers Avenue	Henley Beach South	Chinese Elm *(Ulmus parvifolia)*
Victoria Street	Henley Beach	Holm Oak *(Quercus ilex)*
Halsey Road	Henley Beach South	Chinese Elm *(Ulmus parvifolia)*
Wilson Court	Grange	Norfolk Island Pine *(Araucaria heterophylla)*
Euston Terrace (Jane Street to South Road)	Croydon, West Croydon	London Plane *(Platanus acerifolia)* & English Elm *(Ulmus procera)*
Day Terrace (Croydon Avenue to Rosetta Street)	West Croydon	London Plane *(Platanus acerifolia)* & English Elm *(Ulmus procera)*
Chief Street (Port Road to Hawker Street)	Brompton	London Plane *(Platanus acerifolia)*
Lewanick Street (Knight Street to Brand Avenue)	Allenby Gardens	Hackberry *(Celtis australis)*
Coombe Road	Allenby Gardens	White cedar *(Melia azedarach)*
Park Street South	Woodville	White cedar *(Melia azedarach)*
Hughes Street South	Woodville	White cedar *(Melia azedarach)*
Rosetta Street	West Croydon	Golden Rain Trees (Koelreuteria paniculata), Chinese Flame Tree *(Koelreuteria bipinnata),* London Plane *(Platanus acerifolia)*
Park Drive (centre median)	Kidman Park	River Red Gum *(Eucalyptus camaldulensis)*
Valetta Road	Kidman Park	Jacaranda *(Jacaranda mimosifolia)*
Frogmore Road	Kidman Park	Lemon Scented Gum *(Corymbia Citriodora)*
Hallett Boulevard	Allenby Gardens	London Plane *(Platanus acerifolia)*
Hurtle Street (Ellen Street to Brown Street)	West Croydon	White cedar *(Melia azedarach)*
Kingsley Avenue (Brown Street to Rosetta Street)	West Croydon	White cedar *(Melia azedarach)*
Orsmond Street	Hindmarsh	Brachychiton populneus-Kurrajong

APPENDIX 2

City of Charles Sturt

TREE AND VEGETATION MANAGEMENT PLAN

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Introduction

The City of Charles Sturt *Trees and Vegetation Management Plan* is the reference document for the City of Charles Sturt *Trees and Vegetation Policy*.

This document is a guide to be used in conjunction with other legislation, standards and guidelines where appropriate.

The aim of this Management Plan is to:

- State Council's commitment to the greening of the City and to clearly document how we manage and maintain our trees and streetscapes;
- Provide a guide to residents, council staff and external stakeholders for planting and managing trees and vegetation;
- Encourage our community to nurture and care for the environment for the benefit of future generations;
- Document the criteria by which trees in streets and reserves will be managed with a consistent and equitable approach;
- To ensure that trees in streetscapes and reserve are cared for, nurtured and protected within the City of Charles Sturt; and
- To ensure that Street trees, Reserve trees and Streetscapes are fit for purpose and provide amenity while being managed within an appropriate risk management framework.

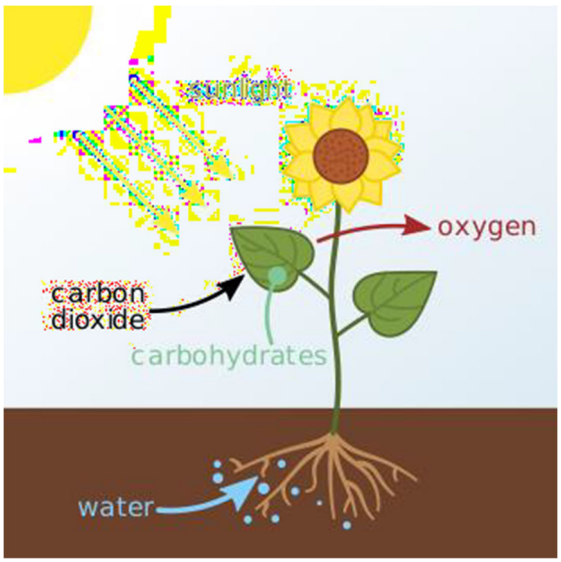
1. The Role, Value and Importance of Trees and Vegetation

The City of Charles Sturt values the role and function of trees and vegetation within the City, and recognises the environmental, aesthetic, economic and cultural benefits they contribute. Trees and other forms of vegetation are important in:

- The creation of a sense of place, unifying architectural forms and creating a sense of unity while linking and softening streetscapes and determining the character of our City.
- Improving the local climate by reducing the air temperature, increasing humidity and collectively reducing the urban heat island effect, that is, where urban centres have higher temperatures due to the high number of heat absorbing surfaces with little shade.
- Releasing oxygen and removing carbon dioxide from the atmosphere through the natural process of photosynthesis and storing the carbon in their leaves, branches, stems, bark and roots. Approximately half the dry weight of a tree's biomass is carbon.
- Providing habitat and biodiversity opportunities.
- Improving soil characteristics, including soil volume, chemistry and texture, which then improves vegetation characteristics, including productivity and structure.
- Creating streetscapes that are conducive to and encourage active transport.
- Contributing to the wellbeing of the community.

2. What is a tree and how does it grow?

In botany, a tree is a perennial plant with an elongated stem, or trunk, supporting branches and leaves in most species.

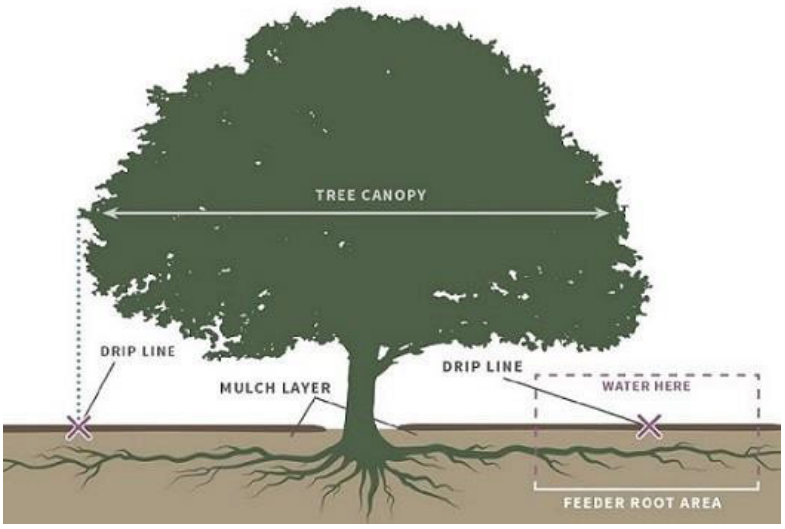


The leaves of a tree manufacture food for the whole plant. The green colour of the leaves is a pigment known as *chlorophyll* and it is here that *photosynthesis* occurs. The leaves absorb carbon dioxide through this process, which produces carbohydrates, providing the energy needed for growth and oxygen this process is known as *respiration*.

Oxygen in the soil is found in the spaces between soil particles (Pores) the non-woody or fine fleshy roots absorb water and the dissolved minerals that are also needed for healthy growth.

The trunk, branches and roots are made of wood, which is a complex structure of cells that are living, dying or dead, comprising walls of predominantly *cellulose* and *lignin* (*Lignin* provides strength and comprises 25-30% of the wood). Most of the trunk of a tree is dead wood and its main function is to provide strength and structural stability, although, it is not unusual to see a large, stable tree that is hollow in parts. This wood is surrounded by a very narrow band of living wood (*Cambium*) which is protected by the bark of the tree.

Tree roots are responsible for providing anchorage and support for the tree and the provision of water and minerals. The roots of a tree spread laterally to (at least) the extent of the branches of the tree or further, however, the bulk of the roots are within the 'drip line' and within the top 300 – 400mm of soil. The extent of the spread of the root system will also depend on the tree species and the environment in which it is growing.



Source: City of Santa Barbara, 2019

There is so much important, unseen activity that occurs within the root zone of the tree and, unfortunately, construction, development and maintenance works can result in changes at and below the ground level that result in both long and short term, adverse effects on the tree.

3. The Urban Forest

An urban forest is a forest or a collection of trees that grow within a city, town or a suburb. It is important to manage and understand this collection of trees as one entity to ensure that appropriate succession planning is in place, consistent long-term canopy is achieved, and the appropriate level of amenity is maintained.

There are a variety of tree species planted throughout the City of Charles Sturt, which consist of old existing plantings and new reserve and streetscape plantings undertaken as part of Councils Tree Planting Programs. Council reserves are largely planted with native tree species interspersed with exotic trees; they may also incorporate older mature trees.

Semi mature trees in Glenwood Reserve, Kidman Park

While there have been changes in the population, the mortality/removal rate compared to the replacement rate has been consistent. Additionally, while we are managing a large population of juvenile trees, we will in turn be managing a large population of trees moving into maturity and ultimately decline. This data will be progressively updated over the next three years as the scoping for other tree works is carried out.

The City of Charles Sturt also has a number of established 'avenues' of street trees, as referenced in section 3.4.6 and Appendix B of the *Tree and Vegetation Policy*.

Lewanick Street, Allenby Gardens

Lexington Road, Henley Beach South

As these trees move from maturity to senescence ('old age'), their amenity value decreases, and the maintenance costs increase. An effective succession plan for planting of new trees will manage those trees within our urban forest, which are moving into senescence and ensure they are replaced before they reach the point where they present an unacceptable risk and become a maintenance and cost liability.

Trees planted at Pine Lodge Reserve, Grange

At the stage where a trees amenity value is lowest, the maintenance costs are at their highest point. During the first three to four years in the ground, the tree must be purchased, planted, watered and fertilised, staking and re-staking will be required, spraying around the base of the tree to remove competition with grass, maintenance of the bowl or water table around the base of the tree.

These maintenance tasks are labour intensive and vital to the development of a healthy, structurally sound mature tree.

4. Managing Risk

To manage risks associated with trees, assessments are carried out on the following basis:

- General visual tree inspections are carried out by Council's arboriculture staff when programmed maintenance is carried out on **street trees**;
- General observations are carried out by Council's field staff during routine **reserve maintenance activities**, and any concerns are reported to Council's Technical Officer Arboriculture for formal inspection;
- Tree health assessments are undertaken when tree screens are programmed for replacement, or when concerns or complaints are received from the community;
- Annual and or biennial Inspections are carried out on individual trees which have been assessed as presenting a greater risk due to a variety of circumstances such as mature trees adjacent private property or the management of trees which have historically been lopped; and
- In response to written tree removal requests.

Council staff responsible for tree assessments must hold recognised and relevant qualifications and have appropriate experience in Arboriculture. All tree assessments and tree removals carried out by council staff (under delegation) are reported to Council's Asset Management Committee on a quarterly basis.

Ensuring the right tree is planted in the right location is equally important as the use of state-of-the-art engineering methods and practices to achieve harmony and minimise damage in the streetscape.

Additionally, formal risk assessments are undertaken prior to commencing capital works projects under Council's *Risk Management Policy and Framework*.

5. Tree Canopy Cover across the City of Charles Sturt

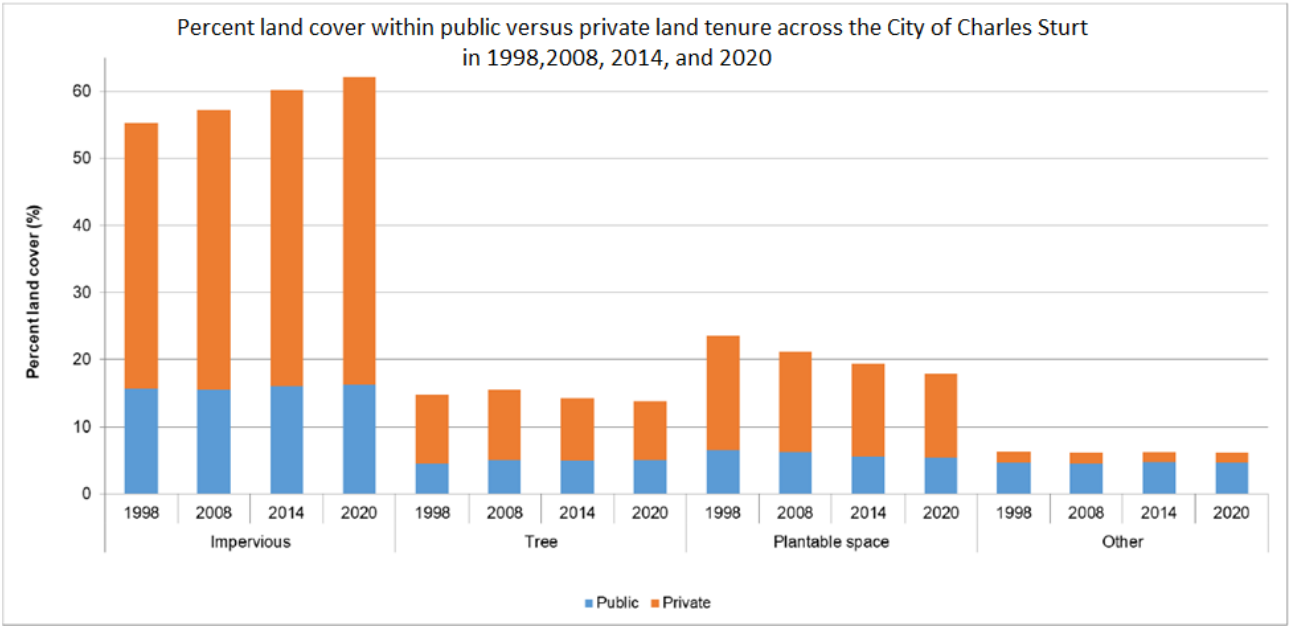
Tree canopy across public and private lands was measured using the *i-Tree Canopy* survey method in a 2016 study across three-time periods, being 1998, 2008 and 2014. This was further updated in 2020. These studies identify that overall tree cover is declining despite Council's best efforts to increase cover through dedicated planting programs on public land. The primary driver of this decline is the removal of trees on private land, generally for in-fill development.

Such declines in tree/canopy cover present a major challenge for Council meeting future goals around recreation and open space and climate change adaptation, especially given projected rates and extents of on-going urban in-fill. Mitigating future tree loss and moving towards overall canopy cover gain across the City will require complimentary greening actions on public and private land.

Given that green infrastructure is the most viable form of climate change adaptation, these tree planting programs will need to be increased, prioritised and managed to ensure that tree losses due to the recent drought and other gaps in canopy cover/tree planting are addressed strategically. A separate body of work, Tree Canopy Improvement Strategy will focus on such actions.

The *i-Tree Canopy* survey method uses random sampling and is useful to measure cover at a macro-scale to identify suburb levels of cover. Emerging technology, such as the use of LiDAR and machine learning are being used to provide data about individual trees and cover at a street and property scale. The combination of this data is used to inform ongoing management approaches.

The 30-year plan for Greater Adelaide identifies a target that urban green cover is increased by 20% in metropolitan Adelaide by 2045.



6. Tree and Streetscape Maintenance

All trees and vegetation owned or under the care and control of Council will be managed, maintained and developed in accordance with this *Management Plan,* the *Tree and Vegetation Policy* and Council's *Risk Management framework* to ensure that the risk and liability to Council associated with trees is minimised.

Maintenance pruning of council's large regulated significant trees

Maintenance works are undertaken to:

- reduce any risk associated with the tree or vegetation;
- extend the life and amenity by removing any dead, dying or diseased parts of the tree or vegetation;
- maintain or enhance biodiversity and habitat;
- increase the structure and form of the tree;
- reduce shade or wind resistance where there is an identified need or risk; and
- improve sight lines for vehicles and pedestrians.

6.1 Pest and Disease Management

The incidence of pests and diseases relating to trees and vegetation within the City of Charles Sturt are low; however, where there are large infestations of pests and diseases, Council will take relevant treatment and remediation actions as directed by the Technical Officer – Arboriculture.

The management of some pests and diseases related to trees and vegetation (such as fruit fly) is the responsibility of the State Government. Where an outbreak has been detected that impacts Council-owned land, Council will take relevant education, notification, treatment and remediation actions as directed by the State Government. For fruit trees on Council-owned verges, Council will write to residents prior to removing the fruit, providing an opportunity for residents to pick the fruit.

6.2 Formative Pruning and Small Tree Maintenance

Formative pruning is the process of pruning a tree to help a tree grow into a balanced shape with a strong single trunk and a canopy of healthy branches. While the cost of a full formative pruning program is substantial, this expense is an important risk control and a necessary investment in the long-term development of a healthy and well-structured tree canopy. Trees that have been planted on a reactive basis and most trees planted on reserves do not receive this intensive formative treatment.

The following maintenance regime should be applied for all trees:

- Formative pruning should be restricted to directing plant growth and/or developing a sound structure. Generally, trees received from suppliers are in good structural condition and new street trees should not require significant formative pruning until the third year.

- Herbicide treatment should be completed a minimum of twice yearly and reactively as required. Reserve trees are sprayed between 4-6 times a year.

- Maintenance (reshaping, mulching & herbicide spraying) of the water table (upper zone of saturation) on street trees should be undertaken during both the second and third year, ideally prior to the commencement of the watering season. Herbicide spraying is more crucial during warmer months to remove competition for water sources from the tree.

Reserve trees under drip irrigation tend to grow more rapidly in the initial few years; however, watering programs are to be adjusted to match the street tree watering regime, weekly (year one), fortnightly (year two) and monthly (year three). This regime will reduce the overall initial growth of reserve trees in the first few years, however, the longer-term benefit of growing trees to be more resilient and drought tolerant is imperative given our changing climate.

6.3 Maintenance of Mature Trees

There are several pruning methods that apply to mature trees, depending on the species, location and immediate environment. Any form of pruning results in the tree being wounded and there is potential for decay, which may ultimately result in a reduction in the long-term structural integrity of the tree. All tree pruning is to be carried out in accordance with AS 4373-2007 - *Pruning of Amenity Trees*.

6.4 Reactive and Programmed Tree Maintenance

To maintain Council's commitment to our programmed works, it is important that Council's reactive tree maintenance works are focussed on works that involve a risk to either public safety or property or are associated with other works such as emergency road works. All other requests are managed

through programmed maintenance programs. There is currently no program for small tree maintenance on trees planted in reserves and works are carried out on a reactive basis.

Council's programmed tree maintenance activities are summarised as follows:

- Cyclic pruning program 3 year (all trees to be inspected during this program);
- Prune in accordance with Australian Standard 4373-2007 *Pruning of Amenity Trees*;
- Prune for clearances, dead wood and management of structural flaws whilst maintaining the aesthetic shape of the tree, in consideration of the tree species and age;
- Prune growth around the base of the tree, including any suckering growth;
- Prune damaged branches and remove fallen branches; and
- Undertake formative pruning.

6.5 Managing Trees around Powerlines

The requirements for the clearance of trees and vegetation around powerlines in South Australia are set out in the *Electricity (Principles of Vegetation Clearance) Regulations 1996*.

There are several options available in resolving any conflict or potential conflict between the power supply and nearby vegetation as follows:

- Where funding permits, consider underground power infrastructure during road reconstruction or new developments;
- Aerial bundling of cables is a cost-effective option where there are existing large or mature trees with high amenity value that conflict with the power supply. In this instance, there is still a required clearance distance from trees, however this clearance is minimal and if maintained regularly, does not impact the tree to the extent of standard vegetation clearance practice;
- Directional pruning or tunnel pruning to allow the power supply cables to run through the tree; and
- Planting tree species that will not reach the height of the powerlines at maturity.

The City of Charles Sturt will continue to work with SA Power Networks (SAPN) and their contractors, to ensure best practice in the standard and quality of tree pruning around power infrastructure, including reference to relevant Council and SAPN guidelines.

7. Management of Tree Roots

Healthy roots are critical to the development of healthy trees as they provide stability and require adequate space to seek water, oxygen and nutrients. Roots are generally found in the top 300mm - 400mm of soil (depending on the species) and will follow the path of least resistance to access water and nutrients.

This presents challenges when establishing and maintaining healthy roots in the urban environment, including damage to buildings and infrastructure (such as footpaths and underground services) caused by trees, and conversely, damage to trees caused by buildings and infrastructure, such as overshadowing from a new building, where previously the tree has been in full sun.

It is important to note that these impacts can be serious and should be investigated by a suitably qualified professional, such as a structural engineer and/or arborist.

A failed tree due to poorly established root zone

Tips for establishing and maintaining healthy roots include:

- Plant tree species which are best suited to a specific location, considering its size when fully grown;
- Consider installation of tree root barriers in appropriate circumstances;
- Establish, monitor and enforce Tree Protection Zone(s) as part of construction works;
- Consider root sensitive construction methods, such as continuous soil trenches, directional drilling/boring and use of structural soils; and
- Design building footings that are suitable to the immediate environment, soil type and vegetation.

7.1 Tree Root Pruning and Root Barrier Installation on Council property

Tree root pruning and tree root barrier installation can be useful management options where circumstances permit. These options need to be site-specific and professional advice is recommended before commencing works.

The following steps should be considered prior to commencing works:

1. All tree root assessments are to be carried out by an Arboriculture Officer holding a minimum AQF Level 4 qualification in line with AS 4373-2007).

2. A thorough assessment of the site should be made, assessing any damage to property and any public or property risks.

3. The Arboriculture Officer shall identify that tree root activity is the main contributing factor to the cause of damage. If so, the Arboriculture Officer is to assess the tree and its overall health and condition, and the suitability of the tree for either/or, tree root pruning and tree root barrier installation. The critical root zone should also be determined.

4. The area associated with the root damage should be excavated using non-destructive techniques, such as hand digging or air excavation, to ensure that the risk of any damage to the tree is minimised.

5. Where required, a suitably qualified and experienced structural engineer should be engaged to report on structural damage to property.

6. Tree root mapping may be used as a non-destructive technique to identify extent of tree root activity.

7. Root pruning should only be undertaken where there will not be a negative effect on the health or integrity of the tree.

8. Only minor root activity or non-structural roots should be pruned.

9. All cuts shall be clean cuts made with sharp tools such as secateurs, pruners, handsaws, chainsaws or specialised root pruning equipment ensuring that all cuts are made at the appropriate point.

10. If tree root pruning is not a viable option, alternative remedial measures and treatments should be considered.

11. Council staff and contractors must adhere to the *Field Services Maintenance Guidelines* for all Tree Root Pruning activity.

12. Root barriers should be monitored and evaluated over time to assess their effectiveness.

The images below provide an example of a root barrier installed adjacent to a concrete footpath, to minimise the potential future impact caused by tree roots to the path.

8. Street Tree Planting

Street Tree Planting in Manton Street, Hindmarsh

The planting of trees in streets requires a coordinated approach, including engagement with various council departments, residents and businesses and should consider the following principles:

- Improving the well-being of people and activities in the street through improved amenity, shade and biodiversity;
- Streetscape designs and tree selections should consider and commit to the health of trees for the long-term;
- Plant the most appropriate tree species for its intended location;
- Consider existing street trees, including the aesthetic value of the streetscape and the impact the new tree/s will have on existing trees (e.g. competing for water, nutrients and light);
- Minimised conflict between infrastructure and trees;
- Consider actions to increase the above ground 'growing space' for trees, such as bundling of cables, suspended pavements, undergrounding services, etc;
- Increase the underground growing space for trees, such as incorporating. structural soils, creating wider verges, planting in the road reserve, using traffic calming devices, using continuous soil trenches, etc; and
- Appropriate streetscape and infrastructure design and selection of tree species.

Principles relating to Crime Prevention Through Environmental Design (CPTED) should be considered in all tree, streetscape and reserve planting designs, including:

- Design public spaces to facilitate and encourage legitimate community and individual activities;
- Design with unimpeded sightlines to key places in mind and then manage to maintain those sightlines (for example, maintaining view corridors over low bushes or walls and under the canopy of trees or shade structures); and
- Design to avoid 'blind spots' where there is a reduced opportunity to see and be seen;
- Consider the lifecycle of trees and vegetation during its, including the height and width, circumference of trunks at maturity and the density of foliage.

8.1 Selecting Appropriate Tree Species for Streetscapes

Each year, the species used in Council's tree planting projects are selected to maintain a diversity of species across the City. Whilst this is a challenging task due to the changing climate and the importance of planting tree species in appropriate locations, Council continues to work with the industry to remain updated on new species and information in order to provide the best outcomes for the community.

The selection of tree species for the street environment requires the careful consideration of several factors, including:

- Available and suitability of the species for the location;
- Suitability of the species within the context of the existing character of the street and neighbourhood, local landscape, and infrastructure;
- Structural integrity of the tree species;
- Appropriateness of the dominant existing species for continued planting;
- Water needs of the tree species, combined with water availability;
- Overhead and underground services;
- Ability to maintain clear sight lines and lines of travel for vehicles and pedestrians;
- Potential for roots to cause damage to existing infrastructure;
- Proximity of the tree to and type of building/dwellings (considering the size of the tree when mature);
- Structure and habit of the mature tree;
- Maintenance requirements;
- Excessive fruit or seed drop, which can be a tripping hazard;
- Expected life of the tree;
- Disease and pollution resistance; and
- Availability of the species.

8.2 List of Preferred Trees for Street Tree Planting in the City of Charles Sturt

Native Species

Narrow Verge **0 – 0.9 m wide**	**Medium Verge** **0.9 – 1.5 wide**	**Large Verge** **1.5 - 3m wide**
• *Hakea laurina**	• *Banksia integrifolia** • *Callistemon* 'Harkness'* • *Cupaniopsis anacardioides** • *Eucalyptus* 'Euky Dwarf'* • *Eucalyptus* 'Goolwa Gem' • *Eucalyptus leucoxylon Rosea** • *Geijera parviflora* • *Eucalyptus torquata*	• *Corymbia ficifolia* • *Eucalyptus leucoxylon* ssp *megalocarpa** • *Lophostemon confertus* • (infill planting only) • *Angophora costata* • *Corymbia maculat* • *Flindersia australis*

**Suitable for coastal conditions*

Exotic species

Narrow Verge 0 – 0.9 m wide	Medium Verge 0.9 – 1.5 wide	Large Verge 1.5 - 3m wide
• *Pyrus calleryana* 'Chanticleer' • *Pyrus calleryana* 'Capital' • *Lagerstroemia indica* • *Prunus blireana* • *Prunus cerasifera* • 'Oakville Crimson Spire'		

Exotic species

Narrow Verge 0 – 0.9 m wide	Medium Verge 0.9 – 1.5 wide	Large Verge 1.5 - 3m wide
	• *Pyrus ussuriensis* • *Sapium sebiferum* • *Zelkova serrata* • 'Green Vase'	• *Quercus ilex** • *Quercus suber* • *Ulmus parvifolia*

*Suitable for coastal conditions

8.3 Problem Species for Street Tree Planting

Problem species for street tree planting have been identified because of their performance in the street environment in the City of Charles Sturt. They should not be confused with trees that, in the appropriate locations, are excellent streetscape specimens but may have been planted in an inappropriate location, such as a narrow nature strip or under high voltage powerlines, etc.

The criteria for identifying problem species include:

- Shallow or surface root systems (e.g. *Melaleuca armillaris, Melaleuca styphelioides*);
- Invasive and/or suckering root systems (e.g. *Ficus* species *or Casuarina glauca*);
- Prickly and sharp leaves (e.g. *Melaleuca styphelioides*); and
- Trees with a short lifespan due to the replacement requirement and cost (e.g. most *Acacia* species).

Tree and other vegetation species which are currently not planted by the City of Charles Sturt are as follows:

Species	Reason
Robinia 'MopTop'	Extensive suckering with thorns.
Casuarina glauca	Extensive suckering.
Horticultural fruit trees	Extensive fruit drop & high maintenance requirement.

Syzigium	
Lagunaria	Irritation from fine hairs.

Melaleuca species (armilllaris & styphelioides) *Eucalyptus spathulata*	Significant structural flaws as a mature specimen.
Washingtonia species	Safety risks associated with thorns.
Various species, including: • *Cupressus* • *Ficus* • *Oleanders* • *Olives* • Some *Melaleuca* species	Aggressive root activity resulting in infrastructure damage.
Pinus species	Limited under storey vegetation opportunities.
Phoenix canariensis	Only used as infill planting in select locations where existing stands (along main arterial roads), not suitable for verges.

8.4 Inappropriate Tree Planting locations

Concrete path damage from a Ficus root system

- Trees or other forms of streetscaping that obscure safe line of site for vehicles or pedestrians (consider CPTED principles);
- Trees or other forms of streetscaping that impacts the function of a path or a proposed future path;
- Trees or other forms of streetscaping that impede safe access and/or egress from properties or vehicles;
- Where a tree will be overshadowed by an existing tree or trees to such an extent that the healthy growth of the new tree will be impeded;
- In close proximity to buildings; and
- Where a new tree will impact and be impacted by existing underground services and infrastructure, such as water mains, sewers, stormwater and signage.

New plantings on reserves undertaken by Council staff or contractors must be in accordance with the City of Charles Sturt *Field Services Maintenance Guidelines.*

8.5 Street Trees - Exotic and Native or Indigenous Species

The City of Charles Sturt recognises the benefits of exotic deciduous trees, evergreen and native evergreen trees, and also recognises the need to select the most appropriate species according to the site and environmental conditions.

Limiting the use of some deciduous trees near waterways and natural areas may be necessary to ensure that leaf and seed litter do not cause harm to people or the environment.

Whilst all trees drop leaves, deciduous trees drop generally leaves at a specific time of year, whilst native trees generally drop leaves throughout the year. However, there are benefits associated with deciduous trees, such as:

- aesthetic benefits, particularly in the cooler months;
- an alternative to evergreen species;
- sunlight and heat penetration during the winter months allows for warmth reaching buildings, vehicles and pedestrians; and
- in areas of historic character, exotic deciduous trees provide context in the streetscape.

Native and Indigenous trees can provide great benefit in the public realm, particularly when biodiversity and habitat are considered in the planning and designing our streetscapes. However, they are not always suited to urban areas, and are often not suited to the different micro-climates of the urban environment, particularly due to the leaf and seed litter they generate.

Deciduous exotic species can allow for the planting of trees in difficult locations, such as narrow verges, narrow streets and under power lines.

8.6 Reactive Planting

The annual reactive planting program is based on requests from individual members of the community and accounts for around 500 trees per year.

Trees planted on a reactive basis are planted on the proviso that the requester will provide adequate water to enable establishment of the tree for the first three years. The requester is advised of this when requesting the tree, and if they cannot accommodate the watering of the tree, a tree will not be planted.

To encourage residents who have trees planted on a reactive basis, a bucket is provided along with a small bottle of fertiliser, garden gloves, a letter encouraging them to use the bucket to water the tree and an information sheet relating to the species of tree planted.

8.7 Whole Street Planting

The Whole Street Planting program provides an opportunity for larger scale projects and are often integrated with other programs, such as road and footpath reconstruction projects.

Each year, ~~approximately 25~~ streets are selected and ~~approximately 700~~ semi-advanced trees are planted. Community consultation is undertaken to ensure the availability of high-quality tree stocks, and ensure the program is implemented as efficiently as possible. Planting is undertaken ~~between May and June, taking advantage of the winter rains and cooler temperatures.~~in a climatically appropriate time of year (nominally March to September).

The selection of streets for the Whole Street Planting Program has been based on factors such as:

- Alignment with strategic documents (ie. Tree Canopy Improvement Strategy, Open Space Strategy, iTree Canopy Assessment, Urban Heat Island and Climate Change Plans);
- The number of tree planting requests received from residents in the street;
- The absence of trees in the street;
- The capacity for trees to be planted in the street (i.e. the verge is wide enough);
- The overall condition of the existing trees in the street;
- Whether the existing species are appropriate for the locality; and
- An integrated approach with Engineering Projects (i.e. road reconstruction and footpath programs).

A whole of street approach provides several benefits to residents, Council and the broader community, including:

- an opportunity to rejuvenate the streetscape and manage existing trees appropriately;
- existing specimen trees which are in good health and condition are retained as part of this program, and replaced over time as required with the chosen tree species;
- consistent planting which in time creates an “avenue effect” of trees of a similar size, shape and appearance;

- reducing the need to revisit streets for future reactive planting; and
- improved maintenance regimes, as formative pruning and watering of newly planted trees can be undertaken for plantings of the same age, within the same location.

Trees assessed and approved for removal under the Whole Street Planting program, have met at least one of the following criteria:

- The tree is dead or dying or has a limited life expectancy;
- The tree constitutes a risk which cannot be alleviated by canopy or root pruning;
- The tree is threatening to cause damage to a building or infrastructure;
- The tree presents a traffic visibility problem which cannot be alleviated by pruning; and
- The tree is planted in an unsuitable position or is an inappropriate species for its locality.

Public consultation is undertaken in accordance with Council's Public Consultation Policy and involves notifying all affected residents in writing, including a link to an online map showing vacant spaces where trees are to be planted, trees identified for removal and replacement, trees to be retained and trees that will not be replaced.

~~Feedback on the species to be planted is also sought from affected residents, via a written or online survey and a notice is placed in the local newspaper. If the consultation results in an equal number of responses for each option, then council officers will recommend the species to be planted for Council approval.~~

Where recent street tree plantings have been undertaken and a suitable species was previously selected, or an appropriate species is predominant in the street, a replacement option will not be provided, but rather, planting of the predominant species will be continued.

Final selection will be based on the species selected ~~by the majority residents and~~ being appropriate for the location. T~~t~~rees planted under the Whole Street Planting program will be watered for a minimum of three years.

The outcomes of the consultation process are then collated and presented to Council for approval.

8.8 Main Arterial Roads

Tree planting along main arterial roads must be well planned to avoid future maintenance issues, damage or interference with infrastructure or services, or interruptions to traffic flow.

As well as council's standard criteria for street tree planting, tree planting along main arterial roads must also consider:

- Compliance with relevant legislation, standards and guidelines relating to public infrastructure, including:
  - City of Charles Sturt - *Public Infrastructure guidelines, 2019*
  - DPTI Operational Instruction 19.8 - *Trees in Medians and Roadsides in the Urban Environment*
  - *Infrastructure Guidelines SA, 2016*
- Trees and vegetation that have a high tolerance of vehicle emissions and have low ongoing maintenance requirements;
- Larger scale trees and other vegetation than those planted in residential streets (which may present difficulties due to the infrastructure and/or services along main arterial roads);
- Impacts on vehicles moving along the road corridor, such as the canopy of mature trees

impeding the flow of larger vehicles (buses and trucks);

- The species of trees and other vegetation may need to vary along the length of the road, depending on site conditions;
- Height clearances for high sided vehicles;
- Potential for centre median planting; and
- Impacts of trees and other vegetation in commercial and shopping precincts, considering signage, shop front veranda's, car parking, delivery vehicle access, pedestrians and cyclists, etc.

8.9 Historic Character Areas

Formalised avenue plantings of large, exotic, deciduous trees are typical within the historic character suburbs of Croydon, West Croydon and West Hindmarsh, however, suburbs such as Bowden, Brompton and Ovingham cannot always accommodate these planting opportunities due to narrow streets and in some case, non-existent verges. This creates opportunities for creative design and alternative forms of streetscaping, including planting in the roadway such as in Ninth Street and Gibson Street, Bowden.

Tree and vegetation planting in historic character areas should retain the existing predominate species where it satisfies the selection criteria. However, where a street requires most of the trees to be replaced due to the poor health or condition of the original plantings, tree selection will be from traditional deciduous species to retain the historic character of the area, considering the requirements of the local area and the selected tree and vegetation species to be planted.

8.10 Planting in Foreshore Areas

Where practical, semi-advanced size trees should be planted along foreshore roads and streets and the species selected shall be consistent with the landscape character of the area. Trees and other vegetation such as Norfolk Island Pine trees and Date Palms are to be restricted to infill planting on those roads and streets with existing plantings of this species.

Selection of trees and other vegetation species must be consistent with the selection criteria and be appropriate to the environment they are to be planted in. Wherever possible and appropriate, indigenous coastal species are to be planted in streetscapes in foreshore areas.

Annually, revegetation works are undertaken within the coastal reserve, which provides both improved opportunities for biodiversity enhancement, amenity and dune stabilisation. The health of this reserve is paramount to the sustainability of our coastal areas and all vegetation should be maintained.

8.11 Biodiversity and Habitat

The term 'biodiversity' refers to the variety of all living things, including the diversity of plants, animals, communities and ecosystems. The City of Charles Sturt aims to conserve and restore what remains of the native/indigenous species and habitats that once covered the land we now occupy, as our contribution to conserving the variety of life around the world.

With so little of our biodiversity remaining, the preservation of the habitats that remain intact is of paramount importance as we can never fully re-create the systems that we have lost.

Example of a new habitat corridor along the River Torrens Linear Park at West Beach

Streetscape and reserve trees, where thoughtful planning and design processes are in place can provide **habitat corridors** for birds and other wildlife with links to larger reserves, the River Torrens Linear Park and the Coast.

Old, large and significant trees provide nesting sites and hollows, and reserve trees are vital in maintaining and increasing the Cities contribution to biodiversity, there are many existing large and significant trees on reserves and the opportunity for continued planting of indigenous trees and understory vegetation will assist in maintaining and increasing the biodiversity and habitat opportunities within the City.

Human activities within urban environment, such as road or building construction, can disturb local wildlife and even cause them to move or migrate from the area. Habitat corridors are generally located along linear trails or water courses (such as the Coastal Reserve, River Torrens or Grange Lakes), and enable the movement of flora, and wildlife to new habitats and can also include corridors and buffer zones for bees and other pollinators.

Remnant native vegetation comprises native plants that are indigenous to the City of Charles Sturt, including trees, shrubs, herbs and grasses. Remnant native vegetation includes areas of highest biodiversity value, and usually dates to pre-European settlement.

The loss native trees and other vegetation that is 100+ years old is a significant loss, no matter how many young saplings are planted to replace it. A single large native tree may provide shelter and nesting sites for several bird species and host a range of small reptiles, insects and other organisms that contribute to biodiversity in ways we do not yet fully understand.

Dead trees and limbs with the potential to cause hollows should not be removed as a matter of course and consideration should be given to its size, location, historical significance, habitat value and impact on public safety. Any dead tree over 6 metres should be assessed by a suitably qualified Council Officer prior to removal being undertaken.

For further information on the City of Charles Sturt's commitment to biodiversity, refer to Council's *Biodiversity Action Plan 2017 – 2030.*

8.12 Planting in New Subdivisions and Developments

Advanced size trees (minimum height of 2.0 metres and trunk circumference of 50 mm) should be planted in streets and streetscapes in new subdivisions and developments. The design of such developments should take into consideration the longevity of the tree species selected and allow enough space for root development and tree growth.

New subdivisions incorporating the construction of roads and other significant infrastructure should include street tree planting and streetscaping which will be maintained and irrigated in accordance with the Development Agreement for the subdivision. Selection of tree species must:

- Satisfy the selection criteria for new street tree plantings; and
- Be approved by Council's Technical Officer Arboriculture, in consultation with relevant design and maintenance staff.

8.13 Tree Screens

An established tree screen on Sportsman Drive, West Lakes

Tree screens are areas of trees and other vegetation that act as a buffer between different parcels of land, such as roads and residential properties, providing privacy, noise reduction, wildlife habitat and aesthetic benefits.

The City of Charles Sturt has 30 kilometres of tree screens and, subject to annual Council approval, has committed to an ongoing program to establish new and maintain existing tree screens.

The following points should be considered when establishing and maintaining tree screens:

Planting and Maintenance

- Undertake planting in a single operation to reduce future reactive plantings improve the efficiency of ongoing maintenance.
- Vegetation that grows no more than 1 metre in height at maturity are used in the first 1.5m of the tree screen (footpath side of screen) and planted the appropriate distance (species dependant) from the path to eliminate the need for any future maintenance pruning off footpaths.
- Connect new tree screens to drip irrigation systems.
- Undertake ongoing inspections and maintenance activities at regular intervals.

Appearance

- Choose trees and vegetation of a similar size, shape and appearance to achieve a consistent, uniform tree screen.

Safety

- Consider Crime Prevention Through Environmental Design (CPTED) principles when selecting and planting trees and vegetation, including height, width, density, and appearance during the day and night.

- Vegetation that grows no more than 1 metre in height at maturity are used in the first 1.5m of the tree screen, to provide safe sight lines for pedestrians and cyclists.

Function

- Trees are used in the centre area of the screen to provide upper canopy, shade and to avoid possible damage to private and public infrastructure.
- The width of the screen will determine suitable trees in order avoid infrastructure damage when the tree reaches maturity.
- Medium sized shrubs use at the rear of the screen to provide an effective buffer.

8.14 Roundabouts

Roundabouts are common traffic devices used throughout the City of Charles Sturt, presenting planting opportunities to improve the streetscape. Wherever practical and subject to funding, trees and other vegetation will be planted in roundabouts and should be consistent with the surrounding streetscape. The selected tree and vegetation species may vary from adjacent species due to their unique position in the streetscape, and must comply with sight line, clearance and other relevant legislative requirements.

In some cases, roundabouts have been previously installed without having proper regard to the needs of pedestrians and cyclists and a roundabout may no longer be the preferred traffic control of choice at a given location. At the time of road reconstruction, consideration will be given to removing these roundabouts and replacing them with an alternate traffic control that accommodates all road users. Prior to any plantings being undertaken within an existing roundabout it should be checked that the roundabout it likely to remain into the future.

Where a roundabout may be removed at some point in the future small low growing planting should be used which can be easily removed if required.

Greville Avenue, Flinders Park

West Beach and Military Road, West Beach

8.15 Tree Planting on Council Reserves

Given the size, reduced presence of infrastructure and the benefits that trees and other vegetation provide to users and wildlife, parks and reserves in the City of Charles Sturt provide an opportunity to plant larger species (preferably native) such as *Eucalypts* and *Angophoras*, which provide opportunity

to increase canopy cover, enhance biodiversity, provide habitat and enhance visual amenity across the City.

~~The graph below shows the numbers of tree and other vegetation plantings and related activities in Council's reserves between 2011/12 and 2018/19, including planting via council's capital works and other community based programs.~~

	~~2011/12~~	~~2012/13~~	~~2013/14~~	~~2014/15~~	~~2015/16~~	~~2016/17~~	~~2017/18~~
~~Reserve Trees~~	~~1,639~~	~~1,718~~	~~1,621~~	~~1,917~~	~~1,205~~	~~1,180~~	~~1,114~~
~~Reserve Shrubs, Groundcovers & grasses~~	~~11,461~~	~~11,923~~	~~17,513~~	~~10,269~~	~~9,325~~	~~14,355~~	~~25,298~~

Council's *Open Space Strategy 2025* guides the strategic provision, development and management of our open space, including the development of Master Plans and Landscape Designs for parks and reserves, which prescribe the species and location of tree and other vegetation planting, the location of playgrounds, BBQ's, paths and other infrastructure.

Upgrade of Windsor Reserve, Pennington, resulting from a coordinated Master Plan approach

The following points should be considered for planting trees and other vegetation on Council reserves:

- All new tree planting on reserves must be in accordance with an existing approved Master Plan or design;
- If tree planting (other than replacement planting) is to be carried out on sites which do not have an existing Master Plan, the species and location must be agreed in consultation with Council's arboriculture, design and maintenance staff;
- Planting and ongoing maintenance should be undertaken in accordance with Council's Field Services Maintenance Guidelines; and
- Installation and ongoing management of drip irrigation is to be undertaken in accordance with Council's Open Space Water and Irrigation Strategy.

8.16 Nursery Stock

An unhealthy planting stock will result in a population of mature trees having poor form and shape, presenting an increased risk due to poor structural integrity, and increased maintenance requirements.

The City of Charles Sturt aims to procure quality tree stock, in accordance with industry standard guidelines, including the *Natspec Construction Information – Specifying Trees* document.
In general terms, this includes:

Standards for Tree Stock

- Trees to have a single central leader with a dominant apical bud;
- Trees not to have co-dominant stems, but can have several evenly spaced, lateral branches along the length of the central leader;
- Branches not to rub against each other or the central leader and not cross each other in a manner that may lead to rubbing in the future;
- The central leader to be straight, with no kinks or bends of greater than 20 degrees. The central leader not to have a lean greater than 20 degrees from the vertical;
- The shape of the tree to be consistent with and typical of its species;
- The ratio of leaf cover to tree volume to be consistent with and typical of each tree species;
- The ratio of stem diameter to tree height will not vary and be consistent with and typical of each species;
- Plant stock to be free of weeds, pest and disease; and
- The root system to be free of pests and disease. New roots to be white in colour and show no evidence of disease or damage.

Standards for Tree Root Structure

- The tree is to have a radially arrayed, fibrous root system evenly distributed throughout the container;
- The tree root system is to be sufficiently developed to ensure that the root ball will not collapse when removed from the container;
- The tree root system is <u>not</u> to be overdeveloped so that girdling occurs at the base or the sides of the root ball.

8.17 Unauthorised Tree Planting and/or Inappropriate Street Trees

Trees which have been planted by residents and are inappropriate for the location will be assessed for removal and, where appropriate, will be replaced with an appropriate specimen during the next planting season. If the tree requires removal, the resident/s of the affected property will be consulted and if possible, the resident may be given the opportunity to transplant the tree onto their property.

8.18 Tree and Streetscape Irrigation

Installation and ongoing management of irrigation systems and water allocations is directed by Council's *Open Space Water and Irrigation Strategy*. Newly planted street trees and trees in streetscapes are manually watered on a weekly basis via a water truck and young or newly planted trees on reserves are drip irrigated.

Mature trees on reserves would have been planted without any drip irrigation and were reliant in the warmer periods, on turf irrigation systems. While this may keep the turf green, it is not an effective method for delivering water to trees and results in very shallow rooted trees that are reliant on regular shallow, surface watering.

This watering regime results in mature trees that are sensitive to dry periods and many mature trees in the City of Charles Sturt have become accustomed to this kind of treatment. The rapidly changing climate and a reduction in irrigation volumes has resulted in many of our trees showing visible signs of stress, and many have died in recent years.

Mature trees in streetscapes receive no water outside natural precipitation and on those reserves where irrigation has been turned off, mature trees are receiving little or no supplementary watering.

Mature trees in an area of irrigated public open space at Tatura Reserve, Fulham Gardens

Several changes to Council's standard practices have been initiated over the past few years to address the effects of the changing climate, including:

- A more intensive formative pruning and maintenance program for street trees;
- Increased water table around trees;
- Herbicide spraying these water tables to ensure grass and weed growth is minimised;
- Regular mulching of tree wells;
- Trials of various water retention treatments in soil;
- Use of more drought sensitive species;
- Further mulching and drip irrigation in the root zone of mature trees on reserves;
- Small tree maintenance for all juvenile trees on both reserves and streetscapes;
- Truck watering; and
- Trees presenting a risk or increased sensitivity have been identified and management practices have been adjusted accordingly.

9. Regulated and Significant Trees

A **regulated tree** is any tree (including Palms) with a trunk circumference of 2 metres or more (measured at 1 metre above ground level). In the case of trees with multiple trunks, regulated trees are those with trunks having a total circumference of 2 metre or more and an average circumference of 625mm or more (measured 1 metre above ground level).

A **significant tree** is a regulated tree with a trunk circumference of 3 metres or more (measured 1 metre above ground level). In the case of trees with multiple trunks, significant trees are those with trunks having a total circumference of 3 metres or more and an average circumference of 625mm or more (measured 1 metre above ground level).

Some trees may be included and/or exempt from this legislation because of their location or their species.

The *Development Regulations 2008* includes a list of species that *cannot* be captured as a 'Regulated Tree' and as such, they *can* be removed or pruned without Council Approval. These include:

- *Acer negundo* (Box Elder)
- *Acer saccharinum* (Silver Maple)
- *Ailanthus altissima* (Tree of Heaven)
- *Celtis sinensis* (Chinese Nettle Tree)
- *Cinnamomum camphora* (Camphor Laurel)
- *Cupressus macrocarpa* (Monterey Cypress)
- *Melaleuca styphelioides* (Prickly-leaved Paperback)
- *Pinus* Radiata Pine/Monterey Pine)
- *Fraxinus angustifolia* (Narrow-leaved Ash)
- *Fraxinus angustifolia* subsp. *oxycarpa* (Desert Ash)
- *Lagunaria* (Norfolk Island Hibiscus)
- *Platanus x acerifolia* (London Plane)
- *Populus alba* (Alba poplar)
- *Populus nigra* var. (Lombardy Poplar)
- *Alnus acuminate* subsp. *Glabrata* (Evergreen Alder)
- *Celtis australis* (European Nettle Tree)
- *Ficus spp.* (Fig trees), except *Ficus macrophylla* (Moreton Bay Fig) located more than 15 metres from a dwelling
- *Robinia pseudoacacia* (Black Locust)
- *Salix Babylonica* (Weeping Willow)
- *Salix chilensis* 'Fastigiata' (Chilean Willow, Evergreen Willow, Pencil Willow)
- *Salix fragilis* (Crack Willow)
- *Salix X Rubens* (White Crack Willow, Basket Willow)
- *Salix X sepulcralis* var. *chrysocoma* (Golden Weeping Willow)
- *Schinus areira* (Peppercorn Tree)

All trees located within 10 metres of an existing dwelling or in-ground swimming pool do not require development approval for removal.

However, the following species do require development approval for removal regardless of their distance to an existing dwelling or in-ground swimming pool:

- *Agonis Flexuosa* (Willow Myrtle)
- Eucalyptus (any tree of the species)

10. Removal of Non-Regulated and Non-Significant Trees

The removal or pruning of trees or vegetation on Council property is to be carried out only by Council staff or contractors engaged by Council. Permission will not be given for residents, ratepayers, developers or their contractors to carry out the removal of trees or vegetation on Council property.

All applications for the removal of any tree under the care and control of Council must be made in writing, clearly stating the reason for removal and should include any supporting documentation. The application will be formally assessed by appropriately qualified and experienced Council Officers who will take into consideration the health, condition, significance, structural integrity, level of risk and management options against specific criteria.

Where a tree or other form of vegetation is of good health and condition, all alternative measures should be fully investigated, and any legislative requirements fulfilled. Council will not remove a tree or other form of vegetation unless the person making the request can demonstrate to Council a valid reason.

Where a request for a tree or other form of vegetation removal is health based, evidence must be provided by an allergy specialist. Documentation must confirm health complications are directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.

A valid reason will **NOT** include:

- Householder preference for no street tree or for a different species;
- Complaints about appearance (unless these are related to very poor health or structure);
- Interruption of scenic views;
- Interruption of view to advertising/signage (general maintenance pruning shall be undertaken or clear visibility of any legislative and/or traffic management signage. Pruning trees or vegetation for business signage will be considered on a case by case request basis);
- Complaints about leaf litter, twigs or other debris;
- Complaints relating to tree roots protruding above the ground or competing with lawns;
- Bird or Animal noise and associated mess; and
- Shading of solar panels.

However, in reference to the above, Council may determine otherwise.

Where the removal of a tree is approved outside of the criteria for tree removal as documented in this policy, suitable replacement plantings will be programmed, wherever possible, adjacent or as close as possible to the site of the removed tree/s. The cost of the tree removal will be included in a report to Council, and Council may choose to apportion some or all of the costs to the applicant.

11. Culturally Significant and Memorial Trees and Vegetation

Culturally Significant trees can provide a wide range of historical, cultural, aesthetic and scientific benefits to different groups and individuals. The City of Charles Sturt acknowledges the significance of these trees and their role in shaping our community and will ensure they are protected and managed appropriately. There are also a number of State heritage listed trees in the City of Charles Sturt.

In accordance with Council's *Memorials Policy*, memorial tree(s) can be planted in any appropriate street, park or reserve within the City of Charles Sturt provided they comply with any existing master plan or planting design in that place or street, and compliance with the *Tree and Vegetation Policy and Management Plan*. No memorial plaque will be available for this type of memorial.

12. Tree Protection Zone guidelines

The tree protection zone (TPZ) is the primary means of protecting trees on or adjacent to development sites. The TPZ is a combination of the root area and crown area requiring protection. The TPZ is an area isolated from construction disturbance for the tree to remain viable.

If the proposed encroachment is less than 10% of TPZ area it is *minor encroachment*. If the proposed encroachment is greater than 10% it is then identified as being major encroachment and detailed root investigation through non-destructive techniques (such as pneumatic, hydro-vac, hand-digging or ground penetrating radar) may be required to demonstrate that the tree would remain viable.

The structural root zone (SRZ) is the area required for tree stability and only needs to be calculated when major encroachment into the TPZ is proposed.

All TPZs should be established in accordance with AS 4970-2009 – *Protection of trees on development sites* and should be calculated by a suitably qualified arborist, in accordance with the criteria set out in AS 4970-2009.

Guidelines for establishing and managing a TPZ are:

- The TPZ shall be maintained until the proposed development or works are completed, to ensure that the tree survives long after the development is completed.

- The TPZ should be fenced before any works commence on site. This fence should be constructed from 1.8-metre-high, 2.5 metres wide, steel mesh panels, inserted in temporary concrete base blocks and clamped at the top. This is to ensure that no tree damaging activity occurs within the critical root zone.

- Signs are to be clearly visible on all sides of the Tree Protection Zone fence, to prevent unauthorised access and ensure that all contractors attending the site are made aware that this area is protected.

- To ensure soils do not become compacted and contaminated within the critical root zone. No storage of materials or equipment and no work activity is to occur within the TPZ.

- All excavation works within the designated TPZ must be performed by non-destructive techniques under the supervision of an arborist.

- No activity involving or using fuel, oil or chemicals, including preparation of chemicals and cement products should be conducted within the TPZ.

- No storage of material, building waste, construction materials, construction equipment or temporary buildings/structures should be permitted within the TPZ.

- No changes to natural ground level or grade changes within the designated TPZ should be made.

- No trenching for the installation of underground services is to occur within the TPZ at any time. Gas, electricity, water and telephone services shall be installed outside of the TPZ. Any

works of this nature required within the TPZ must utilise no destructive techniques such as air-spading and hand trenching without severing roots. This is to ensure that no damage is caused to the critical root zone.

- Any tree root pruning is to be carried out by a suitably qualified arborist and in accordance to the Australian Standard 4373-2007 *Pruning of Amenity Trees.*

- A 75mm layer or organic mulch (processed green waste) shall be hand spread within the TPZ. The mulch should not come into contact with the trunk of the tree.

12.1 Delegated Authority to Approve Requests for Tree Removal

The exercise of Council's delegated authority to approve the removal of trees on Council property is to be in accordance with the following:

- Trees are to be assessed in accordance with the assessment processes documented in the *Tree and Vegetation Management Plan*. All assessment processes should be based on sound and current arboriculture principles and employ risk control measures as a first option to tree removal.

- Trees that are declining in health, deformed and/or assessed as being structurally unsound or not contributing to the habitat value of an area, forming a notable visual element to the landscape of the local area or providing links to other vegetation which forms a wildlife corridor of trees where all reasonable, remedial treatments and measures have been determined as being ineffective in increasing the trees life expectancy.

- Trees presenting a risk to public safety or Council property and all reasonable, remedial treatments and measures have been determined as being ineffective.

- Council approved projects where:
  1. All remedial treatments and measures have been determined to be ineffective; and
  2. Where it is demonstrated that all reasonable, alternative development options and design solutions have been considered to prevent substantial tree-damaging activity occurring.
- Trees showing clear evidence of damage to private property. Where it can be demonstrated by the applicant, with supporting documentation from a suitably qualified professional that the tree is the cause of the damage and there are no appropriate remedial options.

- Where documentation has been provided from an allergy specialist, confirming health complications are directly attributable to a particular species, which is common in the vicinity of the applicant's residence and all alternative measures have been considered and are deemed inappropriate.

- Declared pest plants under the Natural Resources Management Act 2004. The declared plants (trees) in SA and known species in Charles Sturt includes the following: *Casuarina glauca, Tamarix aphylla*, *Pinus halepensis* (if not planted and maintained), *Leptospernum laevigatum, Pittosporum undulatum, Olea europaea* (excluding cultivated trees), *Salix species, Fraxinus angustifolia.*

Elected Members are to be informed of the use of delegated authority through regular information reports which shall be prepared and submitted to Council, detailing the reason for removal.

Requests for tree removal that have been refused under delegated authority, for which the resident requests further consideration should be the subject of a report to Council.

All reports to Council relating to risk-based tree removals will include the risk assessment and risk matrix for Council's information.

12.2 Tree and Vegetation Removal for The Purpose of Driveways, Electricity Supply, Services or Access to Property during Development.

Should a tree be identified for removal to accommodate the development or redevelopment of a property, including the installation of a driveway, services or other property access, consideration must first be given to design and construction methods with the intent of retaining the tree.

If, following the consideration of all options, the development cannot be accommodated while retaining the tree, removal may be considered subject to the owner/property developer compensating Council for the following:

- The value of the trees removed based on *Australian Institute of Horticulture (AIH) - A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister),* with the unit value to be reviewed and updated in accordance with CPI increases or decreases on an annual basis);
- The replacement costs of an appropriate specimen to be planted preferably adjacent to the affected property or as close to the property as possible; and
- Any costs incurred in relation to removal process.

12.3 Unauthorised Tree Removal, Tree Damaging Activity and Tree Vandalism

All unauthorised tree removals, acts of vandalism, deliberate poisoning or any other intentional or unintentional tree damaging activity will be thoroughly investigated and where appropriate, prosecution will ensue in accordance with the relevant legislation. Should clear evidence be obtained, an assessment will be undertaken using the *Australian Institute of Horticulture (AIH) - A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister),* and costs will be forwarded to the person responsible for the activity.

The *Development Act 1993* stipulates that any activity that damages a 'regulated tree' is considered 'development' and as such requires development approval. This captures activities such as removing, killing or destruction, branch or limb lopping, ringbarking or topping or any other substantial damage to a regulated tree – including to its root system – other than maintenance pruning.

13. Verge Planting

The City of Charles Sturt encourages residents to establish and maintain the verge adjacent to their property. You can manage your verge by mowing it regularly or starting your own verge garden.

The *Community Verge Development Guidelines and Checklist* provides information and useful links to help you landscape your verge. Information regarding the planting and management of verges can be viewed here: https://www.charlessturt.sa.gov.au/services/home-and-property/your-verge

14. Community Participation

Tree Planting at Sunset Reserve Grange

Council encourages and will provide support for community-based greening groups involved in the planting of trees and other vegetation on public land within the City of Charles Sturt.

Subject to approval, assistance may occur through the supply of plants, mulch, propagating materials, transportation of plants and equipment, supply of hand tools, provision of staff technical advice and similar in-kind actions.

Glossary

Aerial bundling – overhead power lines using several insulated phase conductors bundled tightly together, usually with a bare neutral conductor.

Apical – the tip of a pyramidal or rounded structure, such as the top of the tree.

Canopy - The upper layer or habitat zone, formed by mature tree crowns and including other biological organisms

Directional pruning – also called natural pruning, only branches that head toward obstructions (such as utility lines) are pruned.

Evergreen vegetation – vegetation that retains green leaves throughout the year.

Exotic vegetation – vegetation that has been introduced to an area from outside its native range, either purposefully or accidentally.

Girdling roots – a root that grows around the trunk of the tree that restricts and eventually prevents the flow of water and nutrients.

Indigenous vegetation – vegetation that comes from a certain area, such as the Adelaide plains, or even more specific such as a coastal area within a region.

Native vegetation – all naturally-occurring local native plants, ranging from small ground covers and native grasses to large trees, including aquatic species.

Non-woody – not of or containing wood or wood fibres.

Perennial – lasting or existing for a long or apparently infinite time; enduring or continually recurring.

Root barrier – a physical underground wall, placed so that structures and plants may cohabit happily together.

Senescence – the condition or process of deterioration with age.

Sterile varieties (trees) – failing to bear or incapable of producing fruit or spores.

Streetscape – the appearance or view of a street.

Suckering growth – various types of shoots which grow from a bud at the base of a tree or shrub or from adventitious buds in its roots.

Traffic calming device – physical design and other measures to improve safety for motorists, pedestrians and cyclists to encourage safer, more responsible driving and potentially reduce traffic flow.

Water table – the layer below the earth's surface where water is found.

References

This management plan is consistent with, and is to be used in accordance with the following documents:

City of Charles Sturt:

- Community Plan 2016 - 2027
- Environmental Sustainability Policy
- Footpath Policy
- Field Services Maintenance Guidelines
- Guidelines for Verge Developments
- Living Green to 2020
- Memorials Policy
- Open Space Strategy 2015 - 2025
- Open Space Water and Irrigation Strategy, 2016
- Public Consultation Policy
- Public Infrastructure guidelines, 2019

State Legislation and Guidelines:

- *Development Act 1993*
- *Electricity Act 1996*
- *Heritage Act 1997*
- Infrastructure Guidelines SA, Revision 1.0, December 2016
- *Local Government Act 1999*
- *Native Vegetation Act 1991*
- *Road Traffic Act 1961*
- *Water Resources Act 1997*

Federal Legislation:

- *Disability Discrimination Act 1992*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Environment Protection Act 1993*
- *Natural Resources Management Act 2004*

Other Reference Documents:

- Australian Institute of Horticulture (AIH) - *A system of assigning a monetary value to amenity trees – Technical memorandum No. 3 Third Edition 2003 (E J McAlister)*
- Australian Standard 4360-2004 – *Risk Management*
- Australian Standard 4373-2007 – *Pruning Amenity Trees*
- Australian Standard 4970-2009 – *Protection of Trees on Development sites*
- *Creating Places for People – an urban design protocol for Australian cities*, Infrastructure Australia, 2011
- *Crime Prevention Through Environmental Design guidelines*, various authors
- *Pre-European Vegetation in Adelaide*, Darrell Kraehenbuehl, 1996
- Seed Consulting Services (2018), *Powerline Friendly Trees: Reference Guide for Cities and Towns in Non-Bushfire Risk Areas.* Prepared on behalf of SA Power Networks. South Australia.
- *Specifying Trees*, NATSPEC Construction Information, 2003
- *Streets for People*, Government of South Australia, 2012
- *Trees: Legislation and Risk Management Guidelines for Local Government*, Local Government Association Mutual Liability Scheme, 2004

Further information

For further information relating to trees and other vegetation in the City of Charles Sturt, please contact:

- Phone: (08) 8408 1111
- Email: council@charlessturt.sa.gov.au
- Post: PO Box 1, Woodville SA 5001
- In person: 72 Woodville Road, Woodville
- Website – charlessturt.sa.gov.au

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Record no. 21/123043	**Reviewed by:** JW
Revision no. 3~~2~~	**Revision date:** October 2023~~0~~

APPENDIX 3

GROWING GREEN: TREE CANOPY IMPROVEMENT STRATEGY 2021-2045

City of Charles Sturt

MEANS THE WORLD

Trees are essential to the web of life – fungi, microbiota, insects, reptiles, birds, bees and kids – climbing is essential!

PREAMBLE

The Tree Canopy Improvement Strategy builds upon the significant achievements and efforts undertaken by our organisation over many decades and provides a framework to deliver long-term, sustainable, and significant gains to our urban forest.

Our urban forest canopy covers about 14%[1] of the City (2020 measure) and has declined over the years due to urban development.

The scale and pace of this decline is not immediately apparent, being spread throughout the suburbs, often in backyards and away from view, yet has long-term implications on our liveability and resilience.

The reduction in canopy can be described as the 'slow emergency' as the incremental decline is diffuse in nature and not acutely visible yet has intergenerational impacts over multiple decades

The strategy aims to arrest this decline and generate a new mandate for tree planting, tree protection and resourcing directed to trees to improve the amount of tree canopy city wide for the benefit of our community and environment in the face of a changing climate.

MISSION

Growing Green: our plan for a greener, cooler City.

VISION

The City of Charles Sturt has an extensive, healthy, diverse and sustainable urban forest which grows to reach a City-wide canopy cover target of 25% by 2045.

[1] Tree Cover measured 13.84% of the City – report: Tree Canopy Cover in the City of Charles Sturt: 2020

OUR COMMITMENT

We will achieve this vision by increasing resources with a dedicated focus on planting more trees, whilst maintaining, protecting and retaining our existing trees, and engaging our community to enable action to protect and retain trees in both the public and private realm.

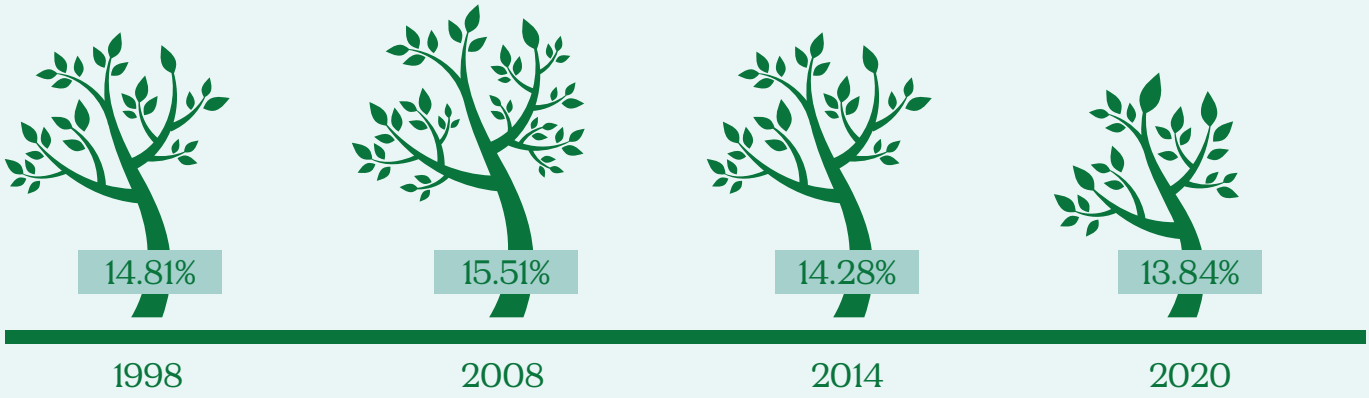
GUIDING PRINCIPLES

There are 6 overarching principles detailed in this plan that will drive action to achieve this vision. Each principle has an accordant series of actions that underpin the principle and can be achieved within the life of the plan.

1. Plant more trees (and continually review planting options)
2. Have a plan (and set a target)
3. Protect more trees (and commit to protect them)
4. More tree maintenance/management (and enhance our maintenance)
5. Appreciate trees more (and engage our community)
6. Monitor and evaluate our progress (and change course if we need to)

WHY PLANT MORE TREES (AND CONTINUALLY REVIEW PLANTING OPTIONS)?

Our tree cover has decreased from a peak of 15.51% in 2008 across the City since it was first measured in 1998 to 14.28% in 2014 and further again to 13.84% in 2020, primarily due to the loss of trees on private property from infill development.



Percentage Canopy Cover Measure Across the City (public and private land)

Climate change is another critical factor. It is driven by increasing amounts of carbon dioxide in the atmosphere, which trees capture and store. In addition to the CO2 that trees capture, they also help soil capture significant amounts of carbon[2].

Our city is getting hotter from the impacts of climate change and the urban heat island effect. Trees provide shade and cooling benefits, mitigating the impacts of heat, which reduces heat-related illness and death. Trees and vegetation reflect heat and actively cool and clean the air by evapotranspiration.

The City of Charles Sturt declared Climate Change Emergency in December 2019 to undertake action to prepare and mitigate the impacts within our community.

People need trees for their health and mental well-being. They provide a sense of place and liveability. Trees are valued for their inherent beauty and for the associated aesthetic benefits they provide to homes, streets and suburbs, and are critical for urban biodiversity.

Planting trees is an investment in the future of our City. The mature trees we enjoy and benefit from today, were planted by those generations before us, many decades ago.

By selecting the right tree for the right place and making sure the trees we plant now will establish well, and grow to maturity for future generations, ensures our investment is realised as planned and not vulnerable to failure. Species and site selection should focus on planting the largest-growing and longest-lived species suitable for each location.

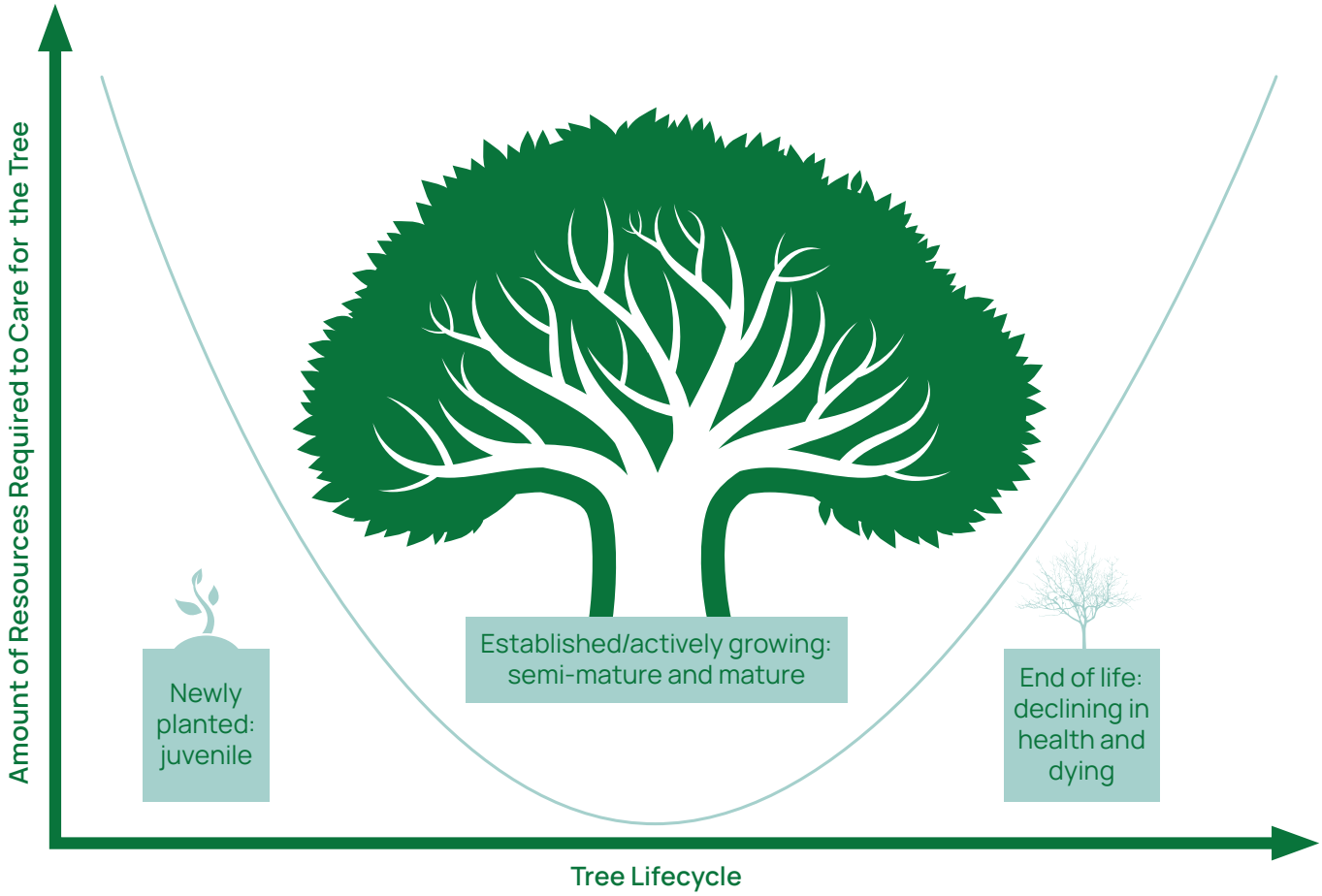
The species that we currently plant and maintain, may be vulnerable to a changing climate. New and different options for species should be considered which are better adapted for greater resilience. The role of water in urban greening is critical and opportunities to implement water sensitive urban design and other innovative solutions for passive watering (i.e. stormwater) are required.

To achieve our vision and increase canopy cover to 25% by 2045 we will undertake an extended and intensive tree planting programme over many decades and enable our community to work with Council to achieve this target. We will educate our community and enhance liveability whist reducing the urban heat island effect and mitigating the impacts of climate change across the city.[3]

In terms of tree life-cycle, the intensity of resources needed to care for a tree are at their highest when planting a tree and the first few years of establishment, followed by when a tree is at the end its life.

[2] https://www.agriculture.gov.au/ag-farm-food/climatechange/australias-farming-future/soil-carbon

[3] A planned project for the FY 21/22 is to model optimum locations for street tree planting based on urban heat island data and to model numbers of trees to reach canopy target and the budget required to do so.



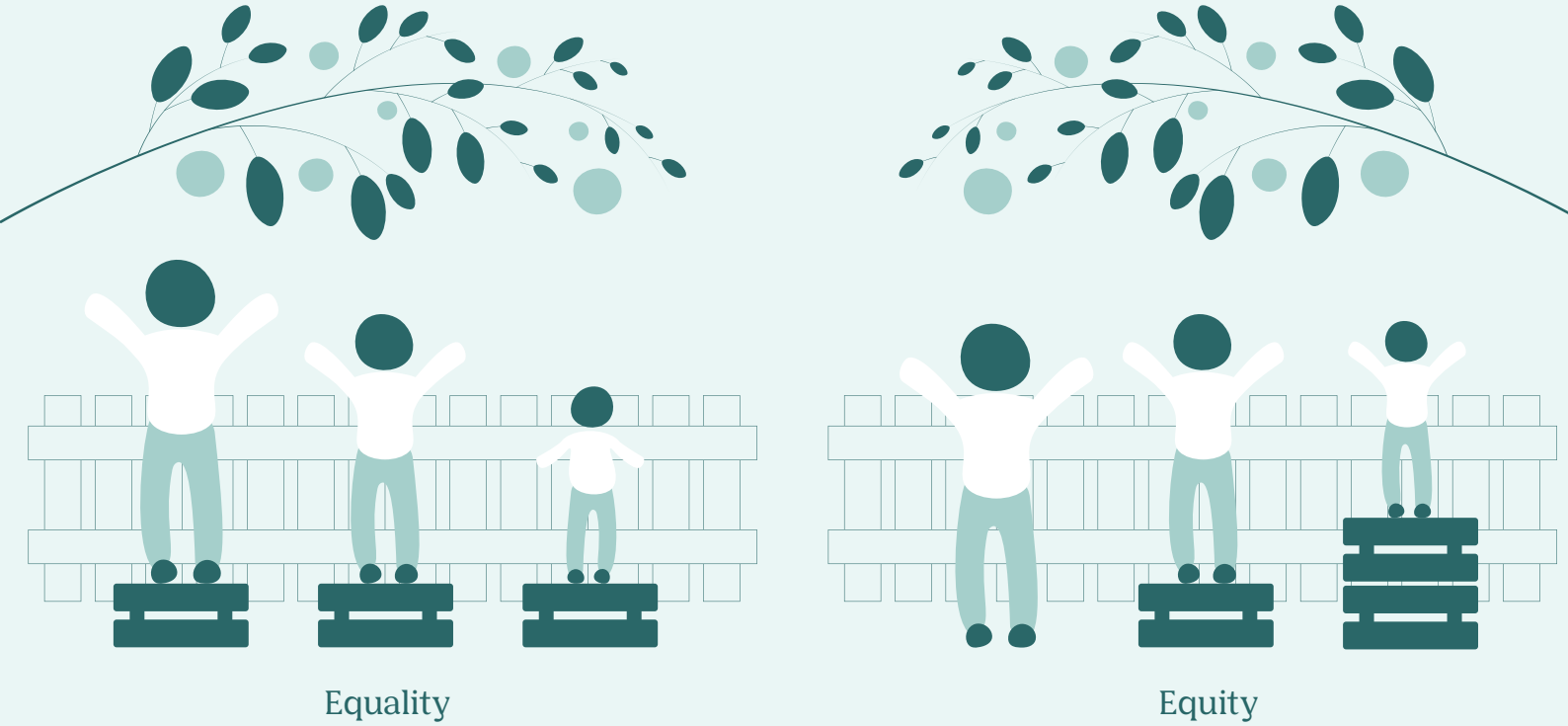
For an intensive tree planting programme to be successful, careful consideration of resources required throughout the lifecycle is necessary.

To achieve a significant gain to the urban forest, planting in a staged approach, over a successive number of years, is economically sustainable and makes optimum use of available resources.

Understanding that some parts of our city have lower levels of tree cover and are hotter than others gives a method of prioritising and focussing efforts.

While City wide-benefits are derived from trees, inequity in current tree cover means a "catch-up" provision will change the focus to have an equal spread of tree planting programs across each ward and will be focussed in areas of greatest need. This shift from equality of planting across wards to equity[4] allows for a new strategic driver to mandate this approach to greening to be realised.

Equality is different to equity – equity of canopy cover is the driver to focus our planting efforts



WHY HAVE A PLAN (AND SET A TARGET)?

The 'business as usual' approach is currently leading to overall declines in the numbers of trees across the City and the percentage of urban tree canopy cover since 1998. At current rates, targets will not be reached.

To counter this decline a planned approach to increase canopy cover is necessary and vital.

Having a plan is the 'roadmap' from where we are, to where we want to be, and spells out how we are going to get there.

A national canopy cover benchmarking study identified that in metropolitan Adelaide, the City of Charles Sturt was the second lowest in terms of % canopy cover in Council areas.

[5] 1998, being the first year of measuring cover https://www.itreetools.org/documents/294/2016_SeedConsultingServices_TreeCanopyCoverInTheCityOfCharlesSturt-BenchmarkingAssessment.pdf

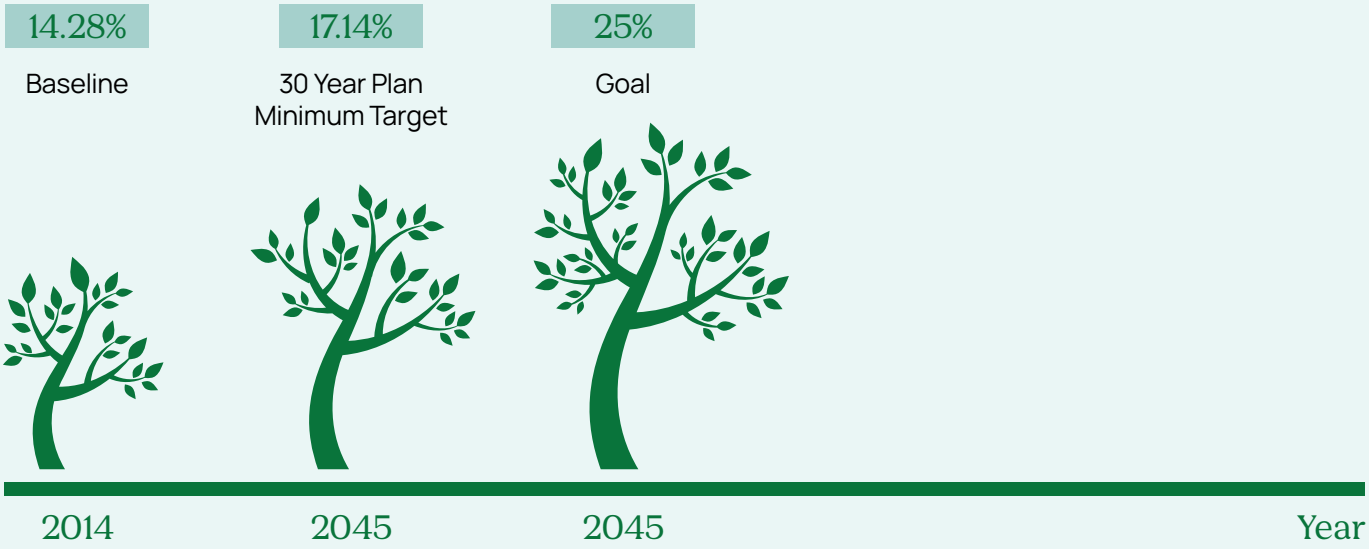
[6] Jacobs, B., Mikhailovich, N., and Delaney, C. (2014) Benchmarking Australia's Urban Tree Canopy: An i-Tree Assessment, prepared for Horticulture Australia Limited by the Institute for Sustainable Futures, University of Technology Sydney https://202020vision.com.au/media/7141/final-report_140930.pdf

Trees add monetary value to a suburb. Important for wildlife, and cooling the environment.

The 30 Year Plan for Greater Adelaide (2017) outlines key directions to create a greener city through an increase in green cover by 20% across metropolitan Adelaide by 2045.

For Charles Sturt an increase of 20% on the 2014 baseline measure of 14.28% will provide a City-wide canopy target of 17.14% by 2045. This should be considered a minimum target increase and recognised as not adequate to achieve our ambitious target of 25% cover by 2045.

Percentage Canopy Cover



Research has shown increasing canopy cover can increase property values. One study demonstrated that a 10 per cent increase in street tree canopy can increase the value of properties by an average of $50,000

Another study identified a 10 per cent increase in tree canopy cover can reduce land surface temperatures by 1.13 degrees Celsius[8].

Planning to increase canopy cover in the hotter parts of the City as a priority helps mitigate the impacts of urban heat island effects [9,10] and will create urban cool islands[11] – places of refuge and considered desirable places to live and recreate.

[7]THE 30-YEAR PLAN FOR GREATER ADELAIDE - 2017 UPDATE https://livingadelaide.sa.gov.au/__data/assets/pdf_file/0003/278265/Target-5.pdf

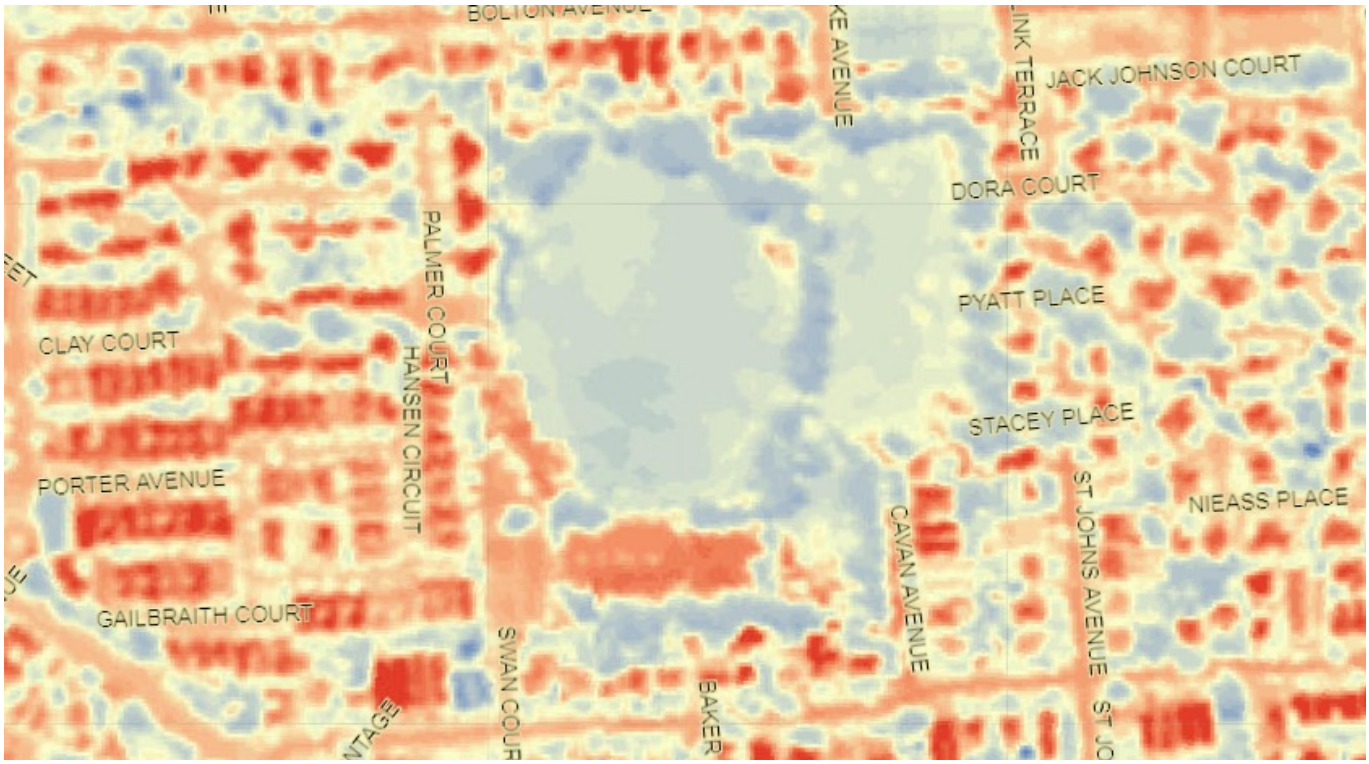
[8]From <https://www.greater.sydney/metropolis-of-three-cities/sustainability/city-its-landscape/urban-tree-canopy-cover-increased>

[9]Bhargava A, Lakmini S, Bhargava S (2017) Urban Heat Island Effect: It's Relevance in Urban Planning. Journal of Biodiversity & Endangered Species 5: 187. https://www.hilarispublisher.com/open-access/urban-heat-island-effect-its-relevance-in-urban-planning-2332-2543-1000187.pdf

[10]Ali Soltani, Ehsan Sharifi, Daily variation of urban heat island effect and its correlations to urban greenery: A case study of Adelaide, Frontiers of Architectural Research, Volume 6, Issue 4, 2017, Pages 529-538, https://www.sciencedirect.com/science/article/pii/S2095263517300432

[11]Tathiane A.L. Martins, Luc Adolphe, Marion Bonhomme, Frédéric Bonneaud, Serge Faraut, Stéphane Ginestet, Charlotte Michel, William Guyard, Impact of Urban Cool Island measures on outdoor climate and pedestrian comfort: Simulations for a new district of Toulouse, France, Sustainable Cities and Society,

An example of an urban cool island provided by Sam Johnson Reserve in Renown Park, demonstrates the cooling impact provided by green cover – grass – in the light-blue coloured areas and the greater cooling effect provided by canopy cover – trees – in the darker blue coloured areas. The red shaded areas are hotter and comprise homes and other hard surfaces such as car parks and roadways.

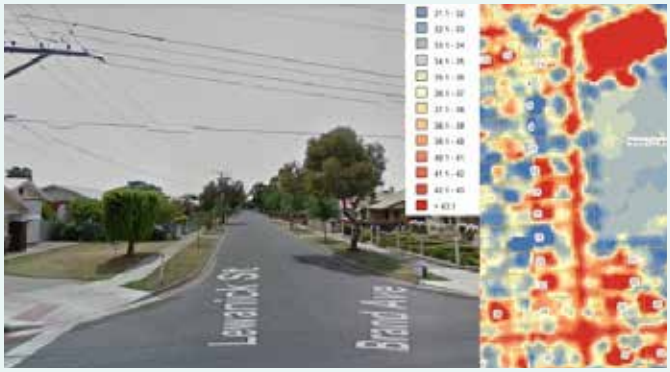


Volume 26, 2016, Pages 9-26, https://www.sciencedirect.com/science/article/pii/S2210670716300828

This street in Allenby Gardens demonstrates the visual and cooling benefits of trees.

Lewanick Street, Allenby Gardens
portion south of Brand Avenue

Lewanick Street, Allenby Gardens
portion north of Brand Avenue



WHY PROTECT MORE TREES (AND COMMIT TO PROTECT THEM)?

A mature tree provides a far greater number of benefits than a newly planted one. Trees take decades (sometimes centuries) to reach maturity, making the need for protection and retention of existing trees in the landscape of great importance.

Our urban forest population is declining in size, primarily due to the number of trees being removed to allow for urban densification / infill development.

Infill development causes significant changes in tree cover and impervious cover

Findon 1998

Findon 2014

More than 63% of tree canopy cover across the City is on privately owned land. Infill development in the City of Charles Sturt has seen the percentage cover of trees on private lands reduce from 15.06% in 1998 to 12.79% in 2020, a difference of -2.27% and represents a -15.07 % change.

Decline in Percentage Tree Canopy Cover on Private Lands

It is recognised in order to strike a balance between economic and environmental values, urban development does result in some trees being removed and new trees planted.

Well-considered and thoughtful design choices allow for existing trees to be retained as part of development.

Unnecessary removal of trees to allow for infill development, through whole of lot clearing and an increase in cross-overs (driveways) has been identified as a key driver in the decline of the urban forest City-wide and despite Council planting programs, the number of tree removals on private land in particular, outstrips the numbers of new trees being planted.

Planning and development legislation allows for the removal of trees other than those defined as "significant" or "regulated". This poses an exceptional challenge to maintaining and increasing canopy cover across the City on lands that are privately owned.

The introduction and application of the Planning and Design Code from 19 March 2021 under the Planning, Development and Infrastructure Act 2016 is a major reform of the planning system and many planning provisions, some of which pertain to trees.

The intent, application, and effect of these provisions will be closely monitored to determine the "on-ground" effects of these on trees planted, retained or removed, particularly on privately owned lands. The Code introduces requirements for developers to make provision for the planting of trees in sites of increasing density. The success of this will need to be closely monitored and enforced for there to be any significant improvement in private plantable space.

In the absence of legislative instruments, education, encouragement and other mechanisms (such as policy change and financial incentives) need to be explored and implemented to ensure greater protection (leading to increased retention) is given to privately owned trees.

Council will continue to advocate for improved tree planting and retention settings in the planning system to support expansion of urban tree canopy and green cover.

In cases where private development will impact on public trees, particularly in the case of cross-overs, mechanisms to influence the retention of these trees need to be introduced , such as incentivising (or mandating) shared cross-overs on subdivided lots and designs that work to retain existing landscape features, or allowing design outcomes which accommodate the long term health of the tree. Once the carrying capacity for trees in a streetscape is reduced by the proliferation of cross-overs, it can never be recovered.

EXAMPLES OF CROSSOVER TREATMENTS AND OPPORTUNITY FOR PLANTING

This example below of two double garages and double width crossovers on a subdivided block has eliminated any opportunity for tree planting or any soft landscape treatment on the verge streetscape.

In this example below, a double garage, with single width crossover and splayed driveway, allows for the same undercover car storage capacity as the above example, while retaining the existing street tree and soft landscape on the verge streetscape.

More than 60% of the entire City is covered with impervious surfaces – buildings, roads, footpaths, paved surfaces and the like.

Creating more space for planting trees will be required to achieve the vision of 25% tree canopy cover by 2045. This is necessary in a streetscape to increase the number and size of trees that can be planted and is needed to counter the impacts on city wide tree canopy cover from private realm tree removals due to densification.

Streetscape changes, as in this road re-construction at Burleigh Avenue Pennington, provide more space - and is an opportunity to increase the number and size of trees that can be planted.

Implementing a long-term communications strategy to educate and engage our residents about tree protection and planting goals will garner greater civic pride and "ownership", as well as advocacy and support for better greening outcomes and recognition and appreciation about the benefits trees provide.

WHY MORE TREE MAINTENANCE/MANAGEMENT (AND ENHANCE OUR MAINTENANCE)?

Growing trees to maturity, is a decades-long process.

Well-maintained trees that are subject to regular inspection to detect any threats, are pruned when necessary, and afforded good growing conditions, will continue to grow in a healthy state that leads to a long and full life-span and provide ongoing benefits to people and the environment in the City of Charles Sturt.

Conversely, poorly maintained trees, planted in sub-optimal growing conditions can be vulnerable to a range of threats such as drought, pest and disease attacks. This can lead to poor tree health, structural failure and shorten tree life spans, or cause tree death.

By investing in getting growing conditions right, and planting good quality stock, during a climatically appropriate planting season, allows for the best chance of successfully growing a tree to maturity.

Encouragement of community support to better care for public and private trees by understanding and responding to signs of tree stress such as pest or disease attack, providing supplementary watering during times of drought, and reporting of tree issues, will result in a healthier urban forest.

Ensuring that water sensitive urban design practices are implemented where possible to increase the passive irrigation provided to trees will enhance the resilience of the urban forest in a changing climate.

Reducing tree mortality to help extend the average life span of trees, provides for the greatest realisation of benefits to be derived from each tree and each budgetary cycle.

As a tree reaches the end of its life, it is necessary to plan and consider carefully how to manage the potential impact on the landscape and the succession of removed trees.

Succession planning is necessary to ensure as trees reach the end of their life, our urban forest is renewed. (Sourced from City of Melbourne)

Ensuring a diversity of age spread by maintain appropriately to gain the full asset life of a tree, means Council avoids a significant spike of resource burdens and spreads end of life management and replacement costs in an equitable and sustainable manner.

APPRECIATE TREES MORE (AND ENGAGE OUR COMMUNITY)

The more we all understand more about the benefits of trees and appreciate and value these living assets the more we will care for trees and advocate and support their retention in private and public landscapes

Understanding the asset value of our public realm tree population will raise the profile of green assets and put them on par with grey assets in terms of asset management planning principles.

While no accepted nation-wide or state-based valuation of trees method is used by Council, identifying an asset worth should be equivalent to the value of having to replace the urban forest to a similar state inclusive of planning, planting, establishment and ongoing maintenance.

Educating our community about the work we do to maintain and enhance the urban forest is a cornerstone of increased visibility of the efforts being made and appreciation of the long-term goals and aspirations we have as a Council on behalf of our community.

Seeing the big picture helps us imagine a future where we all appreciate and value trees and fight for their retention and make smart decisions about designing for the inclusion of trees in our backyards and front yards and expect the same of Council.

The lungs of life, a canopy to cool the planet, a habitat for birds and animals

MONITOR AND EVALUATE OUR PROGRESS (AND CHANGE COURSE IF WE NEED TO)

Our corporate and community planning structure uses indicators to measure and track our success. Our Community Plan 2020-2027 identifies that:

> *Our City will become greener with increasing tree canopy cover spaces and green infrastructure. Through improved biodiversity, we will achieve a better living environment for people.*

The outcome being pursued is that: **Our city is greener to reduce heat island effects and enhance our biodiversity,** with the relevant success measure being that: **Our biodiversity and tree canopy cover are consistently increasing**.

This Tree Canopy Improvement Strategy is our overarching approach to achieving these community plan aspirations, outcomes and measures.

Understanding the impact and effectiveness of this strategy relies on effective monitoring and evaluation. This information will help us to understand emerging issues, improve our performance and ensure we are accountable to our community.

By planning from the start about what will be measured, how it will be measured, for what purpose, and for what audience, the information gathered will lead us to know whether we are doing the right thing and in the right way.

If we learn that we are deviating from our vision, we need to modify the strategy to achieve the desired goal.

This strategy will be a living document and allow for further reviews every 5 years over the life of the plan 2021-2045. As part of reviews, the target will be assessed to ensure it remains appropriate and responsive to conditions.

Tree Tags help educate the community about the value and benefits of trees

ACTION PLAN

Principle	1. Plant more trees (and continually review planting options)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
1.1	Plant more trees in a programmed and strategic manner to achieve the endorsed target of 25% cover by 2045.	H	✓	✓	✓	✓				✓
1.2	Undertake work to identify the number of trees required to be planted across the City to achieve this target (using existing LiDAR data, i-tree canopy measurements, tree inventory)	H		✓	✓	✓	✓			
1.3	Once the number of trees is identified, develop a (whole street) planting program that provides a roadmap to achieving this increase by 2045 with annual targets in place.	H	✓	✓	✓					✓
1.4	Identify the physical, financial and human resources required to achieve this target, including understanding and programming for up front and ongoing maintenance costs and reviewing service levels and budget allocations and obtain Council support to secure recurrent funding to achieve this.	H	✓	✓	✓	✓	✓			
1.5	Prioritise planting in areas using the following factors: • lower canopy coverage • higher urban heat • greater social vulnerability • consideration to establishing green linkages and wildlife corridors.	H	✓	✓		✓	✓			
1.6	Before planting, getting growing conditions right, and ensure we are planting good quality stock, during a climatically appropriate planting season, including that water urban sensitive design practices and other innovative solutions for passive watering using stormwater are considered and implemented for plantings where possible.	H	✓		✓		✓			
1.7	Undertake a review of existing tree species diversity and success across the City (including identifying species that are failing)	L		✓		✓			✓	
1.8	Review species being planted to ensure species diversity targets of no more than 30% per family, 20% per genus and 10% per species thereby increasing resilience are achieved and maintained.	L		✓		✓			✓	
1.9	In making species selection, ensure trees being planted are viable in a changing climate (hotter, drier, stormier).	H	✓		✓					✓
1.10	Implement trials of new species (including consideration of allergen potential & plant gender diversity issues) and planting practices with monitoring and evaluation for a minimum of 5 years.	L		✓	✓	✓			✓	

Principle	1. Plant more trees (and continually review planting options)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
1.11	Implement trials of different planting and establishment practices such as: Pre-planting soil ameloriation - test soil and correct any nutrient deficiencies, assess permeability and apply wetting agents, apply soil microbiological stimulants, decompaction of planting area (eg deep ripping) increases to frequency and duration of establishment watering.	L		✓	✓					
1.12	Adopt principle of "Size Matters" when choosing species, noting that large trees provide far more benefits than smaller trees. While it's not always possible to plant large trees, we should aim to plant the largest size (at maturity) trees for the space available and aim to follow the principle of the right trees in the right places.	H	✓		✓		✓			
1.13	Review existing planting typologies - uniform avenue / mix of species, optimise tree size to available planting size, "green tunnel", trees in the carriageway, and explore other typologies mix of all depending on area. Using these findings to modify, maintain, refine practices.	H	✓	✓	✓	✓	✓			
1.14	Review existing street tree policy and trial new approaches and practices to encourage greater plantings of street trees.	H	✓		✓		✓			

Principle	2. Have a plan (and set a target)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
2.1	Council to endorse this plan and the ambitious target to achieve 25% tree canopy cover by 2045.	H	✓		✓		✓			
2.2	Acknowledge that a change to "business as usual" is required and commit to provision of adequate resources to achieve the target.	H	✓		✓		✓			
2.3	Undertake modelling to identify the numbers of trees that a required to be planted annually to achieve the target and translate this into short-term plans.	H		✓		✓	✓			
2.4	Identify locations where trees are to be planted – both on public and private land, targeting the hotter parts of the city as a priority and make this information available to the community.	H		✓		✓	✓			

Principle	3. Protect more trees (and commit to protect them)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
3.1	Adopt and promote the concept that we are custodians of trees for current and future generations.	H	✓	✓	✓	✓	✓			✓
3.2	Advocate for, and demonstrate well-considered and thoughtful design choices that allow for existing trees to be retained as part of development.	M	✓		✓					✓
3.3	The intent, application, and effect of the provisions of the Planning and Design Code to be closely monitored to determine the "on-ground" effects of these on trees planted, retained or removed, particularly on privately owned lands and help the community understand the planning system as it relates to tree retention and removals.	H	✓	✓	✓	✓				✓
3.4	In the absence of legislative instruments, education, encouragement and other mechanisms (such as policy change and financial incentives) need to be explored and implemented to ensure greater protection (leading to increased retention) is given to privately owned trees.	H	✓		✓		✓			
3.5	In cases where private development will impact on public trees, particularly in the case of cross-overs, mechanisms to influence the retention of these trees need to be introduced.	H	✓		✓		✓			
3.6	Continue to advocate for improved tree planting and retention settings in the planning system to support expansion of urban tree canopy and green cover.	H	✓		✓					✓
3.7	Where possible and appropriate, create more space for planting trees such as in road reconstructions, new developments and within the changing urban form.	H	✓	✓	✓	✓				✓

Principle	4. More tree maintenance/management (and enhance our maintenance)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
4.1	Ensure the current practice of inspecting and pruning all Council trees across the City at least once every three years is maintained.	H	✓		✓					✓
4.2	Undertake analysis to ensure that we are maintaining our existing tree stock in the best way we can.	L	✓						✓	
4.3	Investigate / develop business intelligence tools for better urban forest management, so that we know more about what we are managing, noting that data is helpful but can be costly to collect.	L	✓	✓	✓	✓			✓	
4.4	Investigate what data sets already exist and where are our critical information gaps - identify how much new data we really need. Consider the following data: Where are the trees located? What species are they? How old are they? What is the turn-over rate? What is the tree health like? How are the trees distributed across the landscape? Number of trees by suburb? Number of trees per capita? Number of species of trees?	L	✓	✓		✓			✓	
4.5	Identify what are the triggers for intervention when tree health is declining and what are the responses and determine whether intervention occurring at the right time.	L	✓	✓	✓	✓			✓	
4.6	Encouragement of community support to better care for public and private trees by understanding and responding to signs of tree stress such as pest or disease attack, providing supplementary watering during times of drought, and reporting of tree issues, allows for the best chance of successfully growing a tree to maturity.	L	✓	✓	✓	✓			✓	
4.7	Adopt a succession planning approach for when trees reach the end of its life plan and consider carefully how to manage the potential impact on the landscape and the succession of removed trees.	L	✓		✓					✓
4.8	Ensure a diversity of age spread by maintaining appropriately to gain the full asset life of a tree.	H	✓		✓					✓

Principle	5. Appreciate trees more (and engage our community)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
5.1	Develop and implement a range of engagement tools so that the community understand how urban heat islands relate to their place of residence and how we are working to create urban cool islands as places of refuge.	H	✓	✓	✓	✓	✓			
5.2	Educate our community about the work we do to maintain and enhance the urban forest to increase visibility of the efforts being made and appreciation of the long-term goals and aspirations we have as a Council on behalf of our community	H	✓		✓		✓			
5.3	Develop and implement a long-term communications strategy to educate and engage our residents about tree protection and planting goals to garner greater civic pride and "ownership", as well as advocacy and support for better greening outcomes.	H	✓		✓		✓			✓
5.4	Consider methods to understand the asset value of our public realm tree population to raise the profile of green assets and put them on par with grey assets in terms of asset management planning principles.	M	✓	✓	✓	✓			✓	
5.5	Educate our colleagues & internal stakeholders so that they understand that urban forest management is highly complex and requires specialist skills and adequate resourcing to achieve targets (and that these skills and resources are made available for urban forest management).	H	✓		✓		✓			

Principle	6. Monitor and evaluate our progress (and change course if we need to)									
			Resourcing		Delivery Method/Provider		Implementation Horizon (years from 2021)			
Number	Action	Priority H - higher M - medium L - lower	Within existing resources	Additional resources required	In-house	External	1-2 years	3-5 years	5+ years	ongoing
6.1	Develop a monitoring and evaluation plan including suite of indicators and parameters to understand the impact and effectiveness of this strategy, ensuring the plan contains information about of trees planted within the last quarter and cumulative total for that year, and reporting via social media and our website.	H	✓		✓		✓			
6.2	Measure progress against these indicators and parameters to understand emerging issues, improve our performance and ensure we are accountable to our community.	M	✓		✓	✓		✓		
6.3	Every five years measure the amount of tree canopy cover (and other cover types) across the city on public and private lands	M		✓		✓		✓		
6.4	Review and update this plan every five years.	M	✓					✓		

City of Charles Sturt

MEANS THE WORLD

APPENDIX 4

Option1

TREE CANOPY TARGETS - COST MODEL (1,500 TREES IN YR 1 & 3,000 PER YEAR AFTER YR 1)

Tree Size CCS Land	Recommended %	Nos.	
Very Small	10%	300	Streets
Small	25%	750	Streets
Medium	45%	1,350	Streets
Large	10%	300	Reserve
Very Large	10%	300	Reserve
Total	100%	**3,000**	Increase required

Owner	Tree Nos.	Current	Increase
CCS Land	6,000	3,000	3,000
Non-CCS Land	4,000		
Total/Annum	10,000		

Street Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Very Small	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Small	25%	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Medium	45%	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Total Trees Increase	**80%**	**2,400**	**1,200**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cost - unit rate		*$ 260*	$ 266	$ 273	$ 280	$ 287	$ 294	$ 300	$ 307	$ 315	$ 322	$ 330	$ 337	$ 345	$ 353	$ 361	$ 369	$ 377	$ 385	$ 394	$ 402	$ 411
Cost - increase			$ 319,613	$ 655,048	$ 671,599	$ 688,388	$ 704,691	$ 720,646	$ 737,332	$ 755,120	$ 773,114	$ 790,896	$ 809,087	$ 827,696	$ 846,733	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CPI - Delloite Forecast	Forecast	%	2.4%	2.5%	2.5%	2.5%	2.4%	2.3%	2.3%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
Tree Canopy Lead (M05 ASU)			$ 125,000	$ 128,094	$ 131,331	$ 134,614	$ 137,802	$ 140,922	$ 144,185	$ 147,663	$ 151,182	$ 154,659	$ 158,216	$ 161,855	$ 165,578	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Breakdown	**%**																					
Labour	50%		159,806	327,524	335,799	344,194	352,345	360,323	368,666	377,560	386,557	395,448	404,543	413,848	423,366	-	-	-	-	-	-	-
Plant	5%		15,981	32,752	33,580	34,419	35,235	36,032	36,867	37,756	38,656	39,545	40,454	41,385	42,337	-	-	-	-	-	-	-
Materials	45%		143,826	294,772	302,219	309,775	317,111	324,291	331,799	339,804	347,901	355,903	364,089	372,463	381,030	-	-	-	-	-	-	-
Total	100%		$ 444,613	$ 783,142	$ 802,929	$ 823,001	$ 842,492	$ 861,568	$ 881,516	$ 902,783	$ 924,296	$ 945,555	$ 967,303	$ 989,551	$ 1,012,310	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Street Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Tree Watering	$ 78.00		$ 79.90	$ 161.78	$ 327.66	$ 335.85	$ 343.80	$ 351.59	$ 359.73	$ 368.40	$ 377.18	$ 385.86	$ 394.73	$ 403.81	$ 413.10	$ 422.60	$ 431.90	$ 441.40	$ -	$ -	$ -	$ -
Tree Maintenance - Small Tree	$ 53.00		$ 54.29	$ 55.64	$ 57.04	$ 58.47	$ 59.85	$ 61.21	$ 62.63	$ 64.14	$ 65.67	$ 67.18	$ 68.72	$ 70.30	$ 71.92	$ 73.57	$ 75.19	$ 76.84	$ -	$ -	$ -	$ -
Whole Street Pruning	$ 10.30		$ -	$ -	$ -	$ -	$ 11.63	$ 11.90	$ 108.30	$ 110.91	$ 136.26	$ 139.40	$ 185.38	$ 189.65	$ 194.01	$ 198.47	$ 202.84	$ 207.30	$ 211.86	$ 216.52	$ 221.29	$ 226.15
Tree Maintenance - Reactive	$ 121.00		$ -	$ -	$ -	$ -	$ 143.48	$ 146.73	$ 270.23	$ 276.74	$ 439.18	$ 449.28	$ 597.49	$ 611.24	$ 625.29	$ 639.68	$ 653.75	$ 668.13	$ 682.83	$ 697.85	$ 713.20	$ 728.89
	$ 262.30		**$ 134.20**	**$ 217.42**	**$ 384.70**	**$ 394.32**	**$ 558.77**	**$ 571.42**	**$ 800.87**	**$ 820.19**	**$ 1,018.29**	**$ 1,041.71**	**$ 1,246.33**	**$ 1,275.00**	**$ 1,304.32**	**$ 1,334.32**	**$ 1,363.68**	**$ 1,393.68**	**$ 894.69**	**$ 914.37**	**$ 934.49**	**$ 955.05**
FTE Increases			1 x Tree Est	2 x Tree Est	2 x Tree Est		3 x Arb		3 x Arb		3 x Arb		3 x Arb									
Total Trees (increase)		**2,400**	$ 257,657	$ 521,811	$ 923,277	$ 946,358	$ 1,341,037	$ 1,371,401	$ 1,922,097	$ 1,968,467	$ 2,443,888	$ 2,500,098	$ 2,991,193	$ 3,059,991	$ 3,130,370	$ 3,202,369	$ 3,272,821	$ 3,344,823	$ 2,147,259	$ 2,194,498	$ 2,242,777	$ 2,292,118
Resource Breakdown	%																					
Labour	75%		215,974	461,778	790,885	812,812	1,115,757	1,144,602	1,462,492	1,506,543	1,838,194	1,891,593	2,231,848	2,297,205	2,364,066	2,432,465	2,499,394	2,567,796	1,430,110	1,474,988	1,520,853	1,567,727
Plant	20%		28,800	33,943	86,229	86,229	158,229	158,229	363,500	363,500	483,500	483,500	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786
Materials	1%		2,577	5,218	9,233	9,464	13,410	13,714	19,221	19,685	24,439	25,001	29,912	30,600	31,304	32,024	32,728	33,448	21,473	21,945	22,428	22,921
Contractor	4%		10,306	20,872	36,931	37,854	53,641	54,856	76,884	78,739	97,756	100,004	119,648	122,400	125,215	128,095	130,913	133,793	85,890	87,780	89,711	91,685
Total	100%		$ 257,657	$ 521,811	$ 923,277	$ 946,358	$ 1,341,037	$ 1,371,401	$ 1,922,097	$ 1,968,467	$ 2,443,888	$ 2,500,098	$ 2,991,193	$ 3,059,991	$ 3,130,370	$ 3,202,369	$ 3,272,821	$ 3,344,823	$ 2,147,259	$ 2,194,498	$ 2,242,777	$ 2,292,118

Reserve Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Very Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Total Trees Increase	**20%**	**600**	**300**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Cost - unit rate		*185*	$ 190	$ 194	$ 199	$ 204	$ 209	$ 214	$ 219	$ 224	$ 229	$ 234	$ 240	$ 245	$ 251	$ 257	$ 262	$ 268	$ 274	$ 280	$ 286	$ 293
Cost - unit increase		*900*	$ 56,854	$ 116,523	$ 119,467	$ 122,454	$ 125,354	$ 128,192	$ 131,160	$ 134,324	$ 137,525	$ 140,688	$ 143,924	$ 147,234	$ 150,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CPI - Delloite Forecast	Forecast	%	2.4%	2.5%	2.5%	2.5%	2.4%	2.3%	2.3%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
Cost - including CPI			$ 58,241	$ 119,407	$ 122,486	$ 125,515	$ 128,322	$ 131,094	$ 134,197	$ 137,565	$ 140,802	$ 143,924	$ 147,234	$ 150,621	$ 154,085	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Breakdown	%																					
Labour	50%		29,121	59,704	61,243	62,757	64,161	65,547	67,098	68,782	70,401	71,962	73,617	75,310	77,042	-	-	-	-	-	-	-
Plant	5%		2,912	5,970	6,124	6,276	6,416	6,555	6,710	6,878	7,040	7,196	7,362	7,531	7,704	-	-	-	-	-	-	-
Materials	45%		26,209	53,733	55,118	56,482	57,745	58,992	60,389	61,904	63,361	64,766	66,255	67,779	69,338	-	-	-	-	-	-	-
Community Lead Planting Initiatives			50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total	100%		$ 108,241	$ 169,407	$ 172,486	$ 175,515	$ 178,322	$ 181,094	$ 184,197	$ 187,565	$ 190,802	$ 193,924	$ 197,234	$ 200,621	$ 204,085	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000

Reserve Trees - Maintenance	Rate	Units	2024-25	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43
Water usage (drip system)	$ 4.43	600	$ 4.54	$ 4.65	$ 4.77	$ 4.89	$ 5.00	$ 5.12	$ 5.23	$ 5.36	$ 5.49	$ 5.61	$ 5.74	$ 5.88	$ 6.01	$ 6.15	$ 6.28	$ 6.42	$ 6.56	$ 6.71	$ 6.86	$ 7.01
Tree Maintenance - Small Tree	$ 28.00	600	$ 28.68	$ 29.39	$ 30.14	$ 30.89	$ 31.62	$ 32.34	$ 33.09	$ 33.88	$ 34.69	$ 35.49	$ 36.31	$ 37.14	$ 37.99	$ 38.87	$ 39.72	$ 40.60	$ -	$ -	$ -	$ -
	$ 32.43		**$ 33.22**	**$ 34.04**	**$ 34.90**	**$ 35.78**	**$ 36.62**	**$ 37.45**	**$ 38.32**	**$ 39.24**	**$ 40.18**	**$ 41.10**	**$ 42.05**	**$ 43.02**	**$ 44.01**	**$ 45.02**	**$ 46.01**	**$ 47.02**	**$ 6.56**	**$ 6.71**	**$ 6.86**	**$ 7.01**
Total Trees (increase)		**600**	$ 9,966	$ 20,932	$ 21,471	$ 22,002	$ 22,495	$ 22,980	$ 23,524	$ 24,115	$ 24,682	$ 25,229	$ 25,810	$ 26,403	$ 27,011	$ 27,632	$ 28,212	$ 28,833	$ 4,025	$ 4,114	$ 4,204	$ 4,297
Resource Breakdown	%																					
Labour	64%		6,378	13,396	13,742	14,082	14,397	14,708	15,056	15,433	15,797	16,147	16,518	16,898	17,287	17,684	18,056	18,453	2,576	2,633	2,691	2,750
Plant	28%		2,791	5,861	6,012	6,161	6,298	6,435	6,587	6,752	6,911	7,064	7,227	7,393	7,563	7,737	7,899	8,073	1,127	1,152	1,177	1,203
Materials	1%		100	209	215	220	225	230	235	241	247	252	258	264	270	276	282	288	40	41	42	43
Contractor	7%		698	1,465	1,503	1,540	1,575	1,609	1,647	1,688	1,728	1,766	1,807	1,848	1,891	1,934	1,975	2,018	282	288	294	301
Total	100%		$ 9,966	$ 20,932	$ 21,471	$ 22,002	$ 22,495	$ 22,980	$ 23,524	$ 24,115	$ 24,682	$ 25,229	$ 25,810	$ 26,403	$ 27,011	$ 27,632	$ 28,212	$ 28,833	$ 4,025	$ 4,114	$ 4,204	$ 4,297

Total			**$ 820,478**	**$ 1,495,293**	**$ 1,920,164**	**$ 1,966,877**	**$ 2,384,346**	**$ 2,437,044**	**$ 3,011,334**	**$ 3,082,929**	**$ 3,583,669**	**$ 3,664,806**	**$ 4,181,540**	**$ 4,276,566**	**$ 4,373,777**	**$ 3,280,001**	**$ 3,351,033**	**$ 3,423,656**	**$ 2,201,284**	**$ 2,248,612**	**$ 2,296,982**	**$ 2,346,415**

Option 2

TREE CANOPY TARGETS - COST MODEL (3,000 PER YEAR)

Tree Size CCS Land	Recommended %	Nos.	
Very Small	10%	300	Streets
Small	25%	750	Streets
Medium	45%	1,350	Streets
Large	10%	300	Reserve
Very Large	10%	300	Reserve
Total	100%	**3,000**	Increase required

Owner	Tree Nos.	Current	Increase
CCS Land	6,000	3,000	3,000
Non-CCS Land	4,000		
Total/Annum	10,000		

Street Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Very Small	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Small	25%	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Medium	45%	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Total Trees Increase	**80%**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	**2,400**	-	-	-	-	-	-	-
Cost - unit rate		$ *260*	$ 266	$ 273	$ 280	$ 287	$ 294	$ 300	$ 307	$ 315	$ 322	$ 330	$ 337	$ 345	$ 353	$ 361	$ 369	$ 377	$ 385	$ 394	$ 402	$ 411
Cost - increase			$ 639,226	$ 655,048	$ 671,599	$ 688,388	$ 704,691	$ 720,646	$ 737,332	$ 755,120	$ 773,114	$ 790,896	$ 809,087	$ 827,696	$ 846,733	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CPI - Delloite Forecast	Forecast	%	2.4%	2.5%	2.5%	2.5%	2.4%	2.3%	2.3%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
Tree Canopy Lead (M05 ASU)			$ 125,000	$ 128,094	$ 131,331	$ 134,614	$ 137,802	$ 140,922	$ 144,185	$ 147,663	$ 151,182	$ 154,659	$ 158,216	$ 161,855	$ 165,578	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Breakdown	**%**																					
Labour	50%		319,613	327,524	335,799	344,194	352,345	360,323	368,666	377,560	386,557	395,448	404,543	413,848	423,366	-	-	-	-	-	-	-
Plant	5%		31,961	32,752	33,580	34,419	35,235	36,032	36,867	37,756	38,656	39,545	40,454	41,385	42,337	-	-	-	-	-	-	-
Materials	45%		287,652	294,772	302,219	309,775	317,111	324,291	331,799	339,804	347,901	355,903	364,089	372,463	381,030	-	-	-	-	-	-	-
Total	100%		$ 764,226	$ 783,142	$ 802,929	$ 823,001	$ 842,492	$ 861,568	$ 881,516	$ 902,783	$ 924,296	$ 945,555	$ 967,303	$ 989,551	$ 1,012,310	$ -	$ -	$ -	$ -	$ -	$ -	$ -

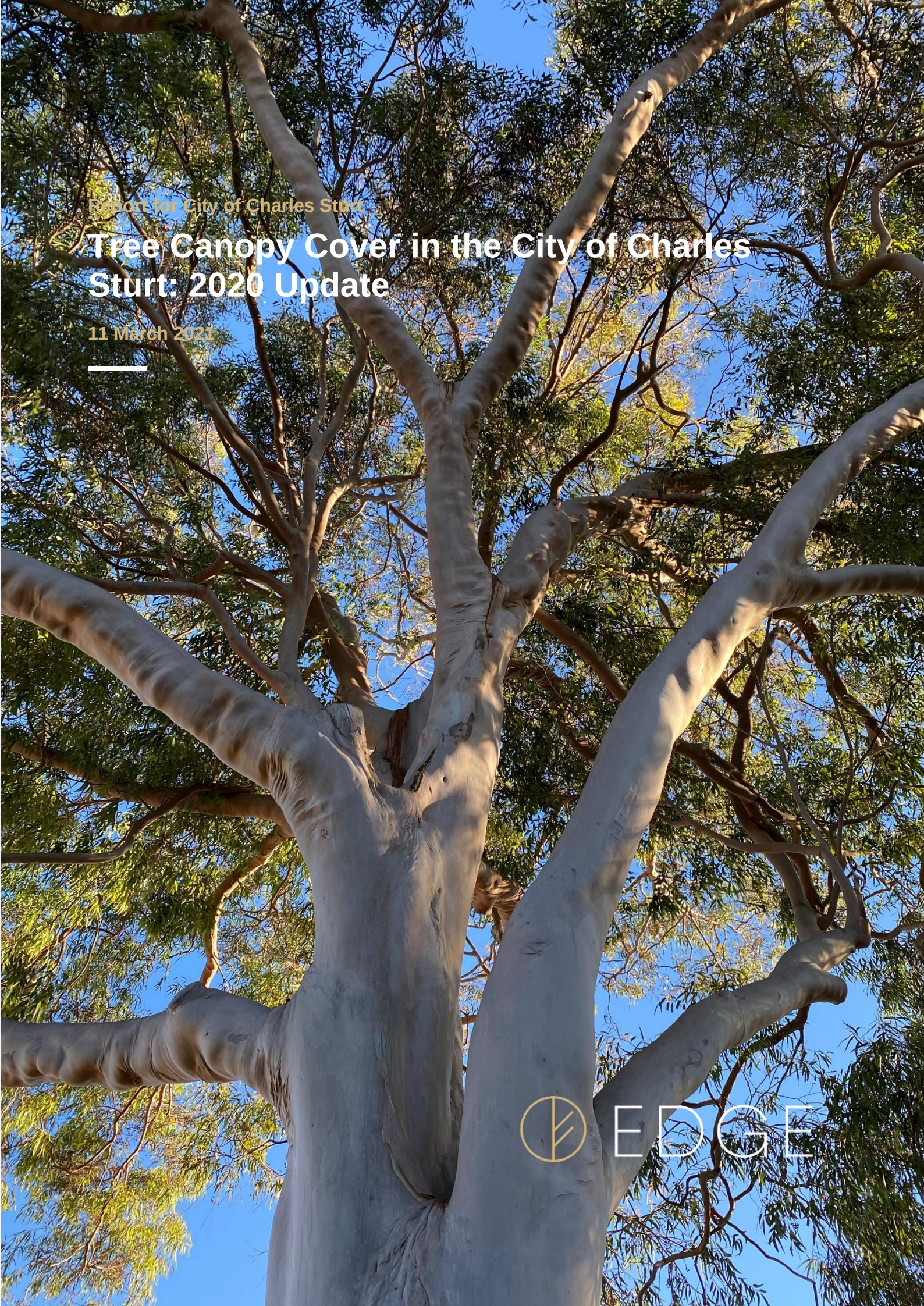
Street Trees - Maintenance	Rate	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Tree Watering	$ 78.00		$ 79.90	$ 161.78	$ 327.66	$ 335.85	$ 343.80	$ 351.59	$ 359.73	$ 368.40	$ 377.18	$ 385.86	$ 394.73	$ 403.81	$ 413.10	$ 422.60	$ 431.90	$ 441.40	$ -	$ -	$ -	$ -
Tree Maintenance - Small Tree	$ 53.00		$ 54.29	$ 55.64	$ 57.04	$ 58.47	$ 59.85	$ 61.21	$ 62.63	$ 64.14	$ 65.67	$ 67.18	$ 68.72	$ 70.30	$ 71.92	$ 73.57	$ 75.19	$ 76.84	$ -	$ -	$ -	$ -
Whole Street Pruning	$ 10.30		$ -	$ -	$ -	$ -	$ 11.63	$ 11.90	$ 108.30	$ 110.91	$ 136.26	$ 139.40	$ 185.38	$ 189.65	$ 194.01	$ 198.47	$ 202.84	$ 207.30	$ 211.86	$ 216.52	$ 221.29	$ 226.15
Tree Maintenance - Reactive	$ 121.00		$ -	$ -	$ -	$ -	$ 143.48	$ 146.73	$ 270.23	$ 276.74	$ 439.18	$ 449.28	$ 597.49	$ 611.24	$ 625.29	$ 639.68	$ 653.75	$ 668.13	$ 682.83	$ 697.85	$ 713.20	$ 728.89
	$ 262.30		**$ 134.20**	**$ 217.42**	**$ 384.70**	**$ 394.32**	**$ 558.77**	**$ 571.42**	**$ 800.87**	**$ 820.19**	**$ 1,018.29**	**$ 1,041.71**	**$ 1,246.33**	**$ 1,275.00**	**$ 1,304.32**	**$ 1,334.32**	**$ 1,363.68**	**$ 1,393.68**	**$ 894.69**	**$ 914.37**	**$ 934.49**	**$ 955.05**
FTE Increases			2 x Tree Est	2 x Tree Est	2 x Tree Est		3 x Arb		3 x Arb		3 x Arb		3 x Arb									
Total Trees (increase)		**2,400**	$ 322,071	$ 521,811	$ 923,277	$ 946,358	$ 1,341,037	$ 1,371,401	$ 1,922,097	$ 1,968,467	$ 2,443,888	$ 2,500,098	$ 2,991,193	$ 3,059,991	$ 3,130,370	$ 3,202,369	$ 3,272,821	$ 3,344,823	$ 2,147,259	$ 2,194,498	$ 2,242,777	$ 2,292,118
Resource Breakdown	%																					
Labour	75%		277,168	461,778	790,885	812,812	1,115,757	1,144,602	1,462,492	1,506,543	1,838,194	1,891,593	2,231,848	2,297,205	2,364,066	2,432,465	2,499,394	2,567,796	1,430,110	1,474,988	1,520,853	1,567,727
Plant	20%		28,800	33,943	86,229	86,229	158,229	158,229	363,500	363,500	483,500	483,500	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786	609,786
Materials	1%		3,221	5,218	9,233	9,464	13,410	13,714	19,221	19,685	24,439	25,001	29,912	30,600	31,304	32,024	32,728	33,448	21,473	21,945	22,428	22,921
Contractor	4%		12,883	20,872	36,931	37,854	53,641	54,856	76,884	78,739	97,756	100,004	119,648	122,400	125,215	128,095	130,913	133,793	85,890	87,780	89,711	91,685
Total	100%		$ 322,071	$ 521,811	$ 923,277	$ 946,358	$ 1,341,037	$ 1,371,401	$ 1,922,097	$ 1,968,467	$ 2,443,888	$ 2,500,098	$ 2,991,193	$ 3,059,991	$ 3,130,370	$ 3,202,369	$ 3,272,821	$ 3,344,823	$ 2,147,259	$ 2,194,498	$ 2,242,777	$ 2,292,118

Reserve Tree - Planting	%	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43	2044-45
Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Very Large	10%	300	300	300	300	300	300	300	300	300	300	300	300	300	300							
Total Trees Increase	**20%**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	-	-	-	-	-	-	-
Cost - unit rate		*185*	$ 190	$ 194	$ 199	$ 204	$ 209	$ 214	$ 219	$ 224	$ 229	$ 234	$ 240	$ 245	$ 251	$ 257	$ 262	$ 268	$ 274	$ 280	$ 286	$ 293
Cost - unit increase		*900*	$ 113,708	$ 116,523	$ 119,467	$ 122,454	$ 125,354	$ 128,192	$ 131,160	$ 134,324	$ 137,525	$ 140,688	$ 143,924	$ 147,234	$ 150,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CPI - Delloite Forecast	Forecast	%	2.4%	2.5%	2.5%	2.5%	2.4%	2.3%	2.3%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
Cost - including CPI			$ 116,483	$ 119,407	$ 122,486	$ 125,515	$ 128,322	$ 131,094	$ 134,197	$ 137,565	$ 140,802	$ 143,924	$ 147,234	$ 150,621	$ 154,085	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Resource Breakdown	%																					
Labour	50%		58,241	59,704	61,243	62,757	64,161	65,547	67,098	68,782	70,401	71,962	73,617	75,310	77,042	-	-	-	-	-	-	-
Plant	5%		5,824	5,970	6,124	6,276	6,416	6,555	6,710	6,878	7,040	7,196	7,362	7,531	7,704	-	-	-	-	-	-	-
Materials	45%		52,417	53,733	55,118	56,482	57,745	58,992	60,389	61,904	63,361	64,766	66,255	67,779	69,338	-	-	-	-	-	-	-
Community Lead Planting Initiatives			50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total	100%		$ 166,483	$ 169,407	$ 172,486	$ 175,515	$ 178,322	$ 181,094	$ 184,197	$ 187,565	$ 190,802	$ 193,924	$ 197,234	$ 200,621	$ 204,085	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000

Reserve Trees - Maintenance	Rate	Units	2024-25	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36	2036-37	2037-38	2038-39	2039-40	2040-41	2041-42	2042-43
Water usage (drip system)	$ 4.43	600	$ 4.54	$ 4.65	$ 4.77	$ 4.89	$ 5.00	$ 5.12	$ 5.23	$ 5.36	$ 5.49	$ 5.61	$ 5.74	$ 5.88	$ 6.01	$ 6.15	$ 6.28	$ 6.42	$ 6.56	$ 6.71	$ 6.86	$ 7.01
Tree Maintenance - Small Tree	$ 28.00	600	$ 28.68	$ 29.39	$ 30.14	$ 30.89	$ 31.62	$ 32.34	$ 33.09	$ 33.88	$ 34.69	$ 35.49	$ 36.31	$ 37.14	$ 37.99	$ 38.87	$ 39.72	$ 40.60	$ -	$ -	$ -	$ -
	$ 32.43		**$ 33.22**	**$ 34.04**	**$ 34.90**	**$ 35.78**	**$ 36.62**	**$ 37.45**	**$ 38.32**	**$ 39.24**	**$ 40.18**	**$ 41.10**	**$ 42.05**	**$ 43.02**	**$ 44.01**	**$ 45.02**	**$ 46.01**	**$ 47.02**	**$ 6.56**	**$ 6.71**	**$ 6.86**	**$ 7.01**
Total Trees (increase)		**600**	$ 19,933	$ 20,932	$ 21,471	$ 22,002	$ 22,495	$ 22,980	$ 23,524	$ 24,115	$ 24,682	$ 25,229	$ 25,810	$ 26,403	$ 27,011	$ 27,632	$ 28,212	$ 28,833	$ 4,025	$ 4,114	$ 4,204	$ 4,297
Resource Breakdown	%																					
Labour	64%		12,757	13,396	13,742	14,082	14,397	14,708	15,056	15,433	15,797	16,147	16,518	16,898	17,287	17,684	18,056	18,453	2,576	2,633	2,691	2,750
Plant	28%		5,581	5,861	6,012	6,161	6,298	6,435	6,587	6,752	6,911	7,064	7,227	7,393	7,563	7,737	7,899	8,073	1,127	1,152	1,177	1,203
Materials	1%		199	209	215	220	225	230	235	241	247	252	258	264	270	276	282	288	40	41	42	43
Contractor	7%		1,395	1,465	1,503	1,540	1,575	1,609	1,647	1,688	1,728	1,766	1,807	1,848	1,891	1,934	1,975	2,018	282	288	294	301
Total	100%		$ 19,933	$ 20,932	$ 21,471	$ 22,002	$ 22,495	$ 22,980	$ 23,524	$ 24,115	$ 24,682	$ 25,229	$ 25,810	$ 26,403	$ 27,011	$ 27,632	$ 28,212	$ 28,833	$ 4,025	$ 4,114	$ 4,204	$ 4,297

Total			**$ 1,272,713**	**$ 1,495,293**	**$ 1,920,164**	**$ 1,966,877**	**$ 2,384,346**	**$ 2,437,044**	**$ 3,011,334**	**$ 3,082,929**	**$ 3,583,669**	**$ 3,664,806**	**$ 4,181,540**	**$ 4,276,566**	**$ 4,373,777**	**$ 3,280,001**	**$ 3,351,033**	**$ 3,423,656**	**$ 2,201,284**	**$ 2,248,612**	**$ 2,296,982**	**$ 2,346,415**

APPENDIX 5



Report for City of Charles Sturt

Tree Canopy Cover in the City of Charles Sturt: 2020 Update

11 March 2021

EDGE

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1 Key Findings

Whilst broad land cover trends remained consistent with the 2016 report, the key findings from this analysis are indicative of ongoing City-wide urban infill. Specifically, significant increases in impervious cover with decreases in tree canopy and plantable space cover, especially on private land. For example, as was noted in the 2016 report, it was still evident that tree canopy loss on private land is still outpacing gains on public land (Figure 1). This means that Council's ongoing tree planting efforts on public land are currently failing to stem the loss of canopy cover across the City.

St Clair also continues to be an anomaly amid general suburb-level land cover change trends as the suburb-wide conversion from the race-course to residential developments continues. The anomaly being that on public and private land, both tree canopy and impervious cover are increasing, with plantable space decreasing. Compared to the findings in the 2016 report, the trend in St Clair is now for the conversion of potential plantable space to a mixture of built, tree canopy, and grass cover. This trend is expected to continue for at least the next 3-5years as the residential development is completed. Following completion of the development works it is anticipated that the increase in impervious cover will slow for at least the following 10 years whilst the increase in tree canopy will increase as newly planted trees grow and mature across the suburb.

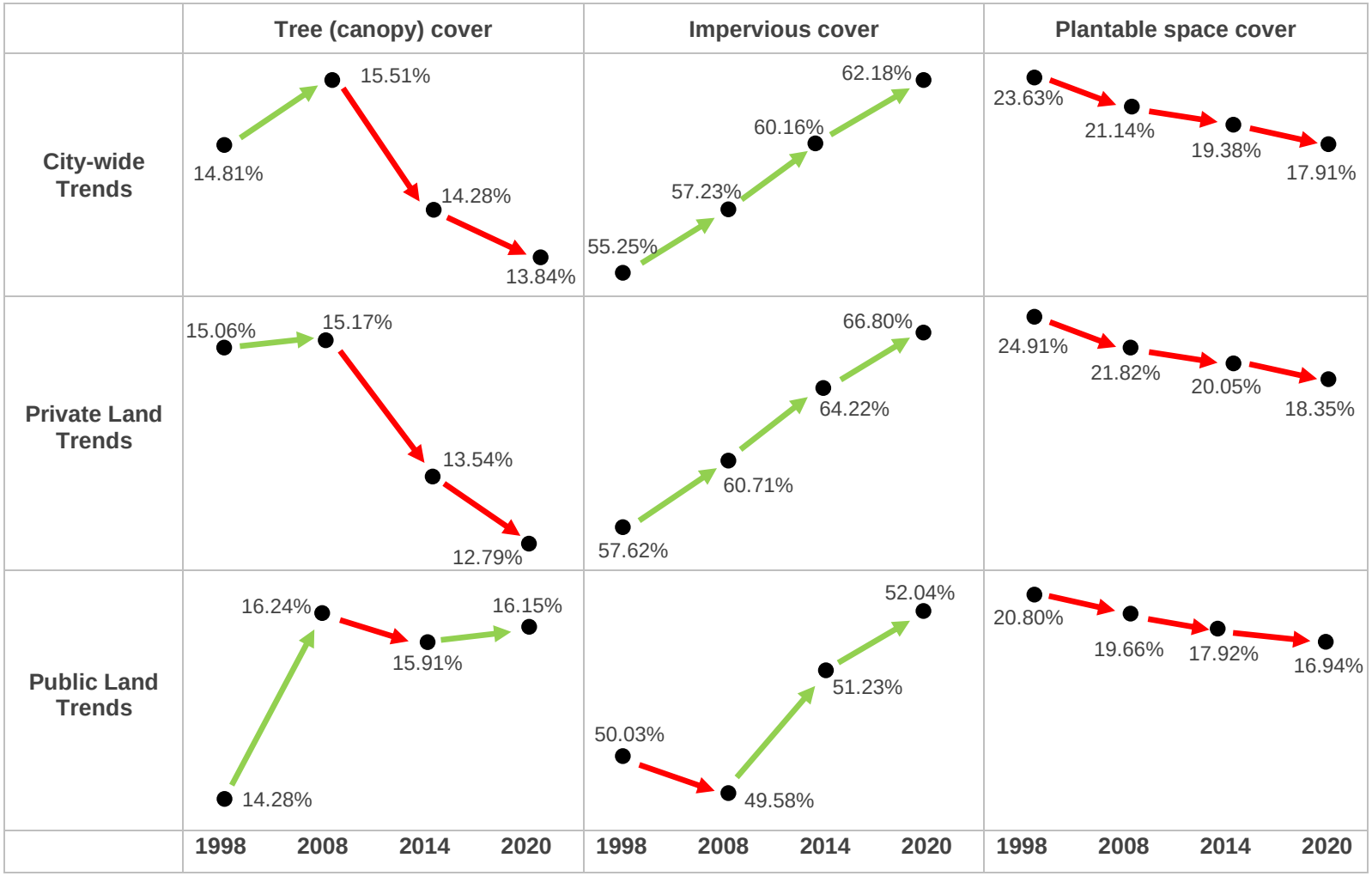

Figure 1. Comparison of high-level land cover change trends across the City as a whole and on private and public land, between 1998, 2008, 2014, and 2020. Values shown indicate the percentage of the tenure type comprised by the land cover type.

2 Context and Method

The following provides the findings from the 2020 land cover analysis which was conducted as an update to the benchmark and change over time analyses presented in the 2016 benchmark landcover report (Annex A). The same approach and method as detailed in the 2016 report was used for the 2020 analyses, and the same consultant conducted all analyses[1]. As such, this report should be read in conjunction with the 2016 report for a complete understanding of the background and context. Providing this update using the same approach as the 2016 analysis provides consistency across years and allows for direct comparisons of results. Aerial imagery from February 2020 was used to assess "current" (i.e. 2020) land cover across the city and in each suburb. Change in land cover over time was assessed between 2020 and historical years presented in the 2016 benchmark report. Aerial imagery was provided by Council for the purposes of these analyses.

3 Results

3.1 City of Charles Sturt

The following section provides the landcover results at a City-wide scale, including all public and private land tenures.

3.1.1 Land cover change trends to 2020

In 2020, the relative composition trend of land cover types remained that same; that is, like in previous analysed years, impervious land cover still dominated the City area, followed by potential plantable space, tree canopy, and other cover (Figure 2). Despite the composition trend being unchanged, the actual percentages of each land cover type had changed.

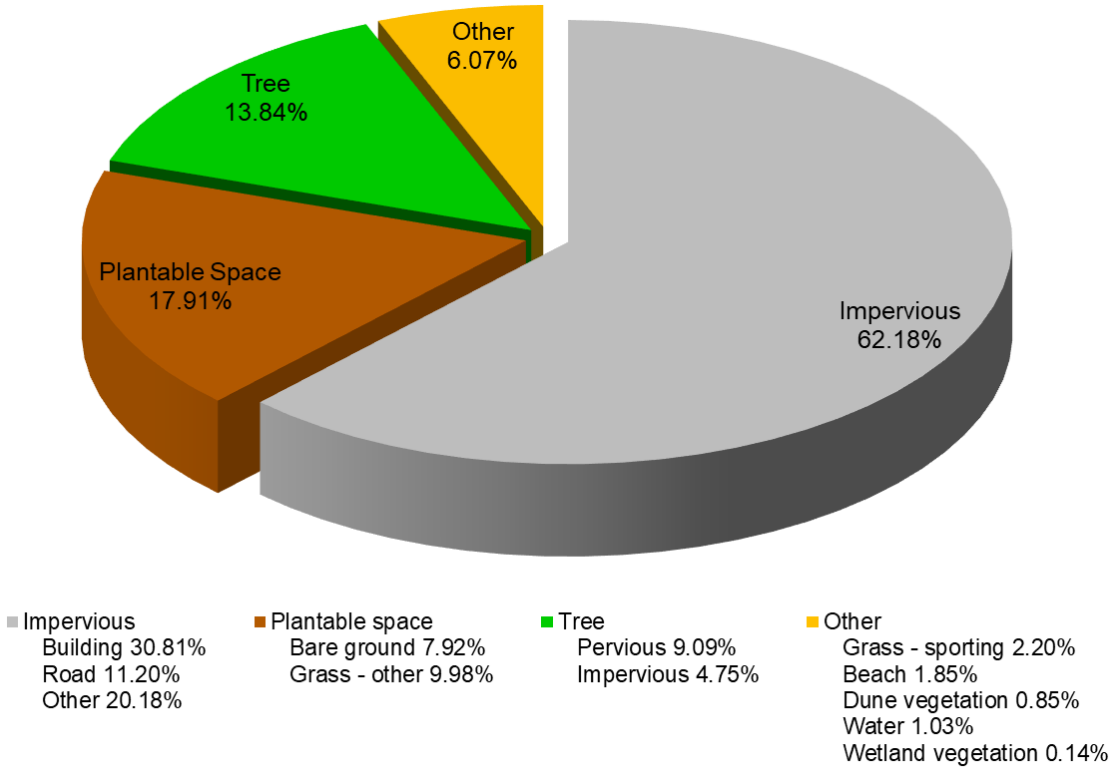

Figure 2. Estimated land cover across the City of Charles Sturt in 2020.

[1] Note that Seed Consulting Services (authored the 2016 report) merged with Edge Environment in late 2019

Impervious land cover comprised 62.18% of the City in 2020 (Figure 2), which was a highly significant increase of 2.02% since 2014 ($p<0.001$)[2] (Figure 3). At 30.81% of the City area, buildings comprised almost half of the impervious surfaces (Figure 2) and had increased significantly from 29.32% in 2014 and 26.24% in 1998 ($p=0.003$ and $p<0.001$, respectively) (Figure 3). The ongoing increase in building cover is likely due to ongoing urban infill and is the main driver of the increase in impervious cover, followed by an increase (not statistically significant[3]) in road and other cover.

Tree canopy cover comprised 13.84% of the City in 2020 (Figure 2) representing a loss of 0.44% since 2014. Whilst this city-wide loss over six years was not statistically significant, the 1.67% loss of tree cover over the last 12 years from 2008 was highly significant ($p<0.001$) (Figure 3). Again, this loss of canopy cover is considered to be likely driven by the ongoing urban infill across the City (Plate 1).

Plate 1. Example of urban infill resulting in tree canopy loss in Findon between 2014 (left) and 2020 (right).

Plantable space cover comprised 17.91% of the City in 2020 (Figure 2), which is a highly significant loss of 1.47% since 2014 ($p<0.001$). This was due to significant decreases in both bare ground and grass cover ($p=0.034$ and $p=0.012$). Observations during the analysis process suggests that this loss of plantable space is primarily due to replacement of previously plantable space by built impervious surfaces as part of the urban infill process (Plate 2), though may also be due to other land use changes, such as plantings and landscaping being established, and even tree crowns increasing in size and covering previously uncovered plantable space.

Other land cover refers to grassed sporting areas, beach, dune vegetation, water, and wetland vegetation, which together comprised the remaining 6.07% of land within the City in 2020 (Figure 2). The land cover type has remained relatively consistent across the years since 1998, with small changes considered to be due to fluctuations in water levels and associated wetland vegetation (Figure 3).

[2] Differences were considered statistically significant if p-values were less than or equal to the 0.05 critical alpha level

[3] Note that changes that are not statistically significant may still be practically significant for management and health purposes.

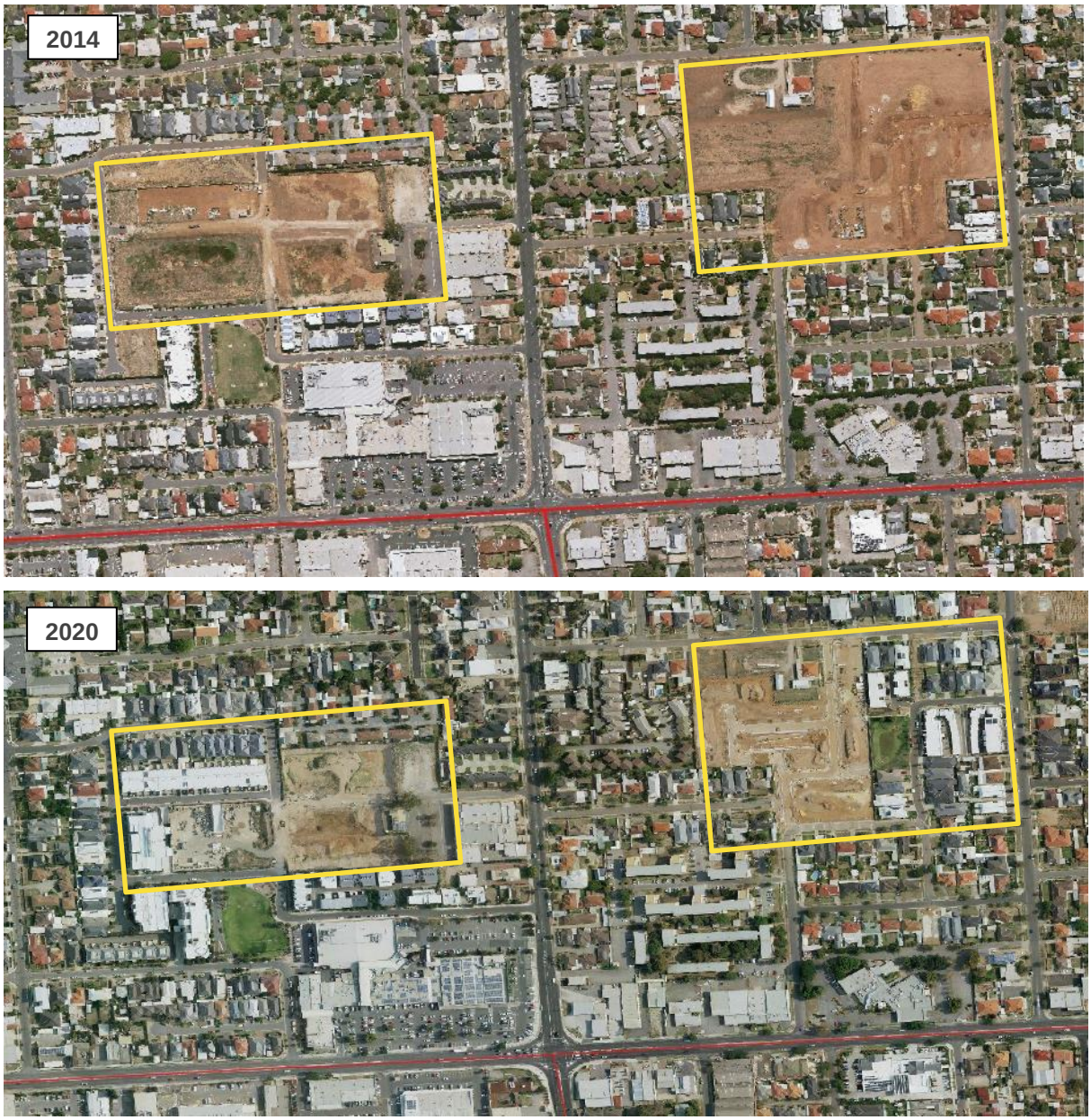

Plate 2. Example of land conversion from classification of plantable space in 2014 (top) to classification of impervious surfaces in 2020 (bottom).

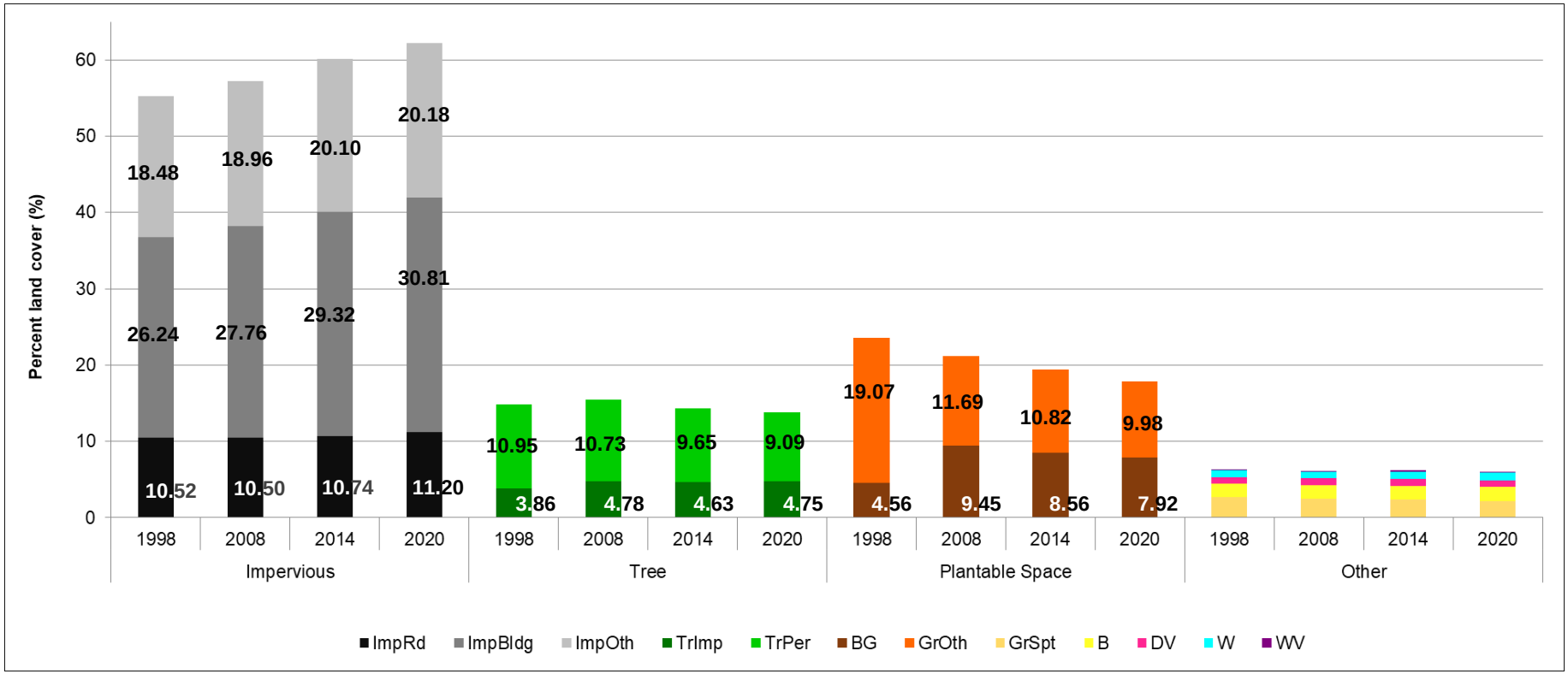

Figure 3. Percent land cover across the City of Charles Sturt in 1998, 2008, 2014, and 2020. Land cover categories abbreviated as follows: ImpRd = impervious – road; ImpBld = impervious – building; ImpOth = impervious – other; TrImp = tree – impervious; TrPer = tree – pervious; BG = bare ground; GrOth = grass – other; GrSpt = grass – sporting; B = beach; DV = dune vegetation; W = water; WV = wetland vegetation.

3.1.2 Public versus private land

Trends in impervious cover, tree cover, and plantable space varied between private and public tenure, with generally more change occurring on private than public land (Figure 4). The following summarises key trends in land cover change relative to tenure.

Impervious cover: in 2020, significantly more ($p<0.001$)[4] of the City's impervious cover occurred on private than public lands (73.82% and 26.18%, respectively), with significantly more buildings and other impervious cover occurring on private lands and significantly more roads occurring on public lands.

Between 2014 and 2020, the increase in percent impervious cover across the City resulted from increases on both public and private lands of all impervious cover types, though the greatest increase was of buildings on private land. Of the private land in the Council area, the proportion covered by buildings increased significantly by 2.12% since 2014, and 6.83% since 1998. These patterns of land cover change are consistent with urban infill.

Tree cover: in 2020, significantly more ($p<0.001$) of the City's tree cover occurred on private than public lands (63.51% and 36.49%, respectively). More tree cover on private land occurred over pervious surfaces (e.g. lawns and private gardens) than over impervious surfaces, whereas the reverse was true on public land, with more canopy covering impervious surfaces (e.g. footpaths and roads).

The city-wide decline in tree cover observed between 1998 and 2014 in the benchmark report has continued over the last six years to 2020, with tree cover declining from 14.28% in 2014 to 13.84% in 2020. This city-wide trend continued to be driven by the losses on private land outpacing gains on public land; public land tree cover increased by 0.07%, though private land tree cover declined by 0.51%. This trend is mirrored over longer timeframes, with public land tree cover increasing by 0.59% since 1998, and private land tree cover decreasing by 1.56% over the 22-year period.

Plantable space: in 2020, significantly more ($p<0.001$) of the City's plantable space occurred on private than public lands (70.42% and 29.58%, respectively). This is considered to be due to the high proportion of grass lawns and gardens on private land.

Between 2014 and 2020, declines of non-sporting grass and bare ground areas occurred on public and private lands, though neither was statistically significant.

Other land cover: in 2020, significantly more ($p<0.001$) of the City's "other" land cover occurred on public than private lands (76.64% and 23.36%, respectively). This trend was true for each of the composite land cover categories, except sports field related grassy areas which occurred more on private than public lands (58.36% and 41.64%, respectively).

The proportion of other land cover remained relatively constant between 2014 and 2020, though there was a small non-significant decline which was largely driven by minor changes to sporting fields on private land, and also fluctuations in water levels over the years which means some point classifications vary between water or wetland vegetation.

[4] Refers to statistical significance. Further details are available in the 2016 report available in Annex A.

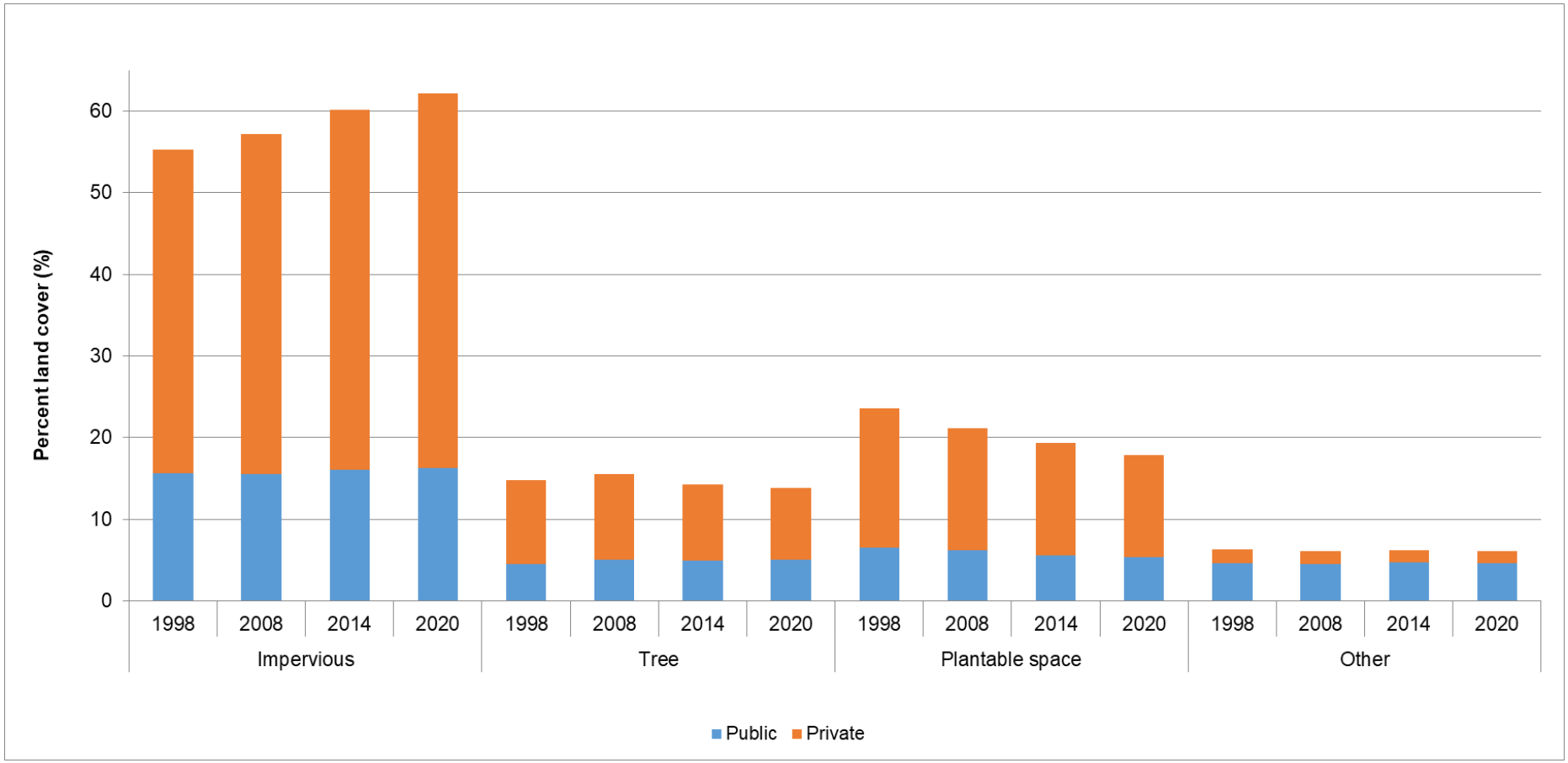

Figure 4. Percent land cover within public versus private land tenure across the City of Charles Sturt in 1998, 2008, 2014, and 2020.

3.2 Suburbs

The following sections provide the key findings of the current and change over time percent land cover analyses for each of the 39 suburbs assessed.

3.2.1 Land cover change trends to 2020

As described in the 2016 report, percent **impervious cover** was still greatest in Hindmarsh (83.06%) closely followed by Kilkenny (81.65%), and Tennyson still had the lowest percent cover (34.12%) (Figure 5). Therefore although the percentage cover in these suburbs had changed, their relative ranking with regards to the amount of cover in relation to other suburbs remains that same. Changes in other suburbs though did alter their relative ranking with respect to percentage cover since 2014. Of the 39 suburbs, 32 had an increase in impervious cover from 2014 (Figure 6); six suburbs had an apparent decline in impervious cover, and the percentage of impervious cover remained unchanged in Ovingham (Figure 5).

Since 2014, the greatest increase in impervious cover (7.06%) occurred in Beverley due largely to large areas of industrial/commercial development within the relatively small suburb area (Figure 6, Plate 3). The greatest decrease in impervious cover (1.88%) occurred in Woodville. When considered together with the increase in plantable space (bare ground) in this suburb over the same time period, this change in land cover is likely capturing the mid-point of urban infill where one house has been demolished to bare ground but new houses not yet built.

It should be noted though that decreases in impervious cover may also be recorded as tree grow and tree canopy increases to cover impervious surfaces. In this case, points may be assessed as “tree canopy” rather than impervious, despite there being no actual loss of impervious cover. In Woodville, for example, there was a small increase in tree canopy cover which may account for some of the apparent loss of impervious surfaces. However, the much greater increase in plantable space (bare ground) is more likely the driver of decreased impervious cover.

Plate 3. Main industrial/commercial development in Beverley showing bare ground in 2014 (left) and the built infrastructure in 2020 (right)

Of particular note are the statistically significant increases in road cover in Croydon and West Hindmarsh due to the Main South Road upgrade and associated infrastructure (Plate 4). Road cover in Croydon increased by 7.06% (p=0.004) and in West Hindmarsh by 4.94% (p=0.042). This is

particularly important when considering the heat-related impacts of roads and the need to integrate appropriate amounts of tree planting in road corridors at the planning phase. Once built, little opportunity exists to ameliorate this.

Plate 4. Croydon in 2014 (left) and 2020 (right) showing the substantial increase in road cover due to the Main South Road upgrade.

In 2020, of the 39 suburbs, 24 had lost **tree cover** since 2014, 13 had increased, and Woodville North and Findon had remained unchanged. Ovingham still had the highest percentage cover (26.59%), with this cover having increased by 1.18% since 2014 (Figure 5, Figure 6). The lowest percentage tree cover occurred in Athol Park (7.06%), which had decreased by 0.94% since 2014.

Despite the decrease in canopy cover in Athol Park, the percentage cover in 2020 was higher than the suburb with the lowest percentage cover in 2014 (St Clair, 5.88%). This indicates substantial canopy growth (or gain through tree plantings) in those suburbs that were lower in cover in 2014. For example, as posited in the 2016 report, canopy cover in St Clair had increased since 2014 (by 2.35%) due to the numerous plantings conducted as part of the wide-scale residential developments (Plate 5). It is likely this canopy cover will continue to increase over time as the development further establishes and planted trees grow and mature.

Percent plantable space was highest in Woodville West (25.18%) despite this suburb experiencing a 4.71% loss of plantable space since 2014 (Figure 5, Figure 6). St Clair had previously had the highest percent plantable space in 2014 due to the extensive land cover conversion in this suburb. This ongoing land cover conversion has resulted in the greatest loss of plantable space in 2020 (9.18%) as previous potential plantable space has either been planted or built on (Plate 5). The lowest percent plantable space still occurred in Hindmarsh (4.47%), with this suburb also experiencing a 1.88% loss of plantable space largely due to the widening and redevelopment of the Main South Road and Port Road intersection and associated infrastructure.

Other land cover (i.e. water, wetland vegetation, sporting fields, beach and dune vegetation) remained relatively constant between 2014 and 2020.

Plate 5. Example from St Clair showing the ongoing major land conversion and development, from the horse racing track in 2008 (top), to early conversion to residential development in 2014 (middle), to continued development including tree plantings in 2020 (bottom).

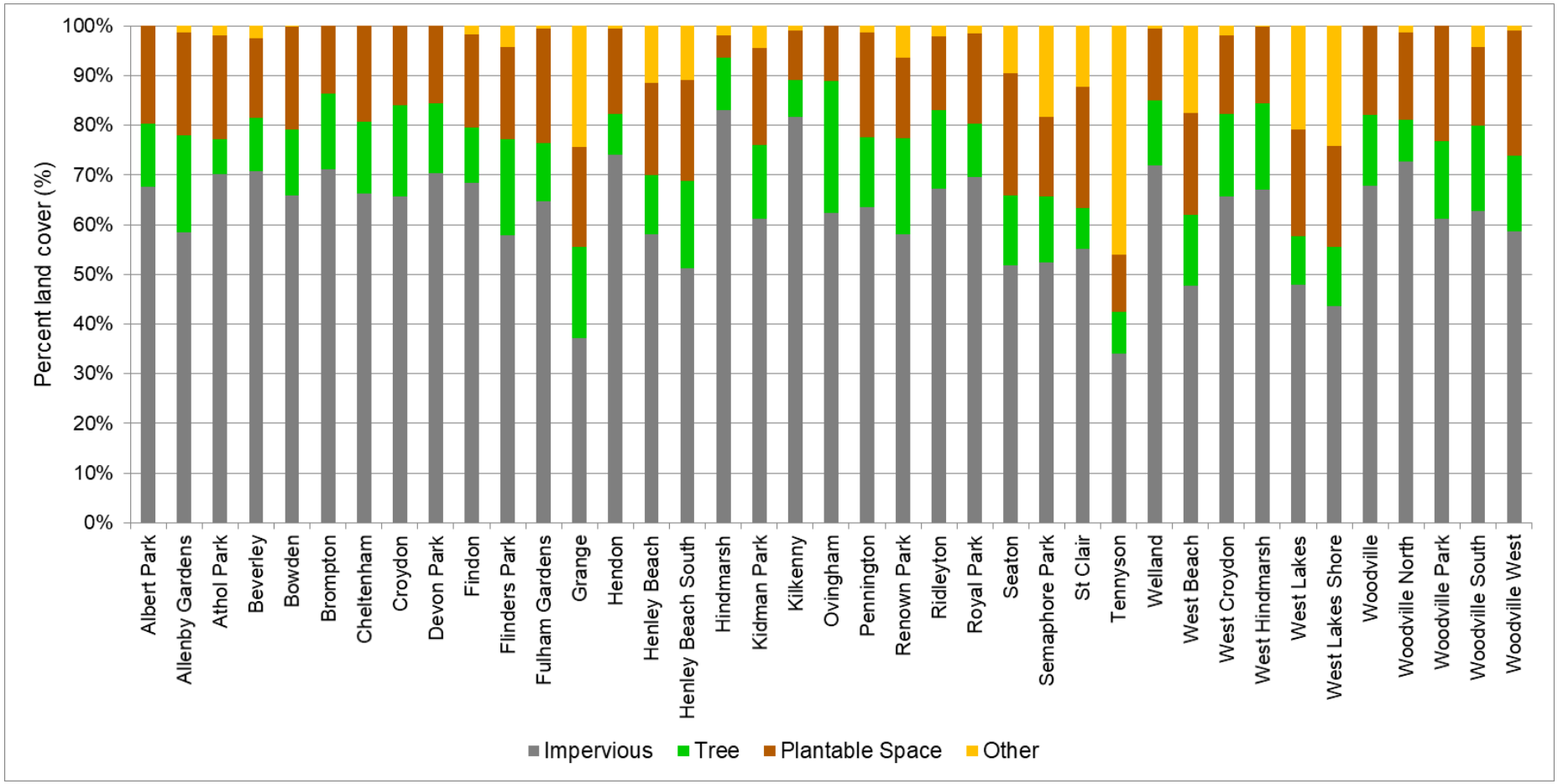

Figure 5. Percent 2020 land cover classes in each suburb. Land cover categories comprising each land cover class are as follows: Impervious = impervious – building + impervious – road + impervious – other; Tree = tree – pervious + tree – impervious; Plantable space = bare ground + grass – other; Other = grass – sporting + beach + dune vegetation + water + wetland vegetation.

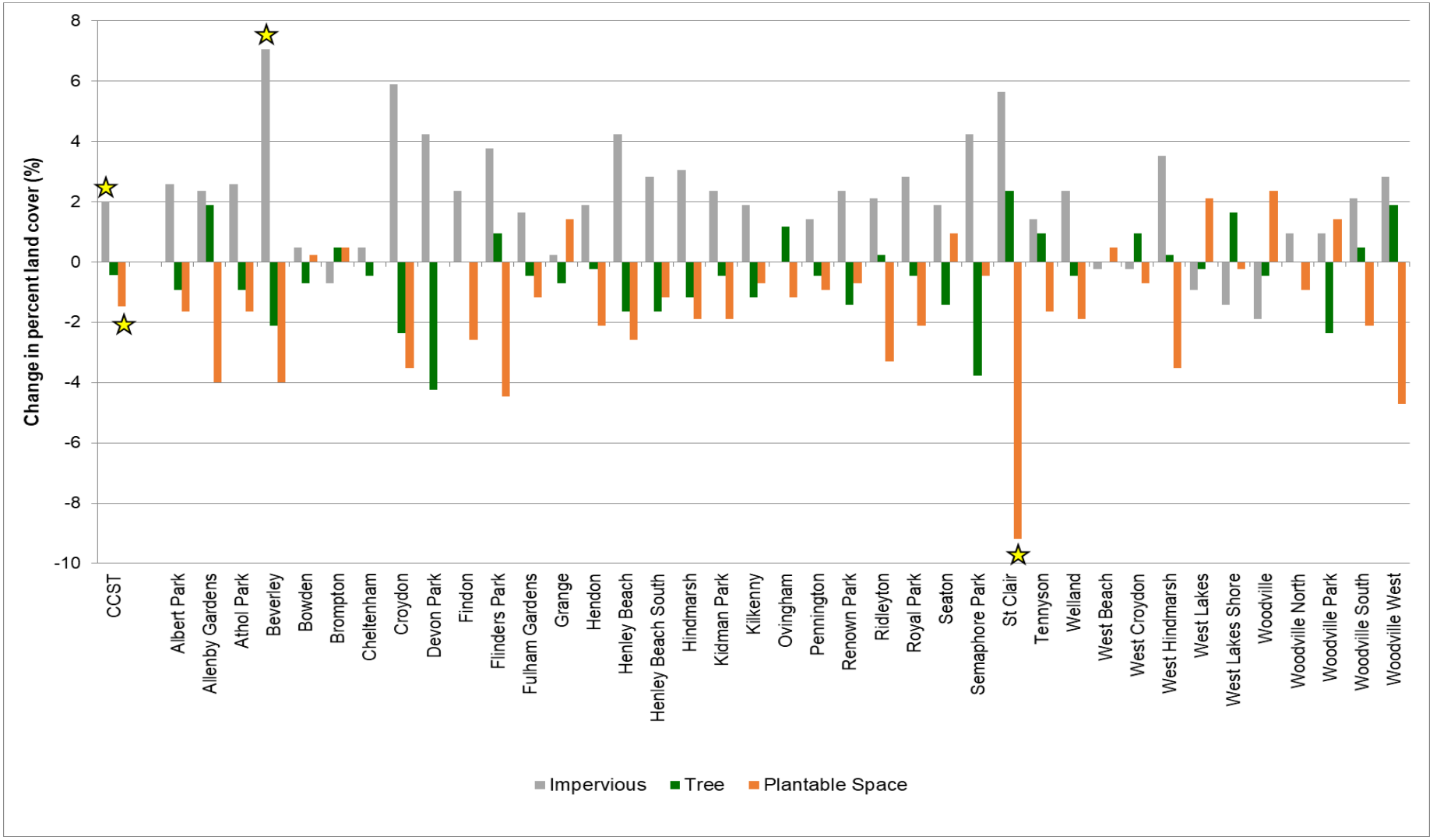

Figure 6. Change in percent impervious, tree, and plantable space cover between 2014 and 2020 in each suburb and across the City of Charles Sturt (CCST). Stars indicate statistically significant changes.

3.2.2 Public versus private land

Impervious cover: In 2020, as in 2014, the highest percentage impervious cover on private land occurred in Kilkenny (66.35%) which had increased 2.12% since 2014, though this was not statistically significant (Table 1). The lowest percent impervious cover on private land also still occurred in Tennyson (22.86%) and had increased by 1.18% since 2014 though also was not a statistically significant change (Table 1). Comparatively, St Clair still comprised the highest percent impervious cover on public land (26.12%), up from 24% in 2014, whereas the lowest occurred in Welland (8.47%) which had decreased by 1.18% since 2014; neither of these losses were statistically significant (Table 1).

The greatest increase in impervious cover on private land occurred in Beverley (6.82%) and in Hindmarsh on public land (2.82%). Whilst the change on public land was not statistically significant, the change on private land was (p=0.046).

Tree cover: In 2020, as in 2014, the highest percentage tree cover on private land occurred in Ovingham (17.65%) despite a (non-significant) loss of 0.94% since 2014 (Table 1). The lowest tree cover on private land also still occurred in St Clair (2.82%) despite this suburb having the greatest, and statistically significant, increase in tree cover since 2014 (4.71%, p=0.007). This is reflects the extensive new tree plantings that has occurred in St Clair. Of the 39 suburbs, 24 experienced a loss of tree cover on private land since 2014, with the greatest being a significant loss of 4.71% in Devon Park (p=0.026). Comparatively, of the 15 suburbs where tree cover increased on private land since 2014, the greatest was in Findon, which had a highly significant increase of 5.88% (p<0.001), likely mostly due to existing trees growing bigger.

On public land the highest percent tree cover was in Allenby Gardens (10.59%) which had increased (not statistically significant) by 1.18% since 2014 (Table 1). The lowest public land tree cover occurred in Kilkenny (1.88%) despite a small increase of 0.24% since 2014. Of the 39 suburbs, tree cover increased since 2014 in 18 of them, with the greatest increase being 4.71% in St Clair (Table 1). Comparatively, 18 suburbs also lost tree cover on public land since 2014, with the greatest loss being 2.12% in Woodville Park. Three suburbs remained unchanged in the tree cover.

Plantable space: In 2020, as in 2014, the highest percent plantable space on private land occurred in Woodville West (20.71%) despite a (non-significant) loss of 3.76%. Again like 2014, the lowest cover was in Hindmarsh (2.35%) though this cover had also decreased slightly by 0.47% (Table 1). Hindmarsh also had the lowest percent plantable on public land (2.12%). The greatest percent plantable space on public land still occurred in St Clair (26.12%), with this cover having decreased by 4.24% (not statistically significant) (Table 1).

Between 2014 and 2020, 30 of the 39 suburbs lost plantable space on private land, and 19 lost cover on public land; 15 of these suburbs lost cover on both public and private land (Table 1). The greatest loss of plantable space occurred in St Clair on both private and public lands (4.94% and 4.24%), with the loss on private land being statistically significant on private land (p=0.33) but not on public land (p=0.092). Eight suburbs experienced an increase in plantable space on private land 16 gained cover on public land; three of these suburbs gained cover on both private and public lands. The greatest increase in plantable space on private land occurred in West Lakes (2.82%) and on public land in Welland (1.41%). Neither of these increases were statistically significant.

Table 1. Percentage land cover in each suburb and tenure type in 2014 and 2020 and the difference in cover between these dates. Listed alphabetically by suburb.

	TREE COVER						IMPERVIOUS COVER						PLANTABLE SPACE COVER					
	Private			Public			Private			Public			Private			Public		
	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference
Albert Park	8.00	7.76	-0.24	5.65	4.94	-0.71	50.35	52.71	2.35	14.59	14.82	0.24	14.82	12.71	-2.12	6.59	7.06	0.47
Allenby Gardens	8.24	8.94	0.71	9.41	10.59	1.18	39.29	41.65	2.35	16.71	16.71	0.00	18.12	15.29	-2.82	6.59	5.41	-1.18
Athol Park	5.18	4.71	-0.47	2.82	2.35	-0.47	52.71	55.29	2.59	14.82	14.82	0.00	18.59	16.47	-2.12	4.00	4.47	0.47
Beverley	9.88	8.24	-1.65	2.82	2.35	-0.47	51.06	57.88	6.82	12.71	12.94	0.24	16.94	12.71	-4.24	3.06	3.29	0.24
Bowden	8.47	6.82	-1.65	5.41	6.35	0.94	45.65	45.18	-0.47	19.76	20.71	0.94	15.06	17.18	2.12	5.41	3.53	-1.88
Brompton	10.12	10.35	0.24	4.71	4.94	0.24	55.29	53.88	-1.41	16.47	17.18	0.71	9.18	10.35	1.18	4.00	3.29	-0.71
Cheltenham	9.65	9.41	-0.24	5.18	4.94	-0.24	50.82	50.82	0.00	15.06	15.53	0.47	15.29	15.53	0.24	4.00	3.76	-0.24
Croydon	14.12	11.76	-2.35	6.59	6.59	0.00	42.12	46.59	4.47	17.65	19.06	1.41	15.06	12.94	-2.12	4.47	3.06	-1.41
Devon Park	12.94	8.24	-4.71	5.41	5.88	0.47	43.29	48.24	4.94	22.82	22.12	-0.71	12.24	12.00	-0.24	3.29	3.53	0.24
Findon	2.35	8.24	5.88	0.71	2.82	2.12	50.35	52.94	2.59	15.76	15.53	-0.24	15.29	13.88	-1.41	6.12	4.94	-1.18
Flinders Park	10.12	10.35	0.24	8.24	8.94	0.71	40.00	43.76	3.76	14.12	14.12	0.00	16.47	12.47	-4.00	6.59	6.12	-0.47
Fulham Gardens	8.00	8.24	0.24	4.24	3.53	-0.71	47.06	48.47	1.41	16.00	16.24	0.24	16.24	14.59	-1.65	8.00	8.47	0.47
Grange	13.88	13.41	-0.47	5.18	4.94	-0.24	27.53	27.53	0.00	9.41	9.65	0.24	14.35	15.76	1.41	4.24	4.24	0.00
Hendon	5.41	4.47	-0.94	3.06	3.76	0.71	55.76	57.65	1.88	16.47	16.47	0.00	14.35	13.41	-0.94	4.94	3.76	-1.18
Henley Beach	8.71	7.53	-1.18	4.71	4.24	-0.47	36.94	40.00	3.06	16.94	18.12	1.18	12.94	11.06	-1.88	8.24	7.53	-0.71
Henley Beach South	10.35	9.18	-1.18	8.71	8.24	-0.47	32.47	34.59	2.12	16.00	16.71	0.71	13.88	12.94	-0.94	7.76	7.53	-0.24
Hindmarsh	3.76	4.00	0.24	8.00	6.59	-1.41	59.76	60.00	0.24	20.24	23.06	2.82	2.82	2.35	-0.47	3.53	2.12	-1.41
Kidman Park	8.94	9.18	0.24	6.35	5.65	-0.71	47.06	49.18	2.12	11.76	12.00	0.24	13.88	11.53	-2.35	7.53	8.00	0.47
Kilkenny	7.06	5.65	-1.41	1.65	1.88	0.24	64.24	66.35	2.12	15.53	15.29	-0.24	8.47	7.76	-0.71	2.12	2.12	0.00
Ovingham	18.59	17.65	-0.94	6.82	8.94	2.12	39.29	40.71	1.41	23.06	21.65	-1.41	7.53	7.06	-0.47	4.71	4.00	-0.71
Pennington	11.29	10.35	-0.94	3.29	3.76	0.47	47.76	49.41	1.65	14.35	14.12	-0.24	15.76	15.06	-0.71	6.12	5.88	-0.24
Renown Park	11.53	9.65	-1.88	9.18	9.65	0.47	38.12	40.71	2.59	17.65	17.41	-0.24	11.76	11.06	-0.71	5.18	5.18	0.00
Ridleyton	10.35	10.59	0.24	5.18	5.18	0.00	50.35	51.53	1.18	14.82	15.76	0.94	11.06	8.71	-2.35	7.06	6.12	-0.94
Royal Park	7.29	7.06	-0.24	3.76	3.53	-0.24	47.29	50.12	2.82	19.53	19.53	0.00	14.35	12.00	-2.35	5.88	6.12	0.24

	TREE COVER						IMPERVIOUS COVER						PLANTABLE SPACE COVER					
	Private			Public			Private			Public			Private			Public		
	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference	2014 %	2020 %	Difference
Seaton	11.76	10.59	-1.18	3.76	3.53	-0.24	36.47	38.35	1.88	13.41	13.41	0.00	19.76	20.24	0.47	4.00	4.47	0.47
Semaphore Park	11.06	8.71	-2.35	5.88	4.47	-1.41	33.65	37.18	3.53	14.59	15.29	0.71	10.82	9.65	-1.18	5.65	6.35	0.71
St Clair	0.47	2.82	2.35	0.71	5.41	4.71	25.41	28.94	3.53	24.00	26.12	2.12	15.53	10.59	-4.94	18.12	13.88	-4.24
Tennyson	5.18	5.88	0.71	2.12	2.35	0.24	21.65	22.82	1.18	11.06	11.29	0.24	6.59	4.94	-1.65	6.59	6.59	0.00
Welland	9.41	9.18	-0.24	4.00	3.76	-0.24	60.00	63.53	3.53	9.65	8.47	-1.18	14.35	11.06	-3.29	2.12	3.53	1.41
West Beach	8.47	8.24	-0.24	5.65	5.88	0.24	33.88	34.35	0.47	14.12	13.41	-0.71	13.41	13.41	0.00	6.59	7.06	0.47
West Croydon	9.88	10.12	0.24	5.88	6.59	0.71	47.29	48.00	0.71	18.59	17.65	-0.94	13.88	12.94	-0.94	2.59	2.82	0.24
West Hindmarsh	10.82	11.29	0.47	6.35	6.12	-0.24	45.18	46.82	1.65	18.35	20.24	1.88	14.35	12.24	-2.12	4.47	3.06	-1.41
West Lakes	7.29	5.65	-1.65	2.59	4.00	1.41	31.06	30.82	-0.24	17.88	17.18	-0.71	9.18	12.00	2.82	10.12	9.41	-0.71
West Lakes Shore	5.88	7.53	1.65	4.47	4.47	0.00	31.29	30.12	-1.18	13.65	13.41	-0.24	11.29	10.82	-0.47	9.18	9.41	0.24
Woodville	10.12	9.41	-0.71	4.71	4.94	0.24	50.12	48.94	-1.18	19.53	18.82	-0.71	12.47	14.35	1.88	3.06	3.53	0.47
Woodville North	6.12	6.35	0.24	2.35	2.12	-0.24	59.06	60.00	0.94	12.71	12.71	0.00	15.29	14.12	-1.18	3.06	3.29	0.24
Woodville Park	12.24	12.00	-0.24	5.65	3.53	-2.12	46.35	46.35	0.00	13.88	14.82	0.94	18.12	18.35	0.24	3.76	4.94	1.18
Woodville South	13.41	12.71	-0.71	3.29	4.47	1.18	45.41	48.00	2.59	15.29	14.82	-0.47	13.41	11.53	-1.88	4.47	4.24	-0.24
Woodville West	0.94	3.29	2.35	3.53	2.82	-0.71	39.76	40.94	1.18	16.00	17.65	1.65	24.47	20.71	-3.76	5.41	4.47	-0.94

4 Annex A. 2016 Land Cover Report

Tree Canopy Cover in the City of Charles Sturt

Benchmark Assessment

30 August 2016

seed
consulting services

Tree Canopy Cover in the City of Charles Sturt – Benchmark Assessment

A report prepared for the City of Charles Sturt

Prepared by
Seed Consulting Services
106 Gilles Street, Adelaide, South Australia 5000
www.seedcs.com.au

Report should be cited as:
Seed Consulting Services (2016) *Tree Canopy Cover in the City of Charles Sturt – Benchmark Assessment*. A report prepared for the City of Charles Sturt, South Australia.

Front cover photo credits

1	2	3	4	5

1. Jacaranda Tree, 46 Woodville Rd; Panoramio; Photo by: Ray Lucks (2008);
2. Linear Park shaded path, Belgrave Ave; Panoramio; Photo by: Phaedrus Fleurieu (2015);
3. City of Charles Sturt boundary; Google Earth 2015; Compiled by: Jenni Garden;
4. Trees in playground, West Croydon; Panoramio; Photo by: Don Nairn (2010);
5. Urban street trees, Semaphore Park; Photo by: Jenni Garden (2015).

Document Control

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Role	Name	Signature	Date
Project Director	Mark Siebentritt		n/a
Written By	Jenni Garden		12 April, 2016; 29 August, 2016
Checked	Mark Siebentritt		13 April, 2016; 29 August, 2016

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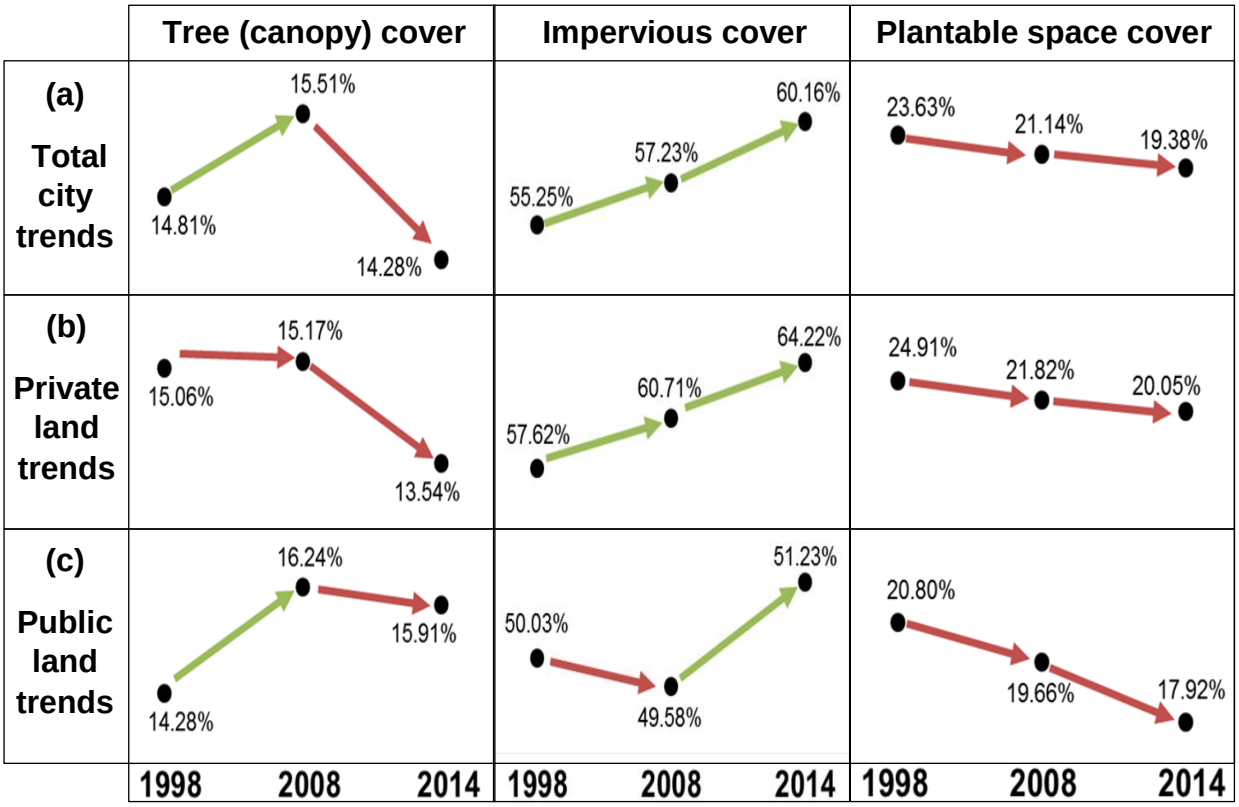
Executive Summary

Green infrastructure is a rapidly advancing focal issue in urban areas nationally and internationally. One of the most dominant elements of green infrastructure is trees – located in parks, public and private gardens, and lining streets and waterways. There exists a long-standing scientific knowledge regarding the beneficial impacts of trees, particularly in urban areas, on human health, environmental health, climate change adaptation, local economy, and real estate values.

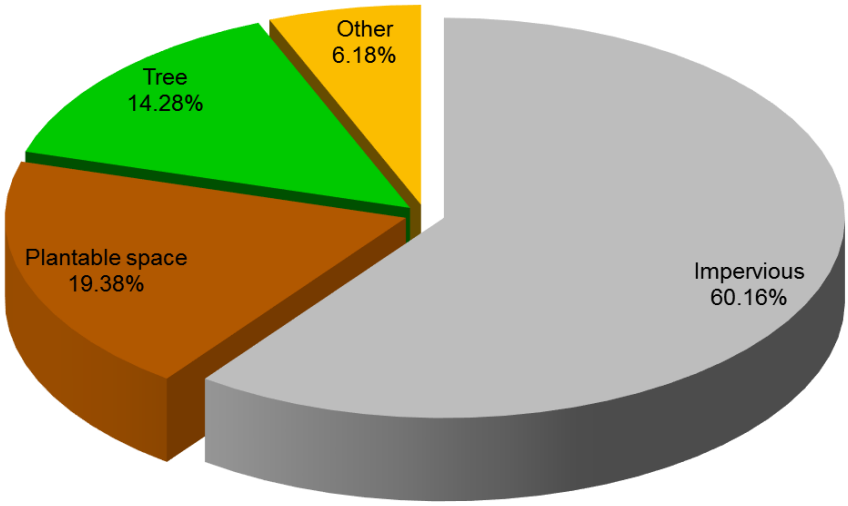
Despite the recognition of the multiple benefits offered by trees, barriers to increasing tree cover in urban areas persist. Further compounding the issue is that local councils managing the "urban forest" are restricted to actions within public and council owned land. This is particularly problematic in higher density residential suburbs, such as those in the City of Charles Sturt, given that the majority of land in the council area is privately owned and managed. Being able to measure and monitor changes (trends) in land cover, particularly tree canopy cover on public and private land will be important for informing decision-making, assessing the success of greening objectives and activity, and prioritising the type and location of activities to best promote desired outcomes.

Based on the findings from this project, the **headline trends in land cover between 1998 and 2014** are shown below. Percent tree (canopy), impervious, and plantable space cover are shown for each time period relative to: (a) the whole city area; (b) private land area; and, (c) public land area.



An assessment of land cover within the City of Charles Sturt was conducted using the i-Tree Canopy software. Land cover was assessed for 39 suburbs comprising the Council area. In each suburb, land cover was assessed in three time periods (2014, 2008, 1998), and across land tenure (private versus public). Based on these assessments the key findings were as follows:

- current land cover across the City is dominated by impervious surfaces, followed by plantable space, tree (canopy) cover, and other land covers (e.g. water, beach);
    - percent impervious cover is highest in Hindmarsh and lowest in Tennyson;
    - percent tree cover is highest in Ovingham and lowest in St Clair;
    - percent plantable space is highest in St Clair and lowest in Hindmarsh;



- current tree cover (i.e. canopy cover) accounts for 14.28% of the City area (equivalent to approximately 8km2), which is 1.08% higher than that reported in the National Benchmarking Report1, though this difference is not statistically significant;
- compared to 1998 cover levels, impervious cover has increased significantly across the City, plantable space has decreased significantly, and tree cover has decreased (though not significantly);
    - note though that tree cover decline between 2008 and 2014 was significant;
- changes in land cover across the City are driven primarily by changes on private land, for example:
    - impervious cover increased across the city, but more so on private than public land;
- tenure-specific information can be valuable in refining the type and location of programs and activities, for example:
    - St Clair currently provides the most opportunities for implementing Council planting programs, with this suburb containing the highest percent plantable space on public land; and

[1] Jacobs, et al. (2014)

- Woodville West and Findon may be best targeted with community education and incentives programs, as these suburbs experienced the greatest declines in percent tree cover on private land between 1998 and 2014.

These findings serve to highlight that tree/canopy cover in the City of Charles Sturt is declining despite Council's best efforts to increase cover through dedicated planting programs on public land. Such declines in tree/canopy cover present a major challenge for Council meeting future goals around recreation and open space and climate change adaptation, especially given projected rates and extents of on-going urban in-fill. Mitigating future tree loss and moving towards overall canopy cover gain across the City will require complimentary greening actions on public and private land.

The implications of on-going declining tree cover will be wide and varied, with substantial negative impacts on the liveability, prosperity, and long-term resilience of the City. Specific examples include:

- **lower air quality** (e.g. dust and pollutants), which will compromise human health and well-being;
- **hotter average day and night temperatures**, contributing further to the urban heat island effect;
- **decreased shading**, leading to lower use of parks and gardens and higher maintenance costs, as well as increased building cooling costs;
- **increased winds**, which will decrease air quality and the overall liveability and attractiveness of the City;
- **increase localised flooding**, which will directly impact infrastructure and communities and decrease water quality;
- **decreased biodiversity**, which will compromise the functioning of natural and dependent ecosystems; and
- **decreased amenity**, which will decrease property values, liveability, and local economic prosperity, and potentially increase crime rates.

The information derived from this assessment can be used to immediately inform a range of Council decision-making relating to, for example:

- what actions to take and which locations to target in order to achieve the best outcome for resources;
- how local policies and strategies may be amended in order to facilitate urban greening objectives; and
- future spatial analyses to help further refine priority activities and locations, such as planting programs targeted to address thermal hotspots and facilitate climate change adaptation by vulnerable members of the community.

1 Introduction

Green infrastructure is a rapidly advancing focal issue in urban areas nationally and internationally. Referring primarily to the living green elements found in cities (i.e. plants), increasing green infrastructure is being increasingly recognised as a key mechanism for helping to: mitigate climate change impacts and urban heat island effects, improve air and water quality, contribute to biodiversity conservation, increase local economic prosperity and property values, decrease energy requirements of buildings, and enhance the health and well-being of people living and working in urban areas.

One of the most dominant elements of green infrastructure is trees – located in parks, public and private gardens, and lining streets and waterways. There exists a long-standing scientific knowledge regarding the beneficial impacts of trees, particularly in urban areas, on human health, environmental health, climate change adaptation, local economy, and real estate values. Recent public and political developments within Australia[2] further support the importance of trees in our urban areas and underpin the growing momentum by local governments to understand, maintain, and enhance their urban forests.

Despite the recognition of the multiple benefits offered by trees, and the recent drive to increase canopy cover in urban areas, two key barriers to increasing tree cover in urban areas persist:

- competition for space from opposing land-uses (e.g. residential in-fill development, sporting fields); and
- the difficulty in valuing their worth as an urban asset, such as may be done for built infrastructure (e.g. roads, buildings).

Further compounding the issue is that local councils managing the “urban forest” are restricted to actions within public and council owned land. This is particularly problematic in higher density residential suburbs, such as those in the City of Charles Sturt, given that the majority of land in the council area is privately owned and managed. Enacting programs (e.g. incentives, education, and behavioural change) which encourage tree plantings on private land and elicit support for additional plantings on public land will be important for councils wishing to substantially increase their tree (canopy) cover across their city area.

The i-Tree Canopy software provides a user-friendly, repeatable way to measure and value urban trees. Though not all services provided by trees are able to be readily valued (e.g. benefits for biodiversity and human health), i-Tree assessments provide an initial baseline on which to build the business-case for increasing tree cover in urban areas.

An initial pilot study was undertaken by the City of Charles Sturt in 2014 (Charleton, 2014). This study trialled the i-Tree canopy software and analysis approach on three suburbs (Findon, St Clair, Woodville West). Based on this pilot study, Council decided to continue on to assess all suburbs in the same manner.

Seed Consulting Services (Seed) was engaged by the City of Charles Sturt to assess land cover over time across the whole Council area using the i-Tree Canopy software. The assessment included the following four key tasks:

[2] Such as national actions by 202020 Vision and the Federal Government’s Minister for the Environment.

- assess land cover in all 39 suburbs and three time periods (1998, 2008, 2014);
- assess change in land cover over time;
- assess change in land cover relative to public vs private land;
- provide high level summary of ecosystem service values of trees.

The assessment was based on the approach applied in the pilot study, though with the following five main refinements which are explained further in Section 2:

- fewer points per suburb were assessed in this project compared to the pilot (425 versus 500);
- more land cover categories were classified in this project compared to the pilot (12 versus 4);
- tenure was not incorporated in the definition of land-cover categories, rather was assessed following land-cover classification using a spatially-explicit GIS layer developed specifically for this project;
- spatially-explicit GIS shapefiles were created for the project which may be built-on in future projects and decision-making;
- statistical analyses were conducted to determine relative significance of changes.

1.1 City of Charles Sturt overview

The City of Charles Sturt ("Council") covers a land area of approximately 56km^2 stretching westwards from the Adelaide CBD to the coast (Figure 1). It is bounded to the north by the City of Port Adelaide Enfield, to the east by the City of Prospect and City of Adelaide, to the south by the City of West Torrens, and to the west by the Gulf St Vincent coastline.

Like much of the Adelaide plains, it is considered that pre-European vegetation in the Council area was dominated by native grasslands and grassy woodlands (Bagust & Tout-Smith, 2010; Kraehenbuehl, 1996). It is likely that river red gum and blue gum woodlands would have occurred along the river, and more coastal vegetation communities such as: Melaleuca low woodland, samphire low shrub land, *Olearia* and *Acacia* open heath, *Avicennia* low woodland (mangrove) would have occurred in association with the coastal zones (Bagust & Tout-Smith, 2010; Kraehenbuehl, 1996).

Although now heavily modified, key contemporary features of the Council area include:

- 39 suburbs contained either entirely or partially within the Council boundary.
- 675km of road network, including Port Road, a major connector between the Adelaide CBD and Port Adelaide, which bisects the Council area in a south-east to north-west direction;
- new wetlands and associated underground aquifers created through the "Water Proofing the West" initiative;
- 11.5km of coastline (City of Charles Sturt, 2015), including areas supporting remnant dune vegetation;
- 20km of creek lines (City of Charles Sturt, 2015);
- West Lakes, a created saltwater lake located within the suburb of West Lakes;

- more than 285ha of parks and reserves, and 59ha of sporting grounds (City of Charles Sturt, 2015);
- a diversity of public and private, residential, commercial and industrial buildings and associate infrastructure, including more than 44,000 households and 8,000 businesses (City of Charles Sturt, 2015).

Figure 1. City of Charles Sturt suburbs

Created: 24/08/2016 Drawn: J. Garden
Ref.: 619_F1v2 Datum: GDA94
Data source: City of Charles Sturt; https://data.sa.gov.au
Aerial image source: City of Charles Sturt

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1:55,000

Important notes: (i) This map is not guaranteed to be free from error or omissions, and has been produced for the exclusive use of the Client and Seed Consulting Services (ii) Any contours are suitable only for the purpose of this plan; their accuracy has not been verified and no reliance should be placed upon them for any purpose other than the original purpose of this map (iii) Aerial photos and imagery have been overlaid as best fit on the boundaries shown and precision is approximate only (iv) Scale shown is correct for original plan and any copies of this plan should be verified by checking against the scale bar (v)This figure may not be copied unless this note is included.

The Council are a progressive local government helping to lead the way in South Australia with regard to greening our urban areas. In particular, the Council understands the role, value and importance of trees in their region, as is clearly stated in their Tree and Streetscape Policy (2014):

> *The City of Charles Sturt values the role and functions of trees and recognises the environmental, aesthetic, economic, and cultural benefits they contribute.*
>
> *Trees are important in:*
>
> *• The creation of a sense of place, unifying architectural forms and creating a sense of unity while linking and softening streetscapes while determining the character of our City.*
>
> *• Improve the local climate by reducing the air temperature, increasing humidity and collectively reducing the urban heat island effect, that is, where urban centres have higher temperatures due to the high number of heat absorbing surfaces with little shade.*
>
> *• Removing carbon dioxide from the atmosphere through the natural process of photosynthesis and storing the carbon (C) in their leaves, branches, stems, bark and roots. Approximately half the dry weight of a tree's biomass is carbon.*
>
> *• Providing habitat for native flora and fauna.*

The value of trees also permeates, to varying degrees, through a number of other policies, strategies, programs, and project initiatives which Council undertake or are involved, including for example, Council's:

- Environmental plan, "Living Green to 2020";
- "Community Plan 2013-2027";
- "Regional Public Health Plan 2014-2019"
- "Development Plan" and associated "Strategic Directions Report Development Plan Review 2014";
- "Management Plans for Community Land"
- crime prevention through environmental design policy;
- Open space strategy;
- identification and protection of "regulated" and "significant" trees;
- involvement in the climate change adaptation planning project, "AdaptWest";
- partnership with 'Canopy' to off-set their emissions through planting trees;
- tree screen renewal;
- trees for the future;
- reactive tree planting program; and
- Planet Ark

1.2 Objectives

The primary objective of this project was to establish metrics of the change of tree canopy cover on public and private land which may then be used to establish a benchmark of tree canopy cover and inform future decision-making regarding tree management, the efficacy of tree planting programs, and action prioritisation.

Accordingly, this report will:

- detail the methods used for the assessment and describe the metrics used;
- present the assessment findings, specifically:
    - the current percent land-cover across the Council area and within each suburb;
    - the change in percent land-cover over time across the Council area and within suburbs;
- trends in land-cover between public versus private land; and
- provide recommendations for future priority actions with regard to maintaining and increasing canopy cover in the region.

2 Approach and Methodology

2.1 Survey area

All 39 suburbs (Table 1, Figure 1) were assessed using the approach described below. The three pilot suburbs[3] (Woodville West, St Clair, and Findon) were also reassessed using the approach herein. Of the 39 suburbs assessed, 36 were contained entirely within the Council boundary and three partially overlapped with the Council boundary (Table 1, Figure 1). Only areas within the Council boundary were assessed and so care should be taken when comparing suburb-level assessments of land-cover for the three partially-contained suburbs with entirely contained suburbs.

Table 1. The 39 suburbs, and their areas, assessed for this project. Note that suburbs only partially contained within the CCST boundary are shown in bold and only the area falling within CCST is shown.

SUBURB	AREA (ha)	SUBURB	AREA (ha)	SUBURB	AREA (ha)
Albert Park	92	Hendon	71	St Clair	94
Allenby Gardens	83	Henley Beach	266	Tennyson	89
Athol Park	92	Henley Beach South	113	Welland	60
Beverley	151	Hindmarsh	88	**West Beach**	**159**
Bowden	41	Kidman Park	180	West Croydon	170
Brompton	111	Kilkenny	109	West Hindmarsh	62
Cheltenham	114	**Ovingham**	**16**	West Lakes	429
Croydon	57	Pennington	136	West Lakes Shore	177
Devon Park	**6**	Renown Park	62	Woodville	122
Flinders Park	216	Ridleyton	42	Woodville North	141
Findon	245	Royal Park	164	Woodville Park	76
Fulham Gardens	243	Seaton	471	Woodville South	145
Grange	367	Semaphore Park	201	Woodville West	119

[3] Charleton, A., 2014. Tree Canopy Cover Assessment, South Australia: City of Charles Sturt.

2.2 Selection of points

i-Tree Canopy (USDA Forest Service; plus cooperators, n.d.) classifies land cover under randomly allocated points within a user-defined area overlaid on Google Earth imagery. As each point is classified, i-Tree Canopy provides an automated running statistical estimate for each land-cover category of the area (km2) and percent (%) cover within the study area, as well as an uncertainty estimate (i.e. standard error, SE). Accordingly, the more points that are classified, the lower the standard error and the more precise the estimated result should be. However, the more land-cover categories defined, the more points that need to be classified in order to achieve statistical stabilisation of estimates (Jacobs, et al., 2014).

i-Tree Canopy suggests surveying 500-1000 points per sample area, though the difference in resources required to survey 500 points versus 1000 points can be substantial when multiple areas are involved, with potentially little gain in precision and varying levels of confidence in the outputs. The authors of Australia's national canopy benchmarking report undertook further evaluations and found that between 600-1000 points would tend to provide a standard error of <3% (Jacobs, et al., 2014). However, this again would result in varying confidence levels in outputs given the varying sampling intensity among larger and smaller areas (i.e. likely lower confidence levels for larger areas, and higher for smaller areas).

For this project, a power analysis was conducted *a priori* to determine how the number of survey points per suburb would vary given differing confidence levels (CL) and confidence intervals (CI) (Figure 2). The outputs indicate the number of points which would achieve statistically acceptable levels of error among suburbs of varying sizes whilst limiting the potential for surveying more points than necessary to produce fit-for-purpose outputs. The pilot study percent land-cover and standard error outputs were also assessed to ensure consistency between this project and the pilot project. Based on these analyses, a 90%CL and 4%CI were selected, which equated to 425 points per suburb (Figure 2). This can be interpreted as surveying 425 points provides at least a 90% confidence level that the estimated outputs of land cover percentages are within 4% of actual cover percentages in each suburb. In order to greatly improve on these confidence levels and intervals, 600 or more points would need to be surveyed (Figure 2).

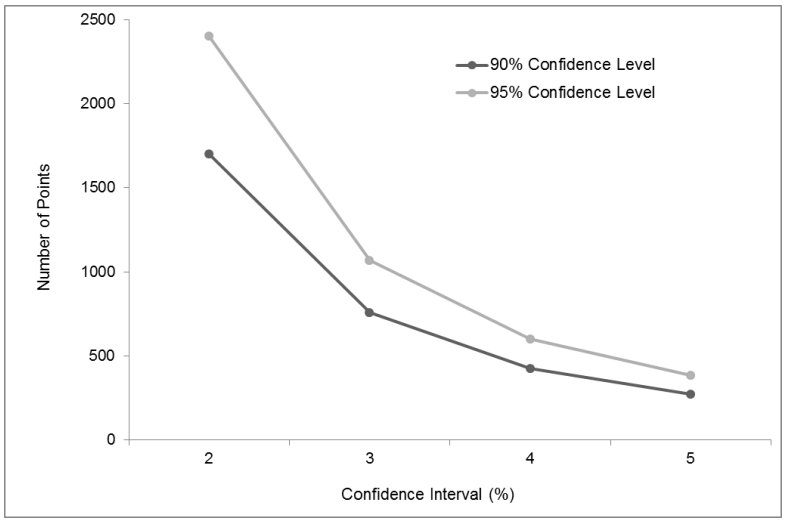

Figure 2. Power analysis output showing number of points required to ensure minimum confidence levels (90% or 95%) and confidence intervals (2-5%) in the reported outputs.

2.3 i-Tree Canopy assessment

Each suburb was assessed as a separate i-Tree Canopy project, classifying 425 points per suburb. Establishing each project requires specific information about the study area and land cover categories to be provided in the i-Tree Canopy settings; these are detailed in the following sections.

2.3.1 i-Tree Canopy settings

The settings used when establishing each i-Tree Canopy project were as follows:

- project location: California – urban
  - the i-Tree Canopy software calculates approximate ecosystem service benefits provided by trees as part of the output. These calculations are based on USA-specific metrics related to weather and pollution and tree species. In order to run an i-Tree Canopy project a USA location must be selected. For the purposes of this project, 'California – urban' was selected, as this is considered the closest USA climatic analogue to the study area in South Australia;
- land cover categories
  - these are user-defined categories entered in to the i-Tree Canopy settings (see Section 2.3.2);
- benefit options: Tree-impervious and Tree-pervious (see Table 3);
  - this setting identifies which of the land-cover categories represents "tree cover"
- currency: AUD $
- units: metric

2.3.2 Land-cover categories

Land-cover categories were required to be consistent with the pilot project conducted within the City of Charles. The pilot project used the same four land-cover categories applied in the national canopy benchmarking report (Jacobs, et al., 2014): tree, grass/bare ground, shrub, and hard surface. These categories though are too broad to be of real relevance for local government on-ground planning and management as they will tend to over-estimate certain attributes (e.g. plantable space represented by grass/bare ground) and limit the potential for more refined analyses of potential plantable opportunities or impervious cover to be examined.

Accordingly, this project defined 12 land-cover categories (Table 3; Plate 1) which allow a more detailed understanding of land cover in the City. The categories were specifically defined to nest within those used in the pilot study in order to allow for direct comparisons if required (Table 3). When defining land cover categories, consideration was given to providing a realistic estimate of space available to plant more trees (i.e. plantable space) and also allow for future refinement of other land cover categories (e.g. impervious surfaces). For example, the two "grass" categories used differentiate between grassed sporting fields and non-sporting grassed areas, as it is highly unlikely that sporting grounds would be viewed as opportunities for planting trees; note that only the active playing area was classified as sporting fields, with grass areas surrounding some sporting fields being classified as non-sporting grassed areas as the may have some space for shade. In addition, the tree category was classified as being over pervious or impervious surfaces, based on the

surrounding land use. This allows for future refinement of impervious surfaces and plantable space if so desired.

Table 2. Land-cover categories used for analysis, compared to those used in the pilot analysis. Note that the categories used in this analysis were consistently applied irrespective of tenure (i.e. public or private land).

LAND-COVER CATEGORIES		CODE	DESCRIPTION
Pilot Analysis	This Analysis		
	IMPERVIOUS		
Hard surface (private and public)	Impervious – building	ImpBldg	A building or permanent structure.
Hard surface (private and public)	Impervious – other	ImpOth	Impervious surfaces that aren't buildings or roads, including footpaths, parking lots, railway lines, and pools.
Hard surface (private and public)	Impervious – road	ImpRd	A sealed road; also includes airport runways.
	TREE (CANOPY)		
Tree (private and public)	Tree – impervious	TrImp	Tree canopy over perceived impervious surface.
Tree (private and public)	Tree – pervious	TrPer	Tree canopy over perceived pervious surface; includes mangroves.
	PLANTABLE SPACE		
Grass/bare ground (private and public)	Bare ground	BG	Non-vegetated pervious surface.
Grass/bare ground (private and public)	Grass - sporting	GrSpt	Grass areas used primarily for sporting purposes, including school ovals and golf courses. Also includes grass areas associated with airports.
	OTHER		
Grass/bare ground (private and public)	Grass - other	GrOth	Grass areas not used for sporting purposes, including parks and private lawns.
Not assessed	Beach	B	Coastal, non-vegetated sandy area.
Not assessed	Dune vegetation	DV	Vegetation (shrub and ground cover) growing on coastal dunes.
Hard surfaces* (private and public)	Water	W	Aquatic or marine water body; does not include pools.
Shrub (private and public)	Wetland vegetation	WV	Fringing and aquatic vegetation associated with wetlands; includes intertidal communities such as samphire.

* Unless wetland body, then grass/bare ground

Plate 1. Google Earth satellite images showing random points over examples of each land cover category (a yellow dot has been used to better show the location of the yellow cross-hair used in i-Tree Canopy).

2.3.4 Land cover assessments

Land-cover in each suburb was assessed in three time periods: 2014, 2008, and 1998. However, note that the decision to reassess the three pilot suburbs was made approximately 8 months following the assessment and reporting for the other 36 suburbs. During this time, the default satellite imagery linked to i-Tree Canopy was updated. This means that all suburbs except the pilot suburbs were assessed for the "current (2014)" time period using satellite imagery dated December 2014, which was the default imagery linked with the i-Tree Canopy software at the time of their assessment. The three pilot suburbs though were assessed using the updated satellite imagery dated July1, 2016. Through discussions with CCST it was considered reasonable to analyse these suburbs with the others assessed using 2014 imagery. All assessments for the "current" time period are referred to as "2014".

The 2008 and 1998 assessments were undertaken using i-Tree Canopy's "change survey" function and comparison with aerial imagery provided by CCST. Based on these assessments, the percent land cover within each suburb and time periods was estimated.

The interpretation of satellite imagery and aerial photos is open to interpretation by the user, which may lead to an inherent level of error in the classification, particularly if the quality of the imagery/photo is poor. Such error was minimized as much as possible through consultation with other users to determine a consensus for contentious points, and also by considering the surrounding land-cover context and comparing images in other time periods. Key interpretation issues faced and decisions made were as follows:

- Non-anthropogenic land-cover changes:
  - any point that fell in the coastal tidal zone was classified as "beach" even though in some photos the point may appear to fall in "water" if the tide is high;
  - seasonal variations may result in a point's land-cover category changing between different assessment dates. For example, a point classified as grass-other in one year/month may be classified as bare ground in another year/month due to changes only caused by seasonal influences. Other similar changes may occur due to fluctuations in water levels in waterways and water bodies;
- Non-conforming land-cover decisions:
  - dirt roads were classified as "bare ground";
  - loose gravel surfaces were classified as "bare ground";
  - golf course sand traps were classified as "grass – sporting" as they are not coastal beaches and are unlikely to offer plantable opportunities;
  - hedges and small garden shrubs were classified as "grass – other" as they are not contributing to tree ecosystem service benefits but are not bare ground;
- Inferred points:
  - user-rationale was used to interpret land-cover under points where shadows impeded a clear view; where necessary, comparison with imagery from other time periods and Google street view were also assessed;
  - where a point fell over a temporary cover (e.g. cars, junkyard debris), the more permanent land cover is classified. For example, a point falling over a boat trailer parked on a grassy area, would be classified as "grass-other" not "impervious – other". Similarly, a point falling over a car on the road would be classified "impervious – road", or over a boat on the water would be classified as "water";

- Photo skew and quality:
    - the quality of aerial photos and satellite imagery (particularly older images) can vary substantially in quality and resolution and so influence the ability to clearly identify land cover (Plate 2); and
    - aerial photos can also appear displaced or skewed due to variation in the capture angles of the aircraft/satellite relative to the feature. This displacement increases as the look angle moves away from a vertical capture angle, and so features at the edge of an image will have more displacement than those directly below the sensor at the time of acquisition. When these photos are georeferenced, this skew can impact on where certain points appear to fall. User interpretation was required in these cases to infer how the photo would appear if not displaced/skewed (Plate 2).

Plate 2. Examples of aerial photo quality and skew variation between years. Yellow dots show a georeferenced location of a classification point. Red arrows indicate the direction of skew.

The 1998 photo has lower quality resolution and a clear imagery join. The skew appears to change land cover from "impervious–other" to "impervious–building", though user interpretation infers the land-cover under the point in 1998 is the same as in 2008.

The 1998 photo has lower quality resolution and a clear imagery join. The skew appears to change land cover from "impervious–building" to "grass–other", though user interpretation infers the land-cover under the point in 1998 is the same as in 2008.

2.4 Change over time and tenure analyses

Examination of percent land cover change over tenure and time was conducted using a GIS and Excel to conduct additional spatial and statistical analyses based on the i-Tree Canopy land cover assessments.

Change in percent land cover between tenure was assessed using a GIS layer developed by the CCST which classified all land within the City boundary as either public or private tenure. Public tenure was defined as the public road network as well as any additional land area owned or managed by the CCST; by default, public land was all other land not covered by the public tenure definition. Approximately 69% of land was classified as private, and 31% as public (Figure 3). A spatial analysis was conducted by overlaying the i-Tree Canopy classified land cover points with the tenure layer and calculating the percent of points within each land cover category falling within public versus private land. This assessment was conducted for the current (2014) time period only.

Change in percent land cover over time was assessed by comparing the difference in percent land cover between pairs of time periods (i.e. 2008 and 2014; 1998 and 2014). This was investigated at the City scale and for each suburb.

2.5 Calculating statistical significance

Statistical significance of changes in percent land cover were calculated using t-tests, which is a statistical hypothesis test used to determine if two data sets differ significantly from each other. When comparing percentages, a one-sample t-test is used if comparing values from a single data set and a two-sample t-test is used if comparing values from different data sets.

For example, in this project, a one sample t-test was used to determine if percentages of land cover categories in the same location and year were significantly different (e.g. in 2014, was percent tree cover significantly different to percent impervious cover?). Comparatively, a two-sample t-test was used to determine if percentages of land cover categories were significantly different between locations (e.g. suburbs or tenure) or across years (e.g. in a given suburb, did percent tree cover change significantly between 1998 and 2014? Or, in 2014 was percent tree cover on public land significantly different to that on private land?).

Differences were considered statistically significant if p-values were less than or equal to the 0.05 critical alpha level (see Attachment A for further details).

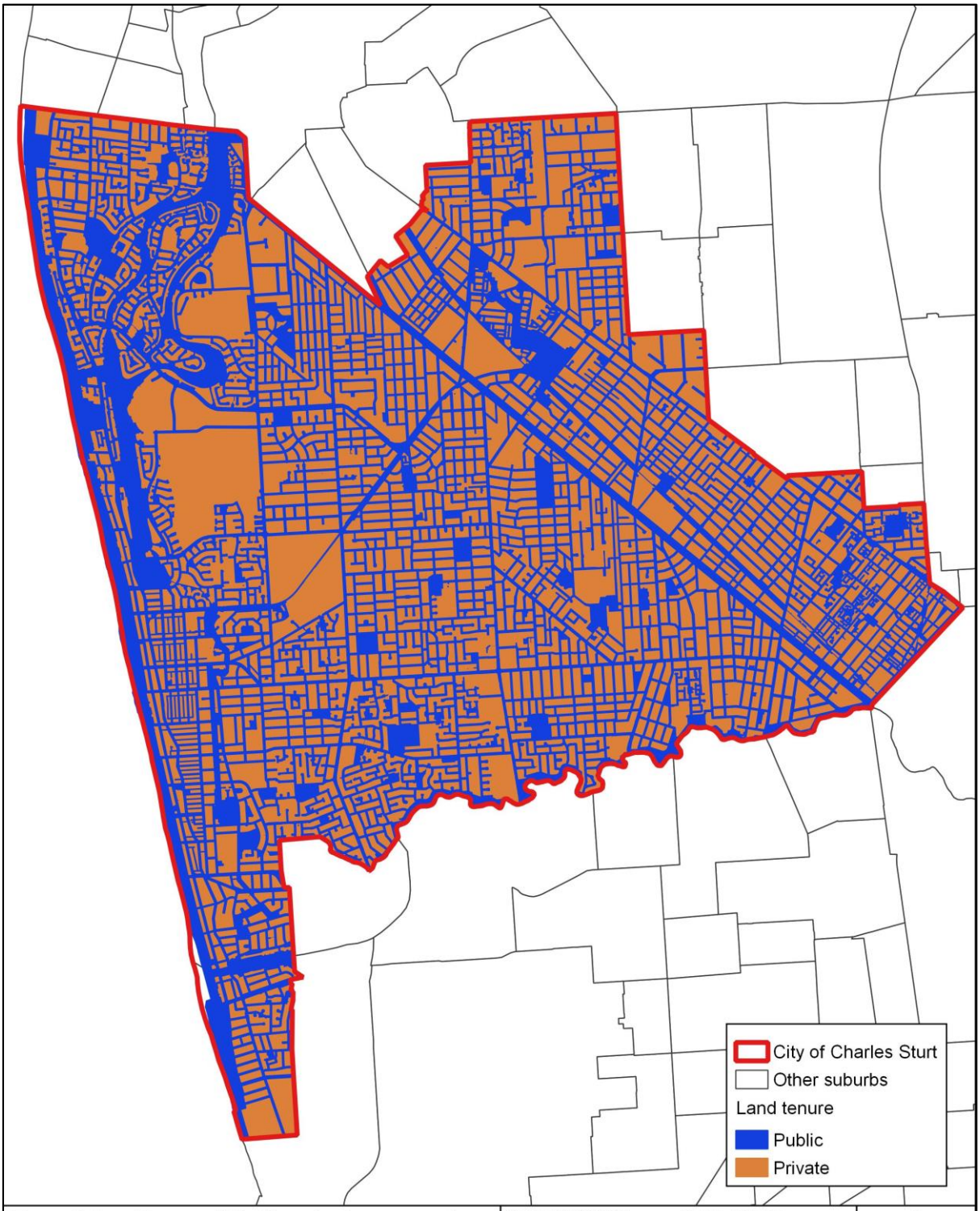

Figure 3. Land tenure within the suburbs assessed

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Data Sources: City of Charles Sturt; https://data.sa.gov.au

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3 Results

A total of 16,575 points were assessed within the City of Charles Sturt (i.e. 425 points in each of 39 suburbs). The following sections present the key findings from across the City of Charles Sturt and also within each of the suburbs assessed during this project. The results from the pilot study on three suburbs are not incorporated in these results.

3.1 City of Charles Sturt

Land cover across the City was calculated by combining the assessments of each of the 39 suburbs assessed. Further details relative to the City, regarding the number of points and associated percent cover for each land cover category in each time period is provided in Attachment B.

3.1.1 Current land cover

In 2014, more than 60% of land cover across the city was classified as impervious surfaces (i.e. building, road or other). This was significantly more ($p<0.001$) than other land cover categories. Buildings comprised almost half of the impervious surfaces in the City (Figure 4). Over 19% of land area was classified as plantable space (i.e. bare ground and grass-other), and was comprised primarily of non-sporting grassed areas. Tree cover within the city was estimated at just over 14% with significantly more of these trees occurring over pervious than impervious surfaces ($p<0.001$) (Figure 4). The combination of grassed sporting areas, beach, dune vegetation, water, and wetland vegetation together comprised the remaining 6.18% of land cover within the City, collectively referred to as “other” land cover (Figure 4).

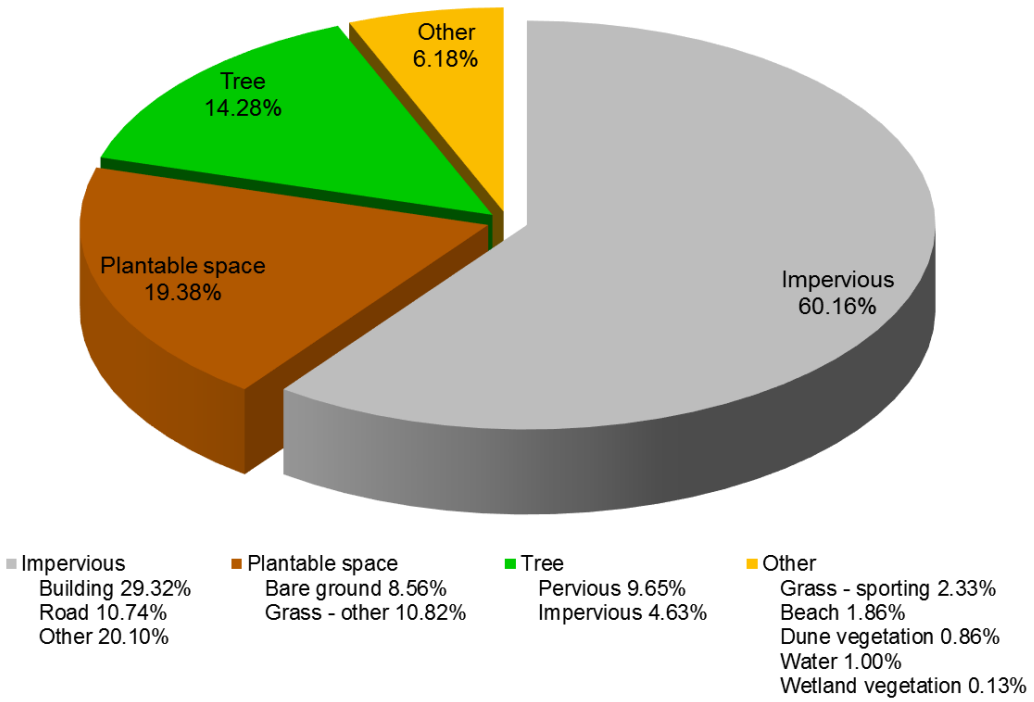

Figure 4. Estimated land cover across the City of Charles Sturt in 2014.

The current tree cover (i.e. canopy cover) of 14.28% across the city is higher than the 13.2% reported in the National Benchmarking Report (Jacobs, et al., 2014), though this difference is not statistically significant (p=0.343). Key differences between the National Benchmarking Report and this analysis which may account for the difference observed, include: the "current" years assessed (2013 and 2014, respectively); and, the number of points assessed (1,000 and 16,575, respectively).

3.1.2 Land cover change over time

Measurable changes in overall land cover across the City were found. The main trends in land cover change across the City between 1998 and 2014 are outlined below. Further details are provided in Attachment B.

Impervious cover: percent impervious cover increased in each time period assessed, from 55.25% in 1998 to 60.16% in 2014 (Figure 5). Each increase was significant, with changes between 1998 and 2008 as well as 2008 and 2014 having p-values of less than 0.001. This change was driven primarily by significant ($p<0.001$) increases in building cover across the City (26.24% to 29.32%) followed by other impervious surfaces (18.48% to 20.10%); road cover did not vary significantly (10.52% to 10.74%, p=0.555) (Figure 5).

Tree cover: percent tree cover was lowest in 2014 (14.28%) and highest in 2008 (15.51%), given a 0.7% increase in cover between 1998 (14.81%) and 2008 (not significant at p=0.076) (Figure 5). The 0.53% decrease in percent tree cover between 1998 and 2014 was not statistically significant. However, the increase in tree cover between 1998 and 2008 meant that a 1.23% decrease in tree cover occurred between 2008 and 2014, which was statistically significant at p=0.002.

The declining tree cover trend was driven by a loss of tree cover over pervious surfaces in each time period, which was greater than the gain in tree cover over impervious surfaces observed between 1998 and 2008; though cover over impervious surfaces also declined between 2008 and 2014 (Figure 5).

Plantable space: percent plantable space decreased significantly in each time period, from 22.65% in 1998 to 18.64% in 2014 (Figure 5). This was despite a significance increase in bare ground between 1998 and 2008, which was offset by a greater decline in grass-other in the same time period.

Other land cover: percent of other land cover (comprised of water, wetland vegetation, beach, dune vegetation and grassed sporting areas) overall remained relatively constant over time, with a non-significant decline of 0.14% (p=0.599) between 1998 and 2014 (Figure 5). The component land cover types however varied somewhat in their trends, with beach and dune vegetation remaining unchanged between 1998 and 2014, grass-sporting decline (not significant), and water and wetland vegetation increased, with the increase in wetland vegetation being significant (p=0.015).

Implications of land cover change over time

The temporal trends observed in impervious, tree, and plantable space cover, may be explained primarily by tree and grass cover being replaced over time by impervious surfaces, as a result of urban in-fill. The increase in bare ground also fits with the urban in-fill explanation, with bare ground being the intermediary stage between the conversion from

green infrastructure to built infrastructure. Some conversion of points from grass to bare ground may also be partially attributed to seasonal variations in the amount of rainfall occurring at the time of the satellite imagery being assessed.

The implications in urban areas of losing green infrastructure, particularly trees, together with increasing impervious cover is well documented, and may include:

- increased urban heat island effects (i.e. increased ambient temperatures), which will have substantial negative implications for human health and well-being, particularly for vulnerable members of the community;
- decreased resilience to climate change impacts, such as increased temperatures (which will exacerbate the urban heat island effect), wind and rainfall intensity associated with storms, and sea level rise;
- decreased human physical and mental health resulting from a loss of interactions with “natural” landscape elements such as trees, and a loss of ecosystem services provided by trees (e.g. oxygen production, carbon storage and sequestration, and air pollution removal);
- increased amount and velocity, and decreased quality, of stormwater run-off, which will have negative ramifications for aquatic and marine environments;
- decreased local economic prosperity and real estate values due to a loss of trees, with trees having been shown to produce more “attractive” places to live and work and treed areas commanding higher property values than non-treed counterparts; and
- decreased biodiversity benefits, such as wildlife foraging and shelter opportunities, and landscape connectivity (which will become particularly important for conserving wildlife species in the plains regions by facilitating range shifts in response to climate change).

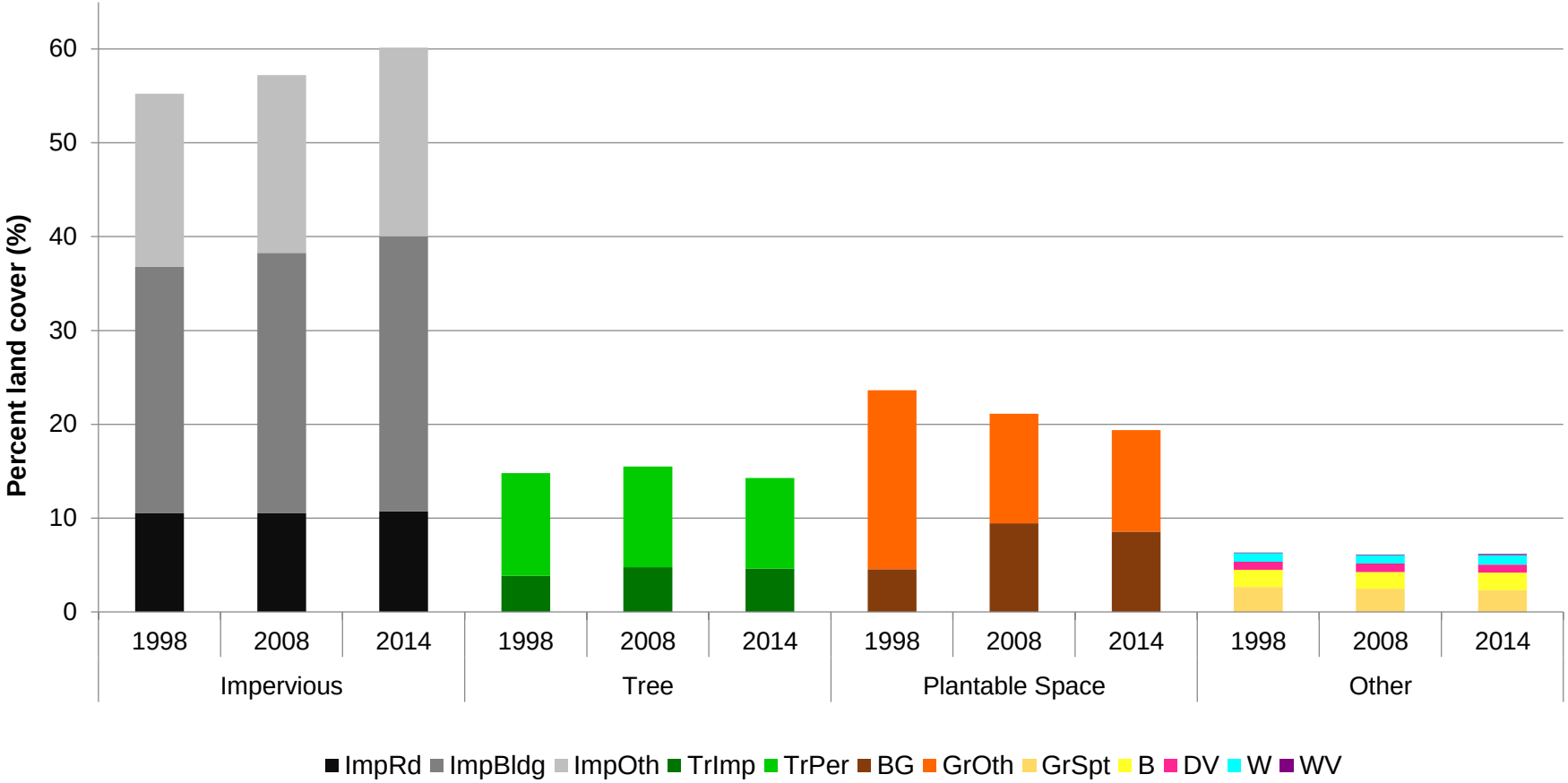

Figure 5. Percent land cover across the City of Charles Sturt in 1998, 2008, and 2014. Land cover categories abbreviated as follows: ImpRd = impervious – road; ImpBld = impervious – building; ImpOth = impervious – other; TrImp = tree – impervious; TrPer = tree – pervious; BG = bare ground; GrOth = grass – other; GrSpt = grass – sporting; B = beach; DV = dune vegetation; W = water; WV = wetland vegetation.

3.1.3 Public versus private land

Trends in impervious cover, tree cover, and plantable space varied between private and public tenure, with generally more change occurring on private than public land (Figure 6). The following summarises key trends in land cover change relative to tenure area (not whole of city area) with further details related to land cover by tenure provided in Attachment B.

Impervious cover: in 2014, significantly more ($p<0.001$) of the City's impervious cover occurred on private than public lands (73.36% and 26.64%, respectively), with significantly more buildings and other impervious cover occurring on private lands and significantly more roads occurring on public lands ($p<0.001$ for all).

Between 1998 and 2014, the increase in percent impervious cover across the City was underpinned by increases on both public and private lands, though significantly more change occurred on private land than public (4.53% versus 0.37%, respectively; $p<0.001$). Increasing building cover on private land was the main driver (3.23% increase between 1998 and 2014).

Tree cover: in 2014, significantly more ($p<0.001$) of the City's tree cover occurred on private than public lands (65.15% and 34.85%, respectively), with more of this tree cover occurring over pervious surfaces than over impervious surfaces on both private and public lands.

The overall decline of tree cover across the City between 1998 and 2014 occurred despite an overall significant ($p=0.02$) increase in cover on public land during this time[4]. Within public lands, the observed increase in tree cover occurred over impervious and pervious surfaces, though only that over impervious surfaces was statistically significant ($p=0.009$). Within private lands, tree cover over impervious surfaces significantly increased ($p=0.21$), though the decrease of tree cover over impervious surfaces was more significant ($p<0.001$).

Plantable space: in 2014, significantly more ($p<0.001$) of the City's plantable space occurred on private than public lands (71.09% and 28.91%, respectively), with this being driven by private lands comprising significantly more ($p<0.001$) non-sporting grassy areas (i.e. grass-other) than bare ground.

Between 1998 and 2014, significant declines of grass-other as well as significant increases in bare ground occurred in both tenures. Within private lands, more than twice as much grass-other was lost than bare ground gained, with this trend also observed on public lands, though to a lesser degree (just over 1.5 times as much grass-other lost than bare ground gained).

Other land cover: in 2014, significantly more ($p<0.001$) of the City's "other" land cover occurred on public than private lands (75.59% and 24.41%, respectively). This trend was true for each of the composite land cover categories, except grass-sporting which occurred more so on private than public lands (59.69% and 40.31%, respectively).

The increase in wetland vegetation between 1998 and 2014 was driven by a significant ($p=0.23$) increase on public land. Grass-sporting declined on both private and public lands, though neither was statistically significant.

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[4] Note that a more significant increase in tree cover on public land occurred between 1998 and 2008 ($p=0.005$), though a decline then occurred between 2008 and 2014.

Implications of land cover change by tenure

The current dominance of buildings and other impervious cover on private lands, together with the dominance of road cover on public lands are indicative of highly urbanised areas. The process of urbanisation also explains the increase in impervious cover over time, with urban in-fill being the reason behind the significant increase in building cover on private lands.

Urban in-fill is also the most likely explanation for the trends observed in tree cover on private lands, with an observed increase in tree cover over impervious surfaces occurring as buildings and associated infrastructure are built under existing canopies, but a greater loss of tree cover over pervious surfaces occurring as trees are cleared to make room for urban in-fill. By comparison, the increase in tree cover over time on public land reflects substantial tree planting efforts, particularly of street trees, occurring on council owned and managed lands (see Section 4.1 for further discussion). The potential overall benefits of such efforts though appear to have been undermined by a greater degree of tree clearing on private land, leading to the overall observed loss of tree cover across the City as a whole.

The process of urban in-fill (i.e. increasing impervious surface resulting in decreasing tree cover) is likely to have substantial implications for the overall success of Council objectives relating to canopy cover. For example, if Council has the objective of increasing canopy cover across the City by planting more trees on public land, such objectives may fail to be achieved if clearing of trees and green infrastructure on private land outpaces public plantings. The resulting overall loss of canopy cover will have further implications for the long-term health, economic prosperity, and resilience of the City and its community (refer to implications of green infrastructure loss outlined in Section 3.1.2).

In order for Council to achieve desired greening objectives, it may be necessary to consider a complimentary set of actions which combine tree public planting programs with community education and awareness campaigns and incentives packages. In addition, Council may need to reconsider relevant policies (e.g. development and tree protection policies) in order to achieve a better balance between tree protection and urban development. Given often limited resources, the suburb-scale assessments provided in Section 3.2 will help to refine what actions will be of most use in which locations.

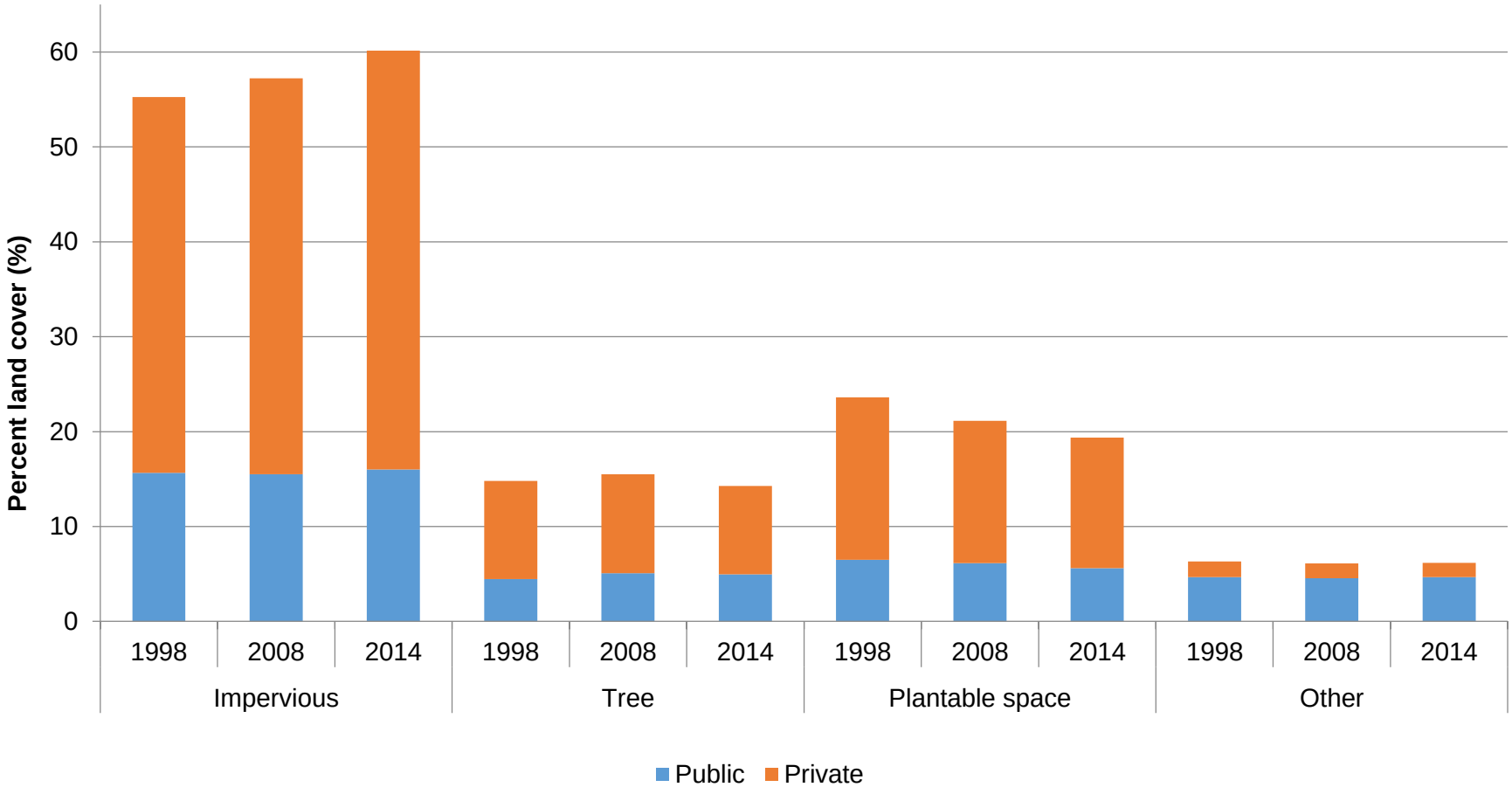

Figure 6. Percent land cover within public versus private land tenure across the City of Charles Sturt in 1998, 2008, and 2014. Land cover is as follows: Impervious = impervious – road +impervious – building + impervious – other; Tree = tree – impervious + tree – pervious; Plantable space = bare ground + grass – other; Other =grass – sporting + water + wetland vegetation + beach + dune vegetation.

3.2 Suburbs

The following sections provide the key findings of the current and change over time percent land cover analyses for each of the 39 suburbs assessed. Further details of land cover in each suburb and time period is provided in Attachment C.

3.2.1 Current land cover

Current land cover varied between suburbs (Figure 7). All suburbs contained impervious, tree, and plantable space cover, though not all suburbs contained other cover categories (i.e. water, wetland vegetation, beach, dune vegetation, grass-sporting) (Figure 7).

Percent impervious cover was greatest in Hindmarsh (80%), closely followed by Kilkenny (79.76%) (Figure 7). Tennyson (32.71%) had the lowest percent impervious cover, likely due to its small relatively small, narrow area coupled with its coastal location meaning it's dominated by beach and dunes which has inhibited development. The next six lowest percent impervious cover levels were also coastal suburbs. Henley beach was the notable coastal suburb exception, with a relatively high level of impervious cover (53.88%), indicative of the active commercial and residential development associated with this popular beach-side suburb. The suburbs with the lowest impervious cover and no beach cover were St Clair (49.41%) and Seaton (49.88%) (Figure 7).

Percent tree cover was highest in Ovingham (25.42%) and lowest in St Clair (5.88%). This low cover in St Clair may be due to the recent extensive land cover changes that have occurred here, from a suburb dominated by a horse racing track in 1998 to a now increasingly residential suburb (Plate 3). As such, canopy cover may be expected to increase over time, assuming that more trees have been recently planted in association with the developments. The suburb with the next lowest tree cover was Tennyson (7.29%), whose high percent beach cover (29.18%) and dune vegetation cover (17.41%) will limit the total tree cover possible within the suburb (Figure 7).

Percent plantable space was highest in St Clair (33.65%) and lowest in Hindmarsh (6.35%) (Figure 7). The high cover in St Clair is likely indicative of the recent extensive land cover transitions that have occurred in this suburb, whereas the low cover in Hindmarsh is likely due to the very high percent impervious cover and moderate tree cover (11.76%) (Figure 7).

Of the suburbs assessed, 15 contained water cover, with West Lakes followed by West Lakes Shore and Semaphore Park containing the highest percent water cover (17.65%, 6.82%, and 5.65%, respectively) due to the large created boating lake which they share, though which predominantly occurs in West Lakes. The lowest percent water occurred in Royal Park and Tennyson (both 0.24%). Nine suburbs contained wetland vegetation cover, with St Cair containing the highest percent cover (2.82%) due to a recently developed artificial wetland (Figure 7; Plate 3). A total of 27 suburbs contained grassy sporting fields, with Grange having the highest cover (19.29%) which was nearly double the amount as the next highest cover in Seaton (10.12%); the lowest percent cover occurred in Bowden and Brompton (both 0.24%).

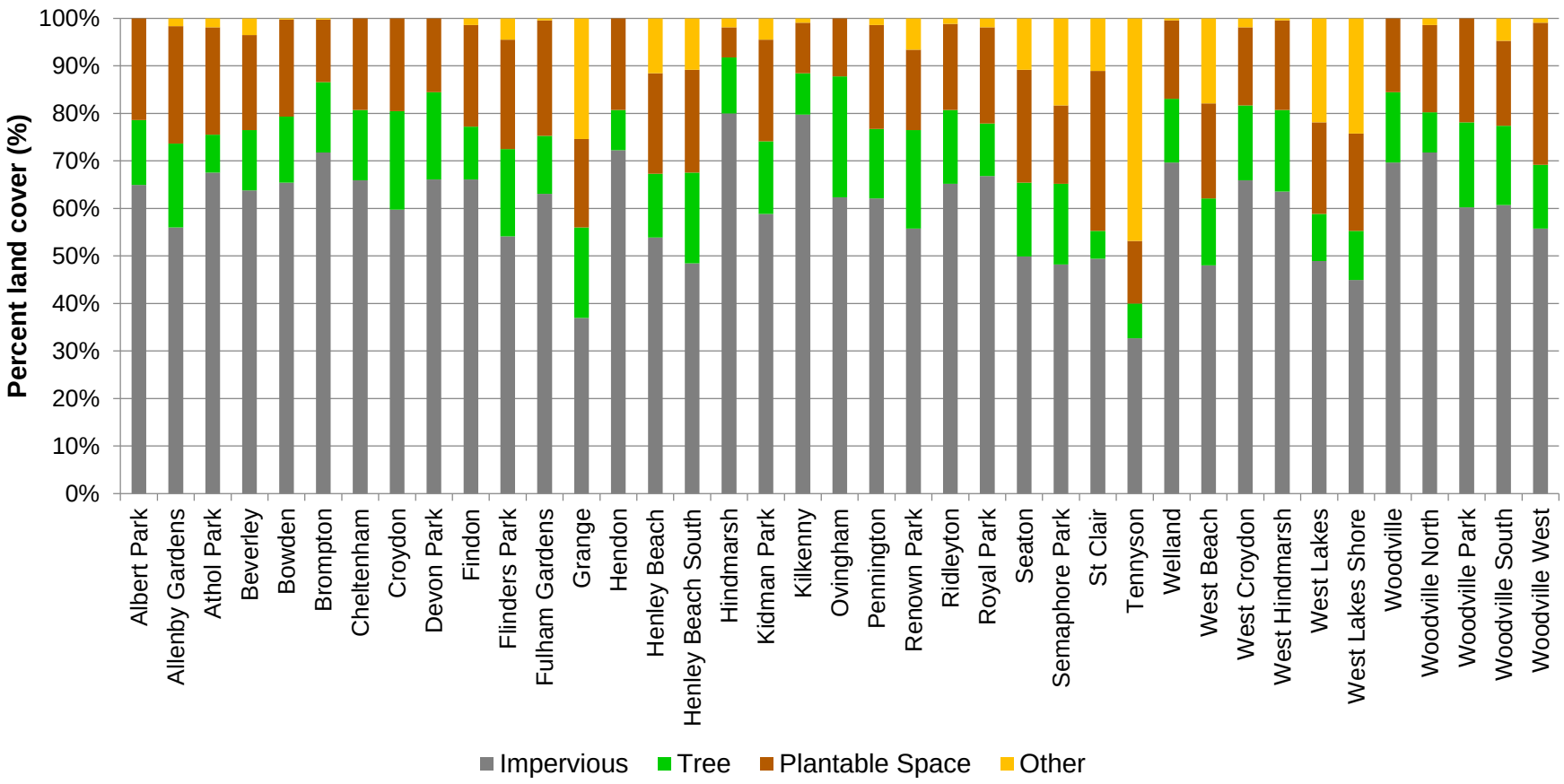

Figure 7. Percent 2014 land cover classes in each suburb. Land cover categories comprising each land cover class are as follows: Impervious = impervious – building + impervious – road + impervious – other; Tree = tree – pervious + tree – impervious; Plantable space = bare ground + grass – other; Other = grass – sporting + beach + dune vegetation + water + wetland vegetation.

Plate 3. St Clair showing substantial land changes that have occurred in the suburb across the three time periods assessed, from predominantly grass cover in 1998, to predominantly bare ground cover in 2008, to predominantly impervious cover in 2016. This also highlights the importance of repeating land cover assessments regularly over time as transitioning land covers can influence the dominant land cover in any one time period.

3.2.2 Land cover change over time

Changes in land cover over time varied among suburbs. For the purposes of this section, only change in impervious, tree, and plantable space cover are discussed for suburbs (Figures 8-10). In addition, for simplicity, only land cover in 1998 and 2014 are compared. Further details of all land cover change in each time period for each suburb are provided in Attachment C.

Impervious cover: percent impervious cover increased in all suburbs except three (Figure 11). The greatest increase (20.71%) occurred in St Clair (28.71% to 49.41%) and was statistically significant at $p<0.001$. This increase in impervious cover was nearly twice as much as the next highest increase in impervious cover in Woodville North (11.76%). Significant increases in impervious cover occurred in 12 suburbs (Figure 11). Decreases in impervious surfaces occurred in Beverley, Devon Park, and Bowden between, with the greatest decrease (4%) occurring in Bowden (69.41% to 65.41%); none of these decreases were statistically significant (Figure 11).

Tree cover: percent tree cover increased in 14 suburbs, decreased in 24, and remained unchanged in West Croydon (Figure 11). The greatest increase in precent tree cover occurred in Brompton, which increased by 4.47% (10.35% to 14.82%), though this was not a statistically significant change ($p=0.05$). Woodville North experienced the greatest decline in tree cover, with the 5.41% decline (13.88% to 8.47%) being statistically significant ($p=0.012$) (Figure 11). No other suburbs underwent significant changes in tree cover between 1998 and 2014.

Plantable space: percent plantable space declined in all suburbs except Bowden and Beverley, in which plantable space increased by 3.06% and 1.65%, respectively (Figure 11). The greatest decline of 14.12% occurred in St Clair (47.76% to 33.65%) and was statistically significant a $p<0.001$. Declines in 13 other suburbs were also statistically significant (Figure 11).

Implications of land cover change over time

Understanding trends in land cover change in each suburb helps to understand changes in City-wide land cover patterns. For example, the increase in impervious cover across the City is reflected by increases in nearly all suburbs, and similarly the decrease in plantable space across the City is reflected by a decrease across most suburbs. Comparatively, patterns in tree cover change were more variable, across suburbs. Of particular interest were the following land cover changes:

- St Clair had the greatest increase in impervious cover and the greatest decrease in plantable space cover, though relatively little decrease in tree cover. These trends are indicative of the extent of land cover conversion that has occurred since 1998, from largely open sporting fields to predominantly residential (Plate 3). The relatively small loss of tree cover which is usually expected with urban development reflects the initial low tree cover in 1998 due to the expansive sporting fields (Plate 3) . Note also that, compared to other suburbs, despite the high increase in impervious cover, St Clair was still one of the suburbs with the lowest levels of overall impervious cover;

- Woodville North had the greatest decrease in percent tree cover and the second greatest increase in percent impervious cover (second to St Clair), which suggests tree cover is being replaced by built surfaces as urban in-fill occurs;
- Brompton had the greatest overall increase in percent tree cover, which together may reflect successful Council tree planting programs in this suburb; and
- Bowden had the greatest increase in plantable space and the greatest decrease in impervious cover. This may suggest this suburb is currently undergoing the most active urban in-fill, though whether built or green infrastructure will replace the lost impervious cover is unable to be determined from these analyses.

Further analysis relating to the contribution of land cover changes on public and private land will help to further refine relevant actions and target locations (see Section 3.2.3).

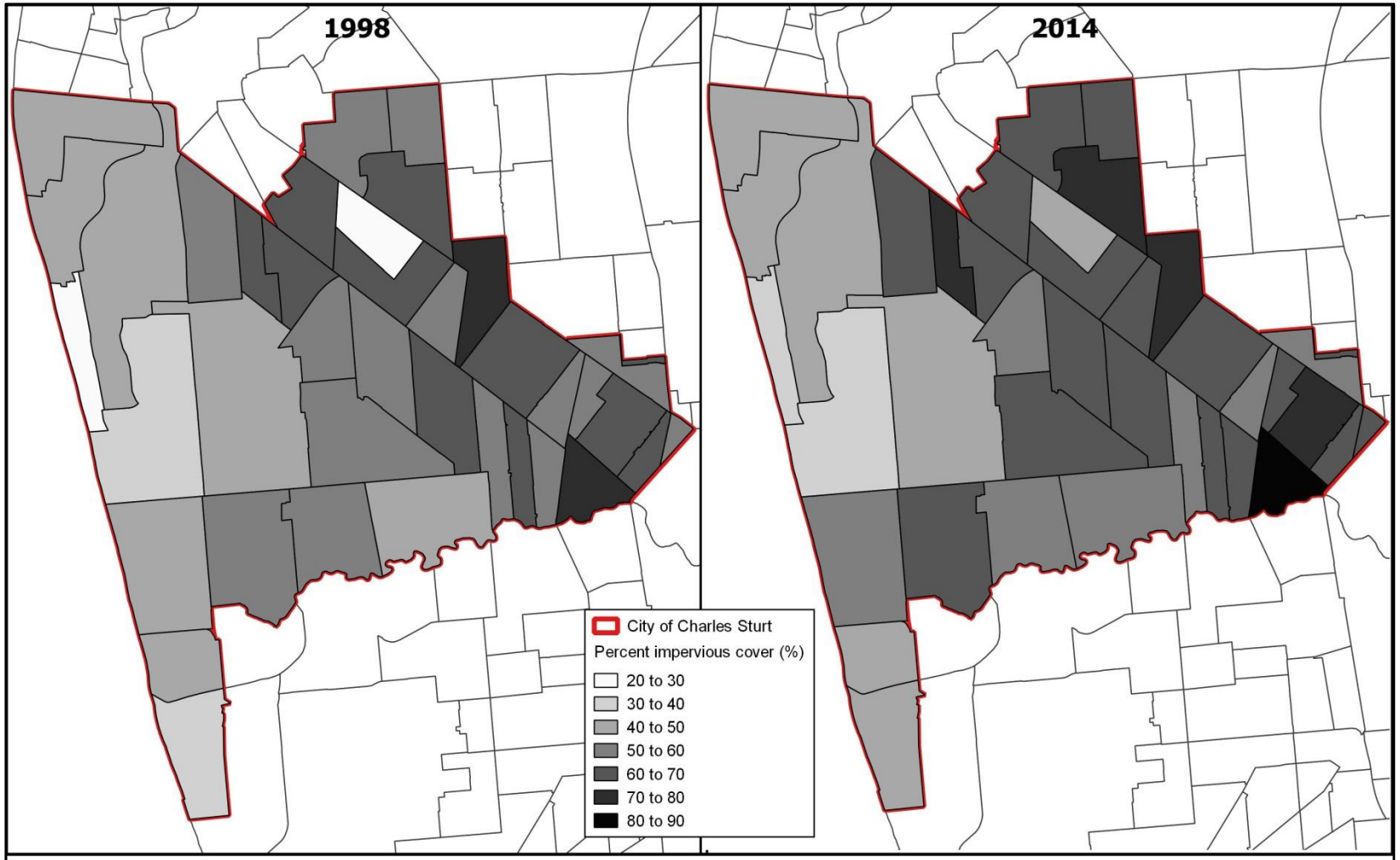

Figure 8. Percent impervious cover class by suburb in 1998 and 2014

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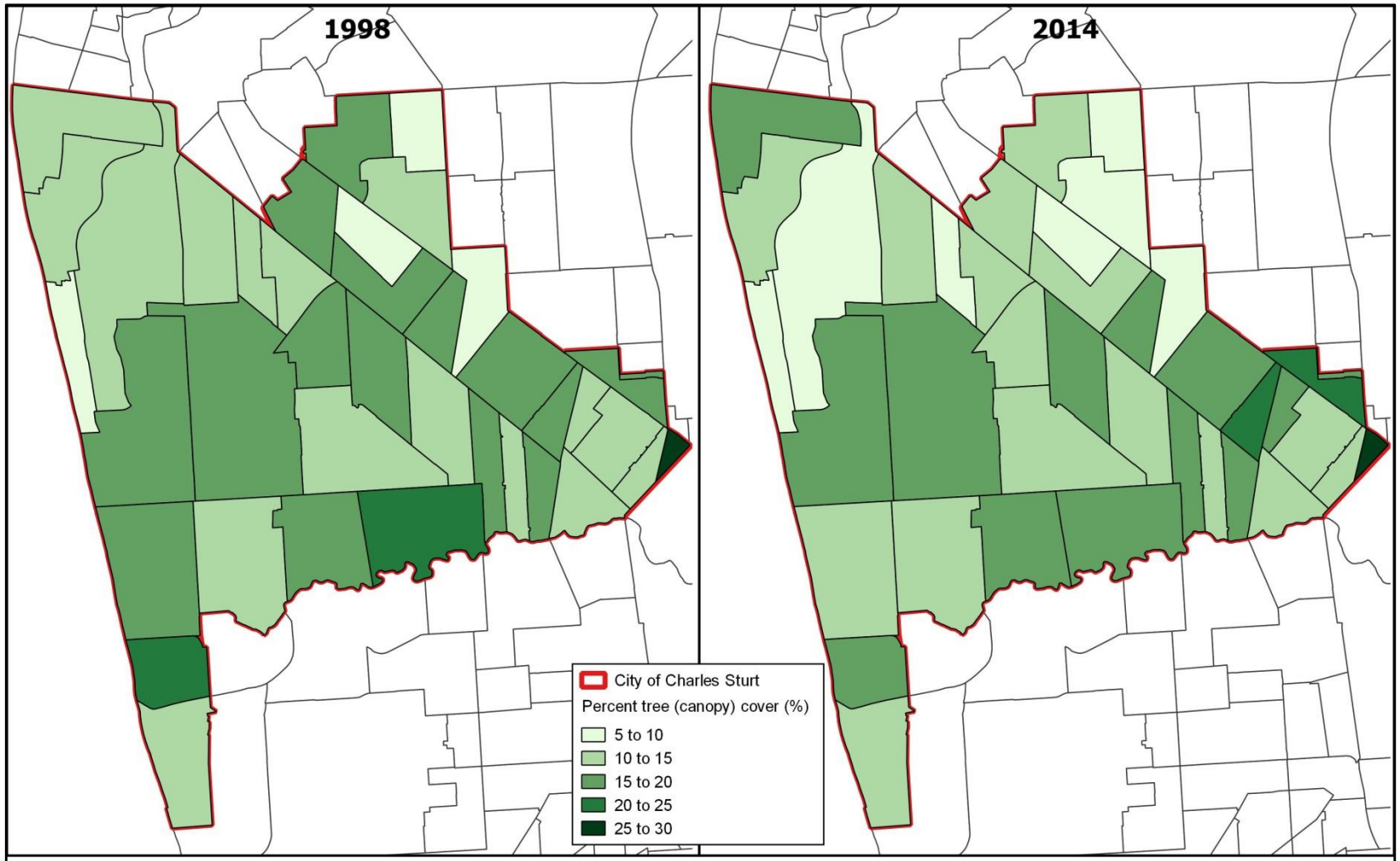

Figure 9. Percent tree (canopy) cover class by suburb in 1998 and 2014

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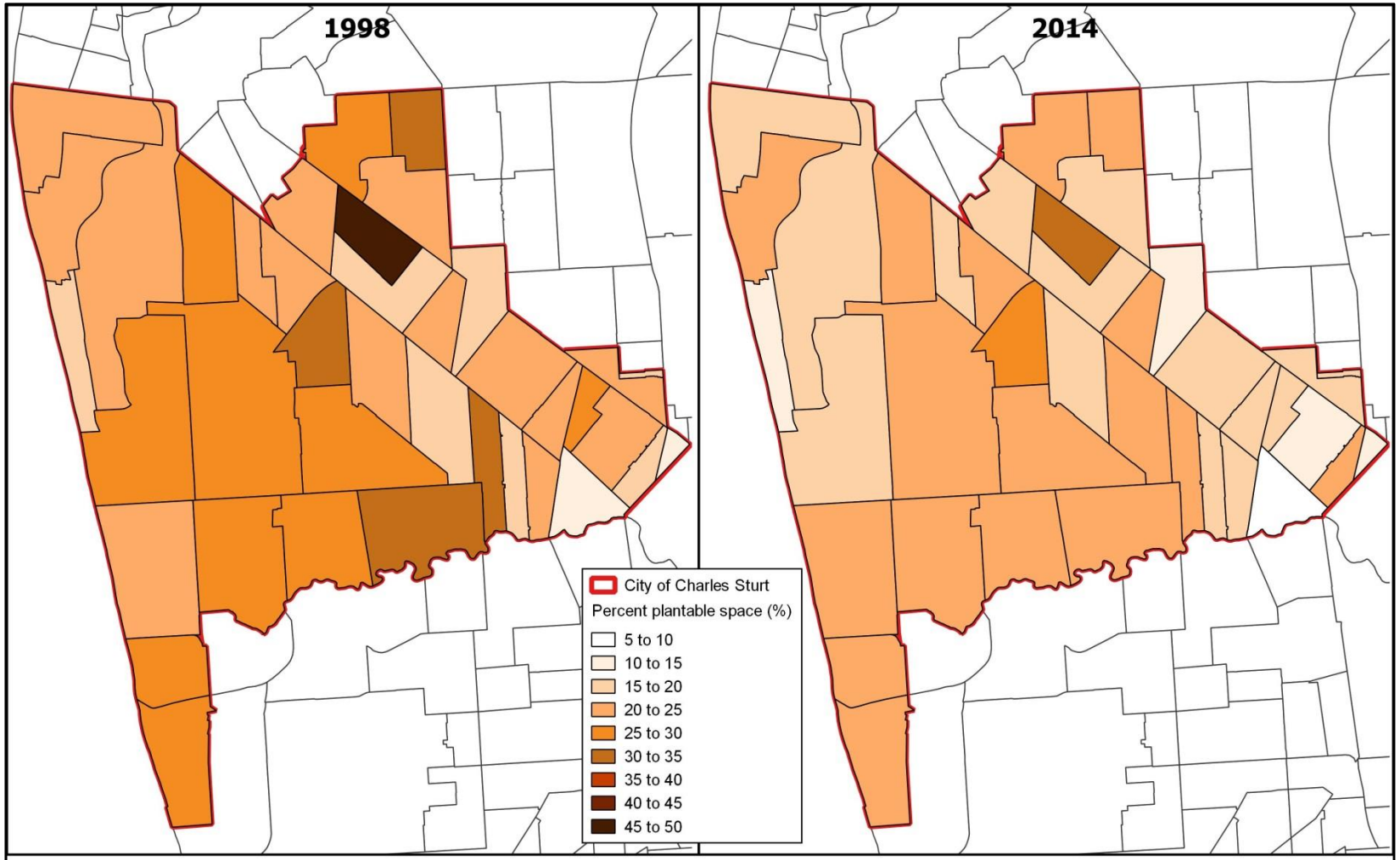

Figure 10. Percent plantable space cover class by suburb in 1998 and 2014

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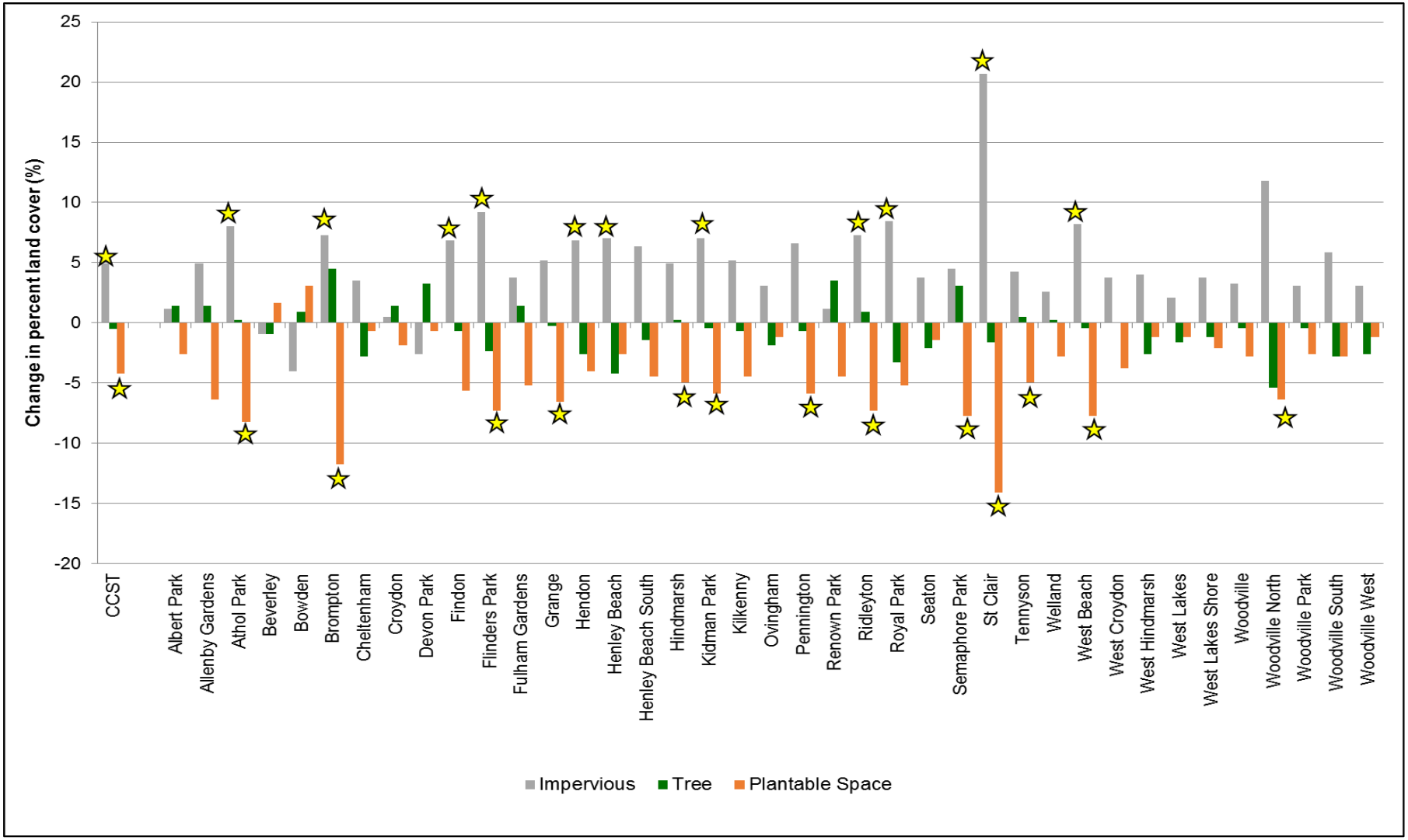

Figure 11. Change in percent impervious, tree, and plantable space cover between 1998 and 2008 in each suburb and across the City of Charles Sturt (CCST). Stars (☆) indicate statistically significant changes. Note that an increase in tree cover across CCST was statistically significant between 2008 and 2014, but the decline between 1998 and 2014, as is shown in this figure, was not significant.

3.2.3 Public versus private land

For the purposes of this report, key findings of tenure-specific land cover differences in each suburb between 1998 and 2014 are summarised. Further details regarding land cover by tenure in each suburb and time period is provided in Attachments D-F.

Impervious cover: In 2014, the highest percent impervious cover on **private land** occurred in Kilkenny (64.2%) and the lowest in Tennyson (21.6%) (Table 3). Comparatively, St Clair comprised the highest percent impervious cover on **public land** (24%), whereas the lowest occurred in Grange (9.4%) (Table 3).

Between 1998 and 2014, percent impervious cover on **private land** increased in 37 of the 39 suburbs, with the greatest change occurring in Woodville (11.06%). Bowden and Beverley experienced a decline in percent cover by 3.76% and 1.18%, respectively (Table 3). Comparatively, on **public land**, 17 suburbs experienced an increase in percent impervious cover (from 0.24% in seven suburbs to 10.12% in St Clair); 17 suburbs experienced a decrease in percent impervious cover (from 0.24% in nine suburbs to 2.82% in Devon Park), and Woodville South and Grange had no discernible difference in cover (Table 3).

Tree cover: In 2014, the highest percent tree cover on **private land** occurred in Ovingham (18.6%) and the lowest in St Clair (0.47%) (Table 3). Comparatively, on **public land** Allenby Gardens comprised the highest percent tree cover (9.4%), whereas the lowest occurred in Findon and St Clair (0.71% each) (Table 3).

Between 1998 and 2014, percent tree cover declined on **private land** in 28 of the 39 suburbs, by 0.24% in West Lakes, Beverley, and Allenby Gardens to 7.76% and 9.41% in Findon and Woodville West, respectively (Table 3). Nine suburbs experienced an increase in percent cover, by 0.24% in West Croydon to 2.35% in Semaphore Park, and no change was found in Tennyson or Athol Park (Table 3). Comparatively, on **public land**, percent tree cover increased in 25 suburbs (by 0.24% in five suburbs to 3.29% in Brompton) (Table 3). Twelve suburbs experienced a decline in percent tree cover (from 0.24% in Flinders Park and West Croydon to 4.71% in St Clair), and no change was found in Kilkenny and Croydon (Table 3).

Plantable space: In 2014, the highest percent plantable space on **private land** occurred in Woodville West (24.47%) and the lowest in Hindmarsh (2.8%) (Table 3). Comparatively, St Clair comprised the highest percent plantable space on **public land** (18.12%), whereas the lowest occurred in Kilkenny and Welland (2.12%) (Table 3).

Between 1998 and 2014, percent plantable space on **private land** declined in 37 of the 39 suburbs, with the greatest change occurring in Brompton (8.24%). Beverley and Bowden experienced an increase in percent cover of 1.18% and 3.06%, respectively (Table 3). Comparatively, on **public land**, 26 suburbs experienced a decline in percent plantable space (from 0.24% in West Hindmarsh and Albert Park to 11.53% in St Clair); 10 suburbs experienced an increase in percent plantable space (from 0.47% in five suburbs to 1.41% in Hendon); and, Devon Park, Cheltenham, and Bowden had no discernible difference in cover (Table 3).

Table 3. Percent land cover in each suburb in 1998 and 2014 and change in land cover percent between 1998 and 2014. Listed alphabetically by suburb.

	TREE COVER						IMPERVIOUS COVER						PLANTABLE SPACE COVER					
	Private			Public			Private			Public			Private			Public		
	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change
Albert Park	7.06	8.00	0.94	5.18	5.65	0.47	48.94	50.35	1.41	14.82	14.59	-0.24	17.18	14.82	-2.35	6.82	6.59	-0.24
Allenby Gardens	8.47	8.24	-0.24	7.76	9.41	1.65	34.59	39.29	4.71	16.47	16.71	0.24	22.59	18.12	-4.47	8.47	6.59	-1.88
Athol Park	5.18	5.18	0.00	2.59	2.82	0.24	46.35	52.71	6.35	13.18	14.82	1.65	24.94	18.59	-6.35	5.88	4.00	-1.88
Beverley	10.12	9.88	-0.24	3.53	2.82	-0.71	52.24	51.06	-1.18	12.47	12.71	0.24	15.76	16.94	1.18	2.59	3.06	0.47
Bowden	7.76	8.47	0.71	5.18	5.41	0.24	49.41	45.65	-3.76	20.00	19.76	-0.24	12.00	15.06	3.06	5.41	5.41	0.00
Brompton	8.94	10.12	1.18	1.41	4.71	3.29	48.24	55.29	7.06	16.24	16.47	0.24	17.41	9.18	-8.24	7.53	4.00	-3.53
Cheltenham	12.71	9.65	-3.06	4.94	5.18	0.24	47.06	50.82	3.76	15.29	15.06	-0.24	16.00	15.29	-0.71	4.00	4.00	0.00
Croydon	12.71	14.12	1.41	6.59	6.59	0.00	40.94	42.12	1.18	18.35	17.65	-0.71	17.65	15.06	-2.59	3.76	4.47	0.71
Devon Park	12.47	12.94	0.47	2.59	5.41	2.82	43.06	43.29	0.24	25.65	22.82	-2.82	12.94	12.24	-0.71	3.29	3.29	0.00
Findon	10.12	2.35	-7.76	1.65	0.71	-0.94	44.24	50.35	6.12	15.06	15.76	0.71	20.47	15.29	-5.18	6.59	6.12	-0.47
Flinders Park	12.24	10.12	-2.12	8.47	8.24	-0.24	32.47	40.00	7.53	12.47	14.12	1.65	21.88	16.47	-5.41	8.47	6.59	-1.88
Fulham Gardens	7.29	8.00	0.71	3.53	4.24	0.71	43.76	47.06	3.29	15.53	16.00	0.47	20.24	16.24	-4.00	9.18	8.00	-1.18
Grange	15.29	13.88	-1.41	4.00	5.18	1.18	22.35	27.53	5.18	9.41	9.41	0.00	19.76	14.35	-5.41	5.41	4.24	-1.18
Hendon	7.06	5.41	-1.65	4.00	3.06	-0.94	48.71	55.76	7.06	16.71	16.47	-0.24	19.76	14.35	-5.41	3.53	4.94	1.41
Henley Beach	11.76	8.71	-3.06	5.88	4.71	-1.18	32.94	36.94	4.00	13.88	16.94	3.06	13.88	12.94	-0.94	9.88	8.24	-1.65
Henley Beach South	13.18	10.35	-2.82	7.29	8.71	1.41	26.59	32.47	5.88	15.53	16.00	0.47	16.94	13.88	-3.06	9.18	7.76	-1.41
Hindmarsh	6.59	3.76	-2.82	4.94	8.00	3.06	53.88	59.76	5.88	21.18	20.24	-0.94	5.88	2.82	-3.06	5.41	3.53	-1.88
Kidman Park	10.35	8.94	-1.41	5.41	6.35	0.94	39.76	47.06	7.29	12.00	11.76	-0.24	19.06	13.88	-5.18	8.24	7.53	-0.71
Kilkenny	7.76	7.06	-0.71	1.65	1.65	0.00	58.59	64.24	5.65	16.00	15.53	-0.47	13.41	8.47	-4.94	1.65	2.12	0.47
Ovingham	22.59	18.59	-4.00	4.71	6.82	2.12	34.82	39.29	4.47	24.47	23.06	-1.41	8.00	7.53	-0.47	5.41	4.71	-0.71
Pennington	12.47	11.29	-1.18	2.82	3.29	0.47	41.41	47.76	6.35	14.12	14.35	0.24	20.94	15.76	-5.18	6.82	6.12	-0.71

	TREE COVER						IMPERVIOUS COVER						PLANTABLE SPACE COVER					
	Private			Public			Private			Public			Private			Public		
	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change	1998 %	2014 %	Change
Renown Park	9.88	11.53	1.65	7.29	9.18	1.88	36.24	38.12	1.88	18.35	17.65	-0.71	15.29	11.76	-3.53	6.12	5.18	-0.94
Ridleyton	11.53	10.35	-1.18	3.06	5.18	2.12	42.82	50.35	7.53	15.06	14.82	-0.24	17.41	11.06	-6.35	8.00	7.06	-0.94
Royal Park	9.41	7.29	-2.12	4.94	3.76	-1.18	40.47	47.29	6.82	17.88	19.53	1.65	19.06	14.35	-4.71	6.35	5.88	-0.47
Seaton	15.06	11.76	-3.29	2.59	3.76	1.18	32.47	36.47	4.00	13.65	13.41	-0.24	20.00	19.76	-0.24	5.18	4.00	-1.18
Semaphore Park	8.71	11.06	2.35	5.18	5.88	0.71	29.41	33.65	4.24	14.35	14.59	0.24	17.41	10.82	-6.59	6.82	5.65	-1.18
St Clair	2.12	0.47	-1.65	5.41	0.71	-4.71	14.82	25.41	10.59	13.88	24.00	10.12	18.12	15.53	-2.59	29.65	18.12	-11.53
Tennyson	5.18	5.18	0.00	1.65	2.12	0.47	17.88	21.65	3.76	10.59	11.06	0.47	10.59	6.59	-4.00	7.53	6.59	-0.94
Welland	10.12	9.41	-0.71	3.06	4.00	0.94	57.88	60.00	2.12	9.18	9.65	0.47	15.76	14.35	-1.41	3.53	2.12	-1.41
West Beach	10.59	8.47	-2.12	4.00	5.65	1.65	26.59	33.88	7.29	13.18	14.12	0.94	19.29	13.41	-5.88	8.47	6.59	-1.88
West Croydon	9.65	9.88	0.24	6.12	5.88	-0.24	43.06	47.29	4.24	19.06	18.59	-0.47	18.35	13.88	-4.47	1.88	2.59	0.71
West Hindmarsh	14.12	10.82	-3.29	5.65	6.35	0.71	40.94	45.18	4.24	18.59	18.35	-0.24	15.29	14.35	-0.94	4.71	4.47	-0.24
West Lakes	7.53	7.29	-0.24	4.00	2.59	-1.41	29.88	31.06	1.18	16.94	17.88	0.94	10.82	9.18	-1.65	9.65	10.12	0.47
West Lakes Shore	7.29	5.88	-1.41	4.24	4.47	0.24	27.29	31.29	4.00	13.88	13.65	-0.24	13.88	11.29	-2.59	8.71	9.18	0.47
Woodville	10.82	10.12	-0.71	4.47	4.71	0.24	46.12	50.12	4.00	20.24	19.53	-0.71	15.76	12.47	-3.29	2.59	3.06	0.47
Woodville North	10.12	6.12	-4.00	3.76	2.35	-1.41	48.00	59.06	11.06	12.00	12.71	0.71	22.35	15.29	-7.06	2.35	3.06	0.71
Woodville Park	13.41	12.24	-1.18	4.94	5.65	0.71	43.53	46.35	2.82	13.65	13.88	0.24	19.76	18.12	-1.65	4.71	3.76	-0.94
Woodville South	15.53	13.41	-2.12	4.00	3.29	-0.71	39.53	45.41	5.88	15.29	15.29	0.00	16.94	13.41	-3.53	3.76	4.47	0.71
Woodville West	10.35	0.94	-9.41	5.65	3.53	-2.12	36.94	39.76	2.82	15.76	16.00	0.24	24.94	24.47	-0.47	6.12	5.41	-0.71

Implications of land cover change by tenure

Understanding the contribution of land cover changes on public and private land helps to further refine relevant Council actions that will help to achieve greening and tree planting objectives across the City as a whole.

For example, using the tenure-specific analysis to build on the finding from the suburb-level assessment, we conclude that:

- St Clair's land cover change between 1998 and 2014 is perhaps the most dramatic and interesting of all the suburbs, with the greatest increase in impervious cover and decrease in plantable space observed at the suburb-level. Whilst impervious cover increased to similar extents on private and public lands (10.59% and 10.12%, respectively), the decrease in plantable space occurred predominantly on public rather than private lands (11.53% and 2.59%). It is of further interest to note that, at the suburb-scale, St Clair experienced a non-significant loss of tree cover between 1998 and 2014, yet the loss of cover on public land was the greatest of all suburbs; at more than twice the amount of public tree loss in Woodville West, which was the suburb with the second highest loss on public land (4.71% and 2.12%, respectively). This is indicative of the St Clair's large scale conversion of the previously dominant horse racing track to residential development – a process which is still underway, meaning that impervious cover may be expected to increase further over the coming years.
    - The extensive conversion occurring in St Clair presents opportunities for integrating novel green infrastructure plantings and elements at the development stage, rather than being limited to retrofitting, which is what often occurs in established suburbs. In addition to a focussed residential education and incentives campaign for new residents, St Clair also provides the greatest opportunities for increasing planting and green infrastructure elements in the public space wending its way through the developments;
- Woodville North's decrease in percent tree cover and increase in impervious cover occurred primarily on private land, which implies urban in-fill as a process driving tree loss. The percent plantable space in this suburb also occurs primarily on private land.
    - To help improve tree cover across the City, therefore, Council may target suburbs such as Woodville North and others with similar land-cover trends for incentives programs which promote tree retention and planting on private property. Revision of development policies may also be considered to incorporate better tree retention and planting in subdivisions and developments;
- Brompton's increase in percent tree cover was driven by increases on public and private land, though primarily on public land, which may reflect Council's street tree planting efforts. Whilst percent plantable space also decreased on public land, again reflecting potential planting programs, the greatest loss of plantable spaces occurred on private land. At the same time, percent impervious increased primarily on private land. This suggests that although tree cover on public land increased, more urban in-fill than tree planting is occurring.
    - Plantable opportunities occur on both private and public land, though a high amount of urban in-fill on private land is also likely. As tree cover has increased on both public and private land, Council may target suburbs such as Brompton for

additional planting programs on public land, coupled with education campaigns aimed at promoting the benefits of retaining and planting trees on public land;

- Bowden's increase in plantable space occurred entirely on private land and the decrease in impervious cover almost entirely on private land. This suggests a suburb in transition, and based on other common trends across the City is likely to be indicative of the process of urban in-fill in progress.
    - Given the likely dynamic status of this suburb, Council may target this and other similar suburbs for incentive and education programs which encourage planting on private land. As some plantable space also occurs on public land, undertaking planting programs in such suburbs will help to increase overall canopy cover in the City, as well as providing a leading example to private property owners.

4 Discussion

4.1 Key findings

Trees are an important component of the urban matrix, not only contributing to a city's character and liveability and helping to create a unique "sense of place", but also providing a suite of beneficial services for the environment, biodiversity, and people. A key challenge for urban land managers is how to maintain and increase tree cover given increasing demands for space and resources to support divergent land-uses, such as urban development. Further complicating this challenge is that much of the land in urban areas is often privately owned, which limits the direct influence that public greening/planting programs can have across the City area as a whole.

Being able to effectively and efficiently measure land cover change over time and across tenures can provide urban land managers with the critical tools and information necessary to monitor the success of greening objectives and prioritise locations for targeting different programs and actions to achieve the best outcome across the City. The i-Tree Canopy software was used in this project to measure land cover (including tree/canopy) cover at different spatial and temporal scales across the City of Charles Sturt. This software provides consistent, user-friendly and transparent approach to measuring and monitoring land cover change.

One of the key findings from this assessment was that tree cover across the City (i.e. both public and private land) has declined overall since 1998. This has occurred despite substantial Council tree planting efforts, particularly between 2002-2007 when 5,312 street trees were planted (comparatively, 10% fewer trees were planted between 2008-2014) (City of Charles Sturt, 2014). Tree clearing on private land may explain the overall decline in tree cover across the City, with loss of city-wide tree cover on private land being greater than gain of tree cover on public land. This explanation may be further supported by the trends in different categories of "tree cover" assessed. For example, within public land, 'tree over impervious surfaces' was the primary contributor to overall tree cover increase, which may reflect planting efforts as well as the growth of existing street tree canopies. On private land, however, 'tree over pervious surfaces' was the driver of overall tree cover loss, whilst 'tree over pervious surface' increased slightly. The process driving the loss of trees on private land is likely urban in-fill, with this assumption supported by a concomitant increase in impervious surfaces on private land, driven primarily by building cover.

Such findings have substantial implications for ongoing Council greening actions, but understanding nuances at the suburb-scale will be important for prioritising the type and location of such actions. For example, based on tree cover alone, Tennyson and St Clair may be targeted for planting programs, having the lowest current percent tree cover of all suburbs. However, Tennyson also has the highest percent beach cover which will limit the plantable space for tree planting. St Clair, however, also has the highest percent plantable space and so likely represents a priority target. Whether these opportunities occur on public or private land though will influence Council's direct action ability.

In addition to suburb-scale trends, therefore, management decisions and actions will be further informed by tenure-scale patterns. For instance, at the suburb-scale St Clair,

Woodville West and Allenby Gardens present the greatest opportunities for planting. However, in Woodville West and Allenby Gardens, this space occurs primarily on private land, thereby limiting the ability to implement Council planting programs. Comparatively, more plantable space in St Clair occurs on public land thereby providing the best opportunity for implementing Council planting programs. Interestingly, West Lakes has the next highest amount of plantable space on public land, and with just under 10% tree cover, also presents a key Council planting target. Such assessments highlight the importance of considering multiple land cover categories (e.g. not just the amount of tree cover) at a tenure-scale.

Similarly, community education and incentives programs, rather than Council planting programs, may be targeted in suburbs such as Woodville West and Findon, which both experienced the greatest decline in percent tree cover on private land between 1998 and 2014.

Additional demographic and climatic information such as where vulnerable members of the community or thermal hotspots occur may also be of use for influencing and prioritising decisions and actions. For example, Council may prioritise tree planting programs by identifying spatial correlations among the following metrics: low tree cover suburbs, high plantable space on public land, concentrations of vulnerable community members (e.g. elderly or low socio-economic classes), and thermal hotspots. Doing so will have overall benefits for the City as a whole, as well as supporting the City's most vulnerable areas and communities. The collection and analyses of demographic and climatic data were beyond the scope of this project.

4.2 Comparison with pilot study findings

Despite the pilot study reporting on only three suburbs, compared to the 39 in this assessment, there was general corroboration between the findings, with both studies reporting an overall increasing trend in tree cover on public land over time, but an overall decline in tree cover across combined tenures, being driven by declining tree cover on private land. Similarly, the pilot study also showed variation in land cover change trends among suburbs. Such findings in this assessment and the pilot study suggest that whilst increasing tree planting programs on public land will facilitate greening objectives, the solution is more complex and will require a combination of approaches, with their application best informed by considering land cover trends specific to each suburb.

However, for each suburb specifically, there were substantial inconsistencies in the land cover change trends at suburb scale and tenure-scale. In particular, this assessment reported tree cover loss in each tenure type in each of the three suburbs, whereas the pilot study reported increases, with the exception of private land in Woodville West (Table 4). Similarly, plantable space in Findon was found in this assessment to decline in both tenures, whereas the pilot study reported increases.

The inconsistencies may have occurred due to a combination of reasons:

- differences between assessors' interpretation of land cover, with assessors being different between the pilot and current assessment;
- the approach applied in the pilot study which required the assessor to judge tenure (e.g. tree on private or public land) at the time of point classification, rather than applying the

more rigorous approach of analysing tenure post-land cover classification using a GIS spatial overlay, as was done in this assessment;

- the different land cover categories used, with the pilot study using only four land cover categories, whereas this assessment applied twelve which allowed for more realistic representation of plantable space in the City; or,
- the difference between the date of satellite imagery used to assess "current" land cover for these three suburbs, with the pilot study reporting that 2014 satellite imagery was used, whereas 2016 imagery was used in the current assessment.

These inconsistencies highlight the importance of maintaining consistent approaches to potential future assessments.

Table 4. Tenure-specific, suburb-scale land cover change comparisons between this assessment and the pilot study for Findon, St Clair, and Woodville West.

	Change in Tree Cover		Change in Impervious Cover		Change in Plantable Space Cover	
	Private	Public	Private	Public	Private	Public
This assessment						
Findon	-7.76%	-0.94%	6.12%	0.71%	-5.18%	-0.47%
St Clair	-1.65%	-4.71%	10.59%	10.12%	-2.59%	-11.53%
Woodville West	-9.41%	-2.12%	2.82%	0.24%	-0.47%	-0.71%
Pilot Study^						
Findon	4.2%	2.01%	13.5%	0.6%	-5.31%	-6.6%
St Clair	0.2%	3.4%	4.2%	10.2%	24.6%	7%
Woodville West	-5.2%	0.2%	9.6%	-1%	-2.8%	-0.8%

^ Derived from Charleton (2014)

4.3 Implications of tree declines

The findings from this project serve to highlight that tree/canopy cover in the City of Charles Sturt are declining despite Council's best efforts to increase cover through dedicated planting programs on public land. Such declines in tree/canopy cover present a major challenge for Council in meeting future goals around recreation and open space and climate change adaptation, especially given projected rates and extents of on-going urban in-fill on private land. Mitigating future tree loss, and moving towards overall canopy cover gain across the City will require complimentary greening actions on public and private land.

The implications of on-going declining tree cover will be wide and varied, with substantial negative impacts on the liveability, prosperity, and long-term resilience of the City. Specific examples, include:

- lower air quality (e.g. dust and pollutants), which will impact human health and well-being, particularly vulnerable members of the community (e.g. very young or elderly, and those with compromised respiratory systems);

- hotter average day and night temperatures, contributing further to the urban heat island effect, which will itself be exacerbated by climate change-induced temperature rises. Higher temperatures will impact negatively on: the health and well-being of community members; the wear and maintenance of built assets (e.g. roads); water availability; building energy efficiency; and, the survival and maintenance costs associated with existing green infrastructure elements;
- decreased shading, which will lead to people being less inclined to spend leisure time outdoors in parks and gardens and so negatively influence community connectedness and health and well-being. Where shading is lost near buildings, increased energy costs associated with cooling the building may occur;
- increased winds, with this exacerbating decreased air quality and community health, as well as decreasing the liveability and attractiveness of the City;
- increase localised flooding and destabilised waterway/coastal banks and margins, which will directly impact infrastructure and communities and decrease water quality;
- decreased biodiversity which will compromise the functioning of whole ecosystems, and potentially have flow-on effects to other systems reliant on natural ecosystem functioning (e.g. nearby horticultural systems may be impacted if natural pest predators and pollinators no longer occur in the region); and
- decreased amenity, which will decrease property values and the desire for people to live, work and visit the City, with flow-on effects to local economic prosperity and crime rates.

4.4 Future opportunities

The information derived from this project will likely have immediate applications for informing management decisions and target-setting. A number of additional opportunities exist to further inform decisions and prioritise actions, such as:

- identifying and spatially mapping key demographic indicators that may benefit from increased tree plantings, such as: socio-economic classes, age classes, health classes;
    - such information could be used to investigate spatial congruence with planting opportunities;
- identifying and spatially mapping key climate indicators that may benefit from increased tree plantings, such as thermal hotspots
    - such information could be used to investigate spatial congruence with planting opportunities; and
- valuing the urban forest as an urban asset;
    - using i-Tree Eco, the value of certain ecosystem services provided by urban trees can be calculated which can then be used to view trees as urban assets and justify the business-case for trees.

5 References

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6 Attachments

Attachment A	Notes on statistical analysis.
Attachment B.	Number of points and equivalent percent cover for each land cover category in each time period and tenure relative to the City of Charles Sturt.
Attachment C.	Number of points and equivalent percent cover for each land cover category in each time period relative to suburb.
Attachment D.	Number of points and equivalent percent cover for each land cover category in each tenure type in 2014 relative to suburb
Attachment E.	Number of points and equivalent percent cover for each land cover category in each tenure type in 2008 relative to suburb
Attachment F.	Number of points and equivalent percent cover for each land cover category in each tenure type in 1998 relative to suburb

Attachment A. Notes on statistical analysis

A p-value, or probability value, is one output from a t-test (i.e. any statistical hypothesis test) which indicates whether the differences between data being compared are occurring due to chance (i.e. not significantly different) or are a real phenomenon (i.e. is significantly different). The critical alpha value sets the standard to which the p-value is compared and is usually set to 0.05. Therefore, a p-value less than or equal to 0.05 indicates the observed difference between the data is so unusual that it would only have happened by chance, at most, 5% of the time and so the difference is considered statistically significant. If a p-value is greater than 0.05, this indicates that the observed difference between data could have happened by chance more than 5% of the time and so the difference is considered statistically insignificant.

Comparing p-values can indicate relative significance between multiple significance tests. For example, a p-value of 0.001 indicates a more statistically significant difference than a p-value of 0.01. However, other factors are also generally considered in statistics which influence how significance tests are interpreted, such as autocorrelation and effect size.

Autocorrelation refers to the influence that different values have on each other. For example, in this project, points would be considered to be spatially autocorrelated if their proximity to each other influenced the type of land cover category of each point. Detailed statistical analyses were beyond the scope of this project though and so for the purposes of the broad level indicative statistical analyses conducted here, we assumed no spatial or temporal autocorrelation between points. Meaning that it was assumed that the data points are independent and land-use category of one point does not influence the land-use category of nearby points in the same time period or the same point across different time periods.

Effect size can help to interpret substantive significance, rather than purely statistical significance. The statistical analyses in this report were intended only to provide an indication of whether land cover change was likely to be statistically significance or not. Accordingly, for the purposes of these analyses, we did not report on effect sizes.

Furthermore, when interpreting statistical significance here, it is important to note the data sets involved in the statistical analyses as the statistical significance reported is relevant only to the data points involved in the analysis. For example, a comparison of land cover change within a particular suburb may report on the statistical significance of that particular suburb's data sets in two time periods. This, however, does not directly relate to changes occurring in other suburbs. Accordingly, a change in one suburb may be found to be statistically significant, whilst a similar quantified change in another suburb may not be statistically significant.

Attachment A. Number of points and equivalent percent cover (%) for each land cover category in each time period relative to the 16,575 points sampled across the City of Charles Sturt.

LAND COVER CATEGORY		NUMBER OF POINTS ACROSS CCST									PERCENT COVER ACROSS CCST (%)								
		1998			2008			2014			1998			2008			2014		
		Total	Private	Public	Total	Private	Public	Total	Private	Public	Total	Private	Public	Total	Private	Public	Total	Private	Public
Impervious	Impervious - building	4350	4271	79	4602	4541	61	4859	4807	52	26.24	25.77	0.48	27.76	27.40	0.37	29.32	29.00	0.31
	Impervious - other	3063	2234	829	3143	2313	830	3332	2439	893	18.48	13.48	5.00	18.96	13.95	5.01	20.10	14.71	5.39
	Impervious - road	1744	58	1686	1741	62	1679	1780	69	1711	10.52	0.35	10.17	10.50	0.37	10.13	10.74	0.42	10.32
Tree	Tree - per	1815	1349	466	1778	1259	519	1600	1112	488	10.95	8.14	2.81	10.73	7.60	3.13	9.65	6.71	2.94
	Tree - imp	640	366	274	792	469	323	767	430	337	3.86	2.21	1.65	4.78	2.83	1.95	4.63	2.59	2.03
Plantable space	Bare ground	755	551	204	1566	1055	511	1419	992	427	4.56	3.32	1.23	9.45	6.37	3.08	8.56	5.98	2.58
	Grass - other	3161	2287	874	1938	1430	508	1794	1292	502	19.07	13.80	5.27	11.69	8.63	3.06	10.82	7.79	3.03
Other	Grass - sporting	439	264	175	411	244	167	387	231	156	2.65	1.59	1.06	2.48	1.47	1.01	2.33	1.39	0.94
	Wetland veg	9	0	9	10	1	9	22	1	21	0.05	0.00	0.05	0.06	0.01	0.05	0.13	0.01	0.13
	Water	152	1	151	149	2	147	165	2	163	0.92	0.01	0.91	0.90	0.01	0.89	1.00	0.01	0.98
	Beach	306	9	297	295	10	285	308	11	297	1.85	0.05	1.79	1.78	0.06	1.72	1.86	0.07	1.79
	Dune vegetation	141	1	140	150	5	145	142	5	137	0.85	0.01	0.84	0.90	0.03	0.87	0.86	0.03	0.83

Attachment B. Number of points and equivalent percent cover (%) for each land cover category in each time period relative to the 425 points sampled in each suburb. Land cover categories are abbreviated as follows: ImpBld = impervious-building; ImpOth = impervious-other; ImpRd = impervious-road; TrPer = tree-pervious; TrImp = tree-impervious; BG = bare ground; GrOth = grass-other; GrSpt = grass sporting; WV = wetland vegetation; W = water; B = beach; DV = dune vegetation.

		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Year	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Albert Park	1998	138	92	41	33	19	22	80	0	0	0	0	0	32.47	21.65	9.65	7.76	4.47	5.18	18.82	0.00	0.00	0.00	0.00	0.00
	2008	139	91	40	42	19	44	50	0	0	0	0	0	32.71	21.41	9.41	9.88	4.47	10.35	11.76	0.00	0.00	0.00	0.00	0.00
	2014	143	93	40	35	23	41	50	0	0	0	0	0	33.65	21.88	9.41	8.24	5.41	9.65	11.76	0.00	0.00	0.00	0.00	0.00
Allenby Gardens	1998	109	56	52	48	21	65	67	6	1	0	0	0	25.65	13.18	12.24	11.29	4.94	15.29	15.76	1.41	0.24	0.00	0.00	0.00
	2008	125	57	51	66	24	44	51	6	1	0	0	0	29.41	13.41	12.00	15.53	5.65	10.35	12.00	1.41	0.24	0.00	0.00	0.00
	2014	130	57	51	53	22	36	69	6	1	0	0	0	30.59	13.41	12.00	12.47	5.18	8.47	16.24	1.41	0.24	0.00	0.00	0.00
Athol Park	1998	114	104	35	27	6	22	109	8	0	0	0	0	26.82	24.47	8.24	6.35	1.41	5.18	25.65	1.88	0.00	0.00	0.00	0.00
	2008	101	94	33	32	17	101	39	8	0	0	0	0	23.76	22.12	7.76	7.53	4.00	23.76	9.18	1.88	0.00	0.00	0.00	0.00
	2014	138	114	35	24	10	52	44	8	0	0	0	0	32.47	26.82	8.24	5.65	2.35	12.24	10.35	1.88	0.00	0.00	0.00	0.00
Beverley	1998	129	110	36	37	21	26	52	14	0	0	0	0	30.35	25.88	8.47	8.71	4.94	6.12	12.24	3.29	0.00	0.00	0.00	0.00
	2008	131	103	34	40	19	46	37	15	0	0	0	0	30.82	24.24	8.00	9.41	4.47	10.82	8.71	3.53	0.00	0.00	0.00	0.00
	2014	124	113	34	37	17	54	31	15	0	0	0	0	29.18	26.59	8.00	8.71	4.00	12.71	7.29	3.53	0.00	0.00	0.00	0.00
Bowden	1998	149	98	48	37	18	30	44	1	0	0	0	0	35.06	23.06	11.29	8.71	4.24	7.06	10.35	0.24	0.00	0.00	0.00	0.00
	2008	155	103	47	44	22	37	15	2	0	0	0	0	36.47	24.24	11.06	10.35	5.18	8.71	3.53	0.47	0.00	0.00	0.00	0.00
	2014	132	97	49	36	23	69	18	1	0	0	0	0	31.06	22.82	11.53	8.47	5.41	16.24	4.24	0.24	0.00	0.00	0.00	0.00
Brompton	1998	128	103	43	30	14	39	67	1	0	0	0	0	30.12	24.24	10.12	7.06	3.29	9.18	15.76	0.24	0.00	0.00	0.00	0.00
	2008	133	92	44	35	33	55	32	1	0	0	0	0	31.29	21.65	10.35	8.24	7.76	12.94	7.53	0.24	0.00	0.00	0.00	0.00
	2014	156	99	50	31	32	27	29	1	0	0	0	0	36.71	23.29	11.76	7.29	7.53	6.35	6.82	0.24	0.00	0.00	0.00	0.00

Suburb	Year	NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
		ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Cheltenham	1998	124	98	43	62	13	18	67	0	0	0	0	0	29.18	23.06	10.12	14.59	3.06	4.24	15.76	0.00	0.00	0.00	0.00	0.00
	2008	132	106	43	45	17	34	48	0	0	0	0	0	31.06	24.94	10.12	10.59	4.00	8.00	11.29	0.00	0.00	0.00	0.00	0.00
	2014	134	104	42	43	20	34	48	0	0	0	0	0	31.53	24.47	9.88	10.12	4.71	8.00	11.29	0.00	0.00	0.00	0.00	0.00
Croydon	1998	116	86	50	48	34	24	67	0	0	0	0	0	27.29	20.24	11.76	11.29	8.00	5.65	15.76	0.00	0.00	0.00	0.00	0.00
	2008	114	82	49	49	41	44	46	0	0	0	0	0	26.82	19.29	11.53	11.53	9.65	10.35	10.82	0.00	0.00	0.00	0.00	0.00
	2014	119	87	48	49	39	49	34	0	0	0	0	0	28.00	20.47	11.29	11.53	9.18	11.53	8.00	0.00	0.00	0.00	0.00	0.00
Devon Park	1998	126	86	80	48	16	14	55	0	0	0	0	0	29.65	20.24	18.82	11.29	3.76	3.29	12.94	0.00	0.00	0.00	0.00	0.00
	2008	128	69	72	55	38	35	28	0	0	0	0	0	30.12	16.24	16.94	12.94	8.94	8.24	6.59	0.00	0.00	0.00	0.00	0.00
	2014	131	78	72	43	35	34	32	0	0	0	0	0	30.82	18.35	16.94	10.12	8.24	8.00	7.53	0.00	0.00	0.00	0.00	0.00
Findon	1998	123	87	42	41	9	30	85	8	0	0	0	0	28.94	20.47	9.88	9.65	2.12	7.06	20.00	1.88	0.00	0.00	0.00	0.00
	2008	96	61	34	64	24	34	95	14	1	2	0	0	32.00	19.06	10.35	10.12	3.06	13.65	10.35	1.41	0.00	0.00	0.00	0.00
	2014	127	83	42	37	9	15	110	0	0	2	0	0	34.59	21.18	10.35	8.00	3.06	13.65	7.76	1.41	0.00	0.00	0.00	0.00
Flinders Park	1998	96	61	34	64	24	34	95	14	1	2	0	0	22.59	14.35	8.00	15.06	5.65	8.00	22.35	3.29	0.24	0.47	0.00	0.00
	2008	105	78	38	72	16	34	63	14	2	3	0	0	24.71	18.35	8.94	16.94	3.76	8.00	14.82	3.29	0.47	0.71	0.00	0.00
	2014	113	78	39	63	15	37	61	14	2	3	0	0	26.59	18.35	9.18	14.82	3.53	8.71	14.35	3.29	0.47	0.71	0.00	0.00
Fulham Gardens	1998	127	83	42	37	9	15	110	0	0	2	0	0	29.88	19.53	9.88	8.71	2.12	3.53	25.88	0.00	0.00	0.47	0.00	0.00
	2008	146	77	43	45	12	20	80	0	0	2	0	0	34.35	18.12	10.12	10.59	2.82	4.71	18.82	0.00	0.00	0.47	0.00	0.00
	2014	145	80	43	38	14	28	75	0	0	2	0	0	34.12	18.82	10.12	8.94	3.29	6.59	17.65	0.00	0.00	0.47	0.00	0.00
Grange	1998	65	40	30	69	13	10	97	74	1	3	17	6	15.29	9.41	7.06	16.24	3.06	2.35	22.82	17.41	0.24	0.71	4.00	1.41
	2008	79	47	29	71	16	30	45	82	1	2	17	6	18.59	11.06	6.82	16.71	3.76	7.06	10.59	19.29	0.24	0.47	4.00	1.41
	2014	84	43	30	65	16	38	41	82	1	2	17	6	19.76	10.12	7.06	15.29	3.76	8.94	9.65	19.29	0.24	0.47	4.00	1.41

Suburb	Year	NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
		ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Hendon	1998	123	89	66	36	11	15	84	0	0	1	0	0	28.94	20.94	15.53	8.47	2.59	3.53	19.76	0.00	0.00	0.24	0.00	0.00
	2008	145	89	66	29	9	38	49	0	0	0	0	0	34.12	20.94	15.53	6.82	2.12	8.94	11.53	0.00	0.00	0.00	0.00	0.00
	2014	149	92	66	25	11	49	33	0	0	0	0	0	35.06	21.65	15.53	5.88	2.59	11.53	7.76	0.00	0.00	0.00	0.00	0.00
Henley Beach	1998	106	52	41	53	22	5	96	15	0	0	34	1	24.94	12.24	9.65	12.47	5.18	1.18	22.59	3.53	0.00	0.00	8.00	0.24
	2008	116	61	43	54	18	22	62	15	0	0	30	4	27.29	14.35	10.12	12.71	4.24	5.18	14.59	3.53	0.00	0.00	7.06	0.94
	2014	121	65	43	40	17	37	53	15	0	0	30	4	28.47	15.29	10.12	9.41	4.00	8.71	12.47	3.53	0.00	0.00	7.06	0.94
Henley Beach South	1998	83	51	45	66	21	7	104	8	0	3	30	7	19.53	12.00	10.59	15.53	4.94	1.65	24.47	1.88	0.00	0.71	7.06	1.65
	2008	96	55	46	64	18	33	67	8	0	3	25	10	22.59	12.94	10.82	15.06	4.24	7.76	15.76	1.88	0.00	0.71	5.88	2.35
	2014	99	64	43	60	21	35	57	8	0	3	30	5	23.29	15.06	10.12	14.12	4.94	8.24	13.41	1.88	0.00	0.71	7.06	1.18
Hindmarsh	1998	141	117	61	25	24	20	28	5	3	1	0	0	33.18	27.53	14.35	5.88	5.65	4.71	6.59	1.18	0.71	0.24	0.00	0.00
	2008	147	120	58	28	22	27	15	5	1	2	0	0	34.59	28.24	13.65	6.59	5.18	6.35	3.53	1.18	0.24	0.47	0.00	0.00
	2014	161	121	58	25	25	20	7	5	1	2	0	0	37.88	28.47	13.65	5.88	5.88	4.71	1.65	1.18	0.24	0.47	0.00	0.00
Kidman Park	1998	110	78	32	51	16	21	95	20	0	2	0	0	25.88	18.35	7.53	12.00	3.76	4.94	22.35	4.71	0.00	0.47	0.00	0.00
	2008	127	79	30	45	23	30	72	17	0	2	0	0	29.88	18.59	7.06	10.59	5.41	7.06	16.94	4.00	0.00	0.47	0.00	0.00
	2014	135	83	32	50	15	32	59	17	0	2	0	0	31.76	19.53	7.53	11.76	3.53	7.53	13.88	4.00	0.00	0.47	0.00	0.00
Kilkenny	1998	147	111	59	28	12	17	47	4	0	0	0	0	34.59	26.12	13.88	6.59	2.82	4.00	11.06	0.94	0.00	0.00	0.00	0.00
	2008	149	105	58	23	18	36	32	4	0	0	0	0	35.06	24.71	13.65	5.41	4.24	8.47	7.53	0.94	0.00	0.00	0.00	0.00
	2014	159	120	60	21	16	24	21	4	0	0	0	0	37.41	28.24	14.12	4.94	3.76	5.65	4.94	0.94	0.00	0.00	0.00	0.00
Ovingham	1998	109	69	74	91	25	15	42	0	0	0	0	0	25.65	16.24	17.41	21.41	5.88	3.53	9.88	0.00	0.00	0.00	0.00	0.00
	2008	112	71	70	71	42	39	20	0	0	0	0	0	26.35	16.71	16.47	16.71	9.88	9.18	4.71	0.00	0.00	0.00	0.00	0.00
	2014	120	72	73	70	38	40	12	0	0	0	0	0	28.24	16.94	17.18	16.47	8.94	9.41	2.82	0.00	0.00	0.00	0.00	0.00

Suburb	Year	NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
		ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Pennington	1998	99	92	45	50	15	18	100	6	0	0	0	0	23.29	21.65	10.59	11.76	3.53	4.24	23.53	1.41	0.00	0.00	0.00	0.00
	2008	108	101	46	48	16	34	66	6	0	0	0	0	25.41	23.76	10.82	11.29	3.76	8.00	15.53	1.41	0.00	0.00	0.00	0.00
	2014	117	103	44	45	17	42	51	6	0	0	0	0	27.53	24.24	10.35	10.59	4.00	9.88	12.00	1.41	0.00	0.00	0.00	0.00
Renown Park	1998	106	74	52	56	17	20	71	29	0	0	0	0	24.94	17.41	12.24	13.18	4.00	4.71	16.71	6.82	0.00	0.00	0.00	0.00
	2008	103	73	53	72	22	34	40	28	0	0	0	0	24.24	17.18	12.47	16.94	5.18	8.00	9.41	6.59	0.00	0.00	0.00	0.00
	2014	109	77	51	67	21	38	34	28	0	0	0	0	25.65	18.12	12.00	15.76	4.94	8.94	8.00	6.59	0.00	0.00	0.00	0.00
Ridleyton	1998	114	95	37	38	24	24	84	9	0	0	0	0	26.82	22.35	8.71	8.94	5.65	5.65	19.76	2.12	0.00	0.00	0.00	0.00
	2008	121	101	43	33	27	44	51	5	0	0	0	0	28.47	23.76	10.12	7.76	6.35	10.35	12.00	1.18	0.00	0.00	0.00	0.00
	2014	129	110	38	36	30	43	34	5	0	0	0	0	30.35	25.88	8.94	8.47	7.06	10.12	8.00	1.18	0.00	0.00	0.00	0.00
Royal Park	1998	118	70	60	44	17	17	91	8	0	0	0	0	27.76	16.47	14.12	10.35	4.00	4.00	21.41	1.88	0.00	0.00	0.00	0.00
	2008	135	86	65	32	16	35	51	5	0	0	0	0	31.76	20.24	15.29	7.53	3.76	8.24	12.00	1.18	0.00	0.00	0.00	0.00
	2014	137	86	61	24	23	47	39	6	1	1	0	0	32.24	20.24	14.35	5.65	5.41	11.06	9.18	1.41	0.24	0.24	0.00	0.00
Seaton	1998	90	67	39	66	9	26	81	47	0	0	0	0	21.18	15.76	9.18	15.53	2.12	6.12	19.06	11.06	0.00	0.00	0.00	0.00
	2008	99	68	39	52	16	50	55	43	1	2	0	0	23.29	16.00	9.18	12.24	3.76	11.76	12.94	10.12	0.24	0.47	0.00	0.00
	2014	103	70	39	52	14	52	49	43	1	2	0	0	24.24	16.47	9.18	12.24	3.29	12.24	11.53	10.12	0.24	0.47	0.00	0.00
Semaphore Park	1998	94	50	42	44	15	15	88	3	0	30	30	14	22.12	11.76	9.88	10.35	3.53	3.53	20.71	0.71	0.00	7.06	7.06	3.29
	2008	92	62	40	51	22	24	56	3	0	29	29	17	21.65	14.59	9.41	12.00	5.18	5.65	13.18	0.71	0.00	6.82	6.82	4.00
	2014	96	67	42	53	19	28	42	3	0	29	29	17	22.59	15.76	9.88	12.47	4.47	6.59	9.88	0.71	0.00	6.82	6.82	4.00
St Clair	1998	56	52	14	28	4	24	179	68	0	0	0	0	13.18	12.24	3.29	6.59	0.94	5.65	42.12	16.00	0.00	0.00	0.00	0.00
	2008	37	37	14	29	7	236	16	49	0	0	0	0	8.71	8.71	3.29	6.82	1.65	55.53	3.76	11.53	0.00	0.00	0.00	0.00
	2014	81	78	51	20	5	88	55	20	12	15	0	0	19.06	18.35	12.00	4.71	1.18	20.71	12.94	4.71	2.82	3.53	0.00	0.00

Suburb	Year	NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
		ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Tennyson	1998	57	35	29	23	6	10	67	0	0	2	122	74	13.41	8.24	6.82	5.41	1.41	2.35	15.76	0.00	0.00	0.47	28.71	17.41
	2008	65	44	30	17	8	10	56	0	0	1	119	75	15.29	10.35	7.06	4.00	1.88	2.35	13.18	0.00	0.00	0.24	28.00	17.65
	2014	67	42	30	19	12	14	42	0	0	1	124	74	15.76	9.88	7.06	4.47	2.82	3.29	9.88	0.00	0.00	0.24	29.18	17.41
Welland	1998	147	108	30	41	15	22	60	0	0	2	0	0	34.59	25.41	7.06	9.65	3.53	5.18	14.12	0.00	0.00	0.47	0.00	0.00
	2008	150	106	30	42	22	24	50	0	0	1	0	0	35.29	24.94	7.06	9.88	5.18	5.65	11.76	0.00	0.00	0.24	0.00	0.00
	2014	155	112	29	39	18	23	47	0	0	2	0	0	36.47	26.35	6.82	9.18	4.24	5.41	11.06	0.00	0.00	0.47	0.00	0.00
West Beach	1998	81	44	44	53	9	10	108	17	1	3	41	14	19.06	10.35	10.35	12.47	2.12	2.35	25.41	4.00	0.24	0.71	9.65	3.29
	2008	95	53	44	49	13	26	70	15	1	3	40	16	22.35	12.47	10.35	11.53	3.06	6.12	16.47	3.53	0.24	0.71	9.41	3.76
	2014	102	60	42	51	9	18	67	15	1	2	44	14	24.00	14.12	9.88	12.00	2.12	4.24	15.76	3.53	0.24	0.47	10.35	3.29
West Croydon	1998	117	97	50	48	19	14	72	8	0	0	0	0	27.53	22.82	11.76	11.29	4.47	3.29	16.94	1.88	0.00	0.00	0.00	0.00
	2008	124	101	52	38	21	22	59	8	0	0	0	0	29.18	23.76	12.24	8.94	4.94	5.18	13.88	1.88	0.00	0.00	0.00	0.00
	2014	131	99	50	47	20	18	52	8	0	0	0	0	30.82	23.29	11.76	11.06	4.71	4.24	12.24	1.88	0.00	0.00	0.00	0.00
West Hindmarsh	1998	123	79	51	62	22	15	70	0	2	1	0	0	28.94	18.59	12.00	14.59	5.18	3.53	16.47	0.00	0.47	0.24	0.00	0.00
	2008	129	83	50	55	25	35	45	0	3	0	0	0	30.35	19.53	11.76	12.94	5.88	8.24	10.59	0.00	0.71	0.00	0.00	0.00
	2014	130	88	52	46	27	26	54	0	2	0	0	0	30.59	20.71	12.24	10.82	6.35	6.12	12.71	0.00	0.47	0.00	0.00	0.00
West Lakes	1998	88	56	55	40	9	15	72	14	0	75	1	0	20.71	13.18	12.94	9.41	2.12	3.53	16.94	3.29	0.00	17.65	0.24	0.00
	2008	90	49	58	40	9	25	63	15	0	75	1	0	21.18	11.53	13.65	9.41	2.12	5.88	14.82	3.53	0.00	17.65	0.24	0.00
	2014	95	55	58	32	10	21	61	17	0	75	1	0	22.35	12.94	13.65	7.53	2.35	4.94	14.35	4.00	0.00	17.65	0.24	0.00
West Lakes Shore	1998	81	56	38	36	13	11	85	24	0	25	31	25	19.06	13.18	8.94	8.47	3.06	2.59	20.00	5.65	0.00	5.88	7.29	5.88
	2008	87	63	35	35	11	28	62	24	0	24	34	22	20.47	14.82	8.24	8.24	2.59	6.59	14.59	5.65	0.00	5.65	8.00	5.18
	2014	90	65	36	29	15	30	57	24	0	24	33	22	21.18	15.29	8.47	6.82	3.53	7.06	13.41	5.65	0.00	5.65	7.76	5.18

Suburb	Year	NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
		ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Woodville	1998	133	99	50	42	23	9	69	0	0	0	0	0	31.29	23.29	11.76	9.88	5.41	2.12	16.24	0.00	0.00	0.00	0.00	0.00
	2008	136	100	52	37	28	25	47	0	0	0	0	0	32.00	23.53	12.24	8.71	6.59	5.88	11.06	0.00	0.00	0.00	0.00	0.00
	2014	142	104	50	36	27	19	47	0	0	0	0	0	33.41	24.47	11.76	8.47	6.35	4.47	11.06	0.00	0.00	0.00	0.00	0.00
Woodville North	1998	142	82	31	44	15	18	87	6	0	0	0	0	33.41	19.29	7.29	10.35	3.53	4.24	20.47	1.41	0.00	0.00	0.00	0.00
	2008	149	104	31	30	18	24	63	6	0	0	0	0	35.06	24.47	7.29	7.06	4.24	5.65	14.82	1.41	0.00	0.00	0.00	0.00
	2014	164	106	35	26	10	21	57	6	0	0	0	0	38.59	24.94	8.24	6.12	2.35	4.94	13.41	1.41	0.00	0.00	0.00	0.00
Woodville Park	1998	119	93	31	57	21	12	92	0	0	0	0	0	28.00	21.88	7.29	13.41	4.94	2.82	21.65	0.00	0.00	0.00	0.00	0.00
	2008	122	98	30	56	27	18	74	0	0	0	0	0	28.71	23.06	7.06	13.18	6.35	4.24	17.41	0.00	0.00	0.00	0.00	0.00
	2014	124	102	30	49	27	16	77	0	0	0	0	0	29.18	24.00	7.06	11.53	6.35	3.76	18.12	0.00	0.00	0.00	0.00	0.00
Woodville South	1998	120	66	47	63	20	11	77	21	0	0	0	0	28.24	15.53	11.06	14.82	4.71	2.59	18.12	4.94	0.00	0.00	0.00	0.00
	2008	133	69	45	55	27	11	65	20	0	0	0	0	31.29	16.24	10.59	12.94	6.35	2.59	15.29	4.71	0.00	0.00	0.00	0.00
	2014	137	75	46	49	22	11	65	20	0	0	0	0	32.24	17.65	10.82	11.53	5.18	2.59	15.29	4.71	0.00	0.00	0.00	0.00
Woodville West	1998	102	77	45	49	19	15	117	1	0	0	0	0	24.00	18.12	10.59	11.53	4.47	3.53	27.53	0.24	0.00	0.00	0.00	0.00
	2008	111	85	46	54	20	54	54	1	0	0	0	0	26.12	20.00	10.82	12.71	4.71	12.71	12.71	0.24	0.00	0.00	0.00	0.00
	2014	110	83	44	38	19	70	57	4	0	0	0	0	25.88	19.53	10.35	8.94	4.47	16.47	13.41	0.94	0.00	0.00	0.00	0.00

Attachment C. Number of points and equivalent percent cover (%) for each land cover category in each tenure type in 2014 relative to the 425 points sampled in each suburb. Land cover categories are abbreviated as follows: ImpBld = impervious-building; ImpOth = impervious-other; ImpRd = impervious-road; TrPer = tree-pervious; TrImp = tree-impervious; BG = bare ground; GrOth = grass-other; GrSpt = grass sporting; WV = wetland vegetation; W = water; B = beach; DV = dune vegetation.

2014		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Albert Park	Private	142	71	1	26	8	26	37	0	0	0	0	0	33.41	16.71	0.24	6.12	1.88	6.12	8.71	0.00	0.00	0.00	0.00	0.00
	Public	1	22	39	9	15	15	13	0	0	0	0	0	0.24	5.18	9.18	2.12	3.53	3.53	3.06	0.00	0.00	0.00	0.00	0.00
Allenby Gardens	Private	130	37	0	30	5	28	49	1	0	0	0	0	30.59	8.71	0.00	7.06	1.18	6.59	11.53	0.24	0.00	0.00	0.00	0.00
	Public	0	20	51	23	17	8	20	5	1	0	0	0	0.00	4.71	12.00	5.41	4.00	1.88	4.71	1.18	0.24	0.00	0.00	0.00
Athol Park	Private	136	86	2	17	5	46	33	0	0	0	0	0	32.00	20.24	0.47	4.00	1.18	10.82	7.76	0.00	0.00	0.00	0.00	0.00
	Public	2	28	33	7	5	6	11	8	0	0	0	0	0.47	6.59	7.76	1.65	1.18	1.41	2.59	1.88	0.00	0.00	0.00	0.00
Beverley	Private	123	94	0	30	12	46	26	8	0	0	0	0	28.94	22.12	0.00	7.06	2.82	10.82	6.12	1.88	0.00	0.00	0.00	0.00
	Public	1	19	34	7	5	8	5	7	0	0	0	0	0.24	4.47	8.00	1.65	1.18	1.88	1.18	1.65	0.00	0.00	0.00	0.00
Bowden	Private	129	58	7	24	12	54	10	1	0	0	0	0	30.35	13.65	1.65	5.65	2.82	12.71	2.35	0.24	0.00	0.00	0.00	0.00
	Public	3	39	42	12	11	15	8	0	0	0	0	0	0.71	9.18	9.88	2.82	2.59	3.53	1.88	0.00	0.00	0.00	0.00	0.00
Brompton	Private	155	79	1	25	18	20	19	0	0	0	0	0	36.47	18.59	0.24	5.88	4.24	4.71	4.47	0.00	0.00	0.00	0.00	0.00
	Public	1	20	49	6	14	7	10	1	0	0	0	0	0.24	4.71	11.53	1.41	3.29	1.65	2.35	0.24	0.00	0.00	0.00	0.00
Cheltenham	Private	134	82	0	29	12	22	43	0	0	0	0	0	31.53	19.29	0.00	6.82	2.82	5.18	10.12	0.00	0.00	0.00	0.00	0.00
	Public	0	22	42	14	8	12	5	0	0	0	0	0	0.00	5.18	9.88	3.29	1.88	2.82	1.18	0.00	0.00	0.00	0.00	0.00
Croydon	Private	118	61	0	41	19	35	29	0	0	0	0	0	27.76	14.35	0.00	9.65	4.47	8.24	6.82	0.00	0.00	0.00	0.00	0.00
	Public	1	26	48	8	20	14	5	0	0	0	0	0	0.24	6.12	11.29	1.88	4.71	3.29	1.18	0.00	0.00	0.00	0.00	0.00
Devon Park	Private	131	53	0	35	20	24	28	0	0	0	0	0	30.82	12.47	0.00	8.24	4.71	5.65	6.59	0.00	0.00	0.00	0.00	0.00
	Public	0	25	72	8	15	10	4	0	0	0	0	0	0.00	5.88	16.94	1.88	3.53	2.35	0.94	0.00	0.00	0.00	0.00	0.00

2014		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Findon	Private	146	68	0	45	30	40	20	2	0	0	0	0	34.35	16.00	0.00	10.59	7.06	9.41	4.71	0.47	0.00	0.00	0.00	0.00
	Public	1	22	44	13	4	7	13	4	0	0	0	0	0.24	5.18	10.35	3.06	0.94	1.65	3.06	0.94	0.00	0.00	0.00	0.00
Flinders Park	Private	113	57	0	34	9	24	46	8	0	0	0	0	26.59	13.41	0.00	8.00	2.12	5.65	10.82	1.88	0.00	0.00	0.00	0.00
	Public	0	21	39	29	6	13	15	6	2	3	0	0	0.00	4.94	9.18	6.82	1.41	3.06	3.53	1.41	0.47	0.71	0.00	0.00
Fulham Gardens	Private	145	54	1	23	11	21	48	0	0	0	0	0	34.12	12.71	0.24	5.41	2.59	4.94	11.29	0.00	0.00	0.00	0.00	0.00
	Public	0	26	42	15	3	7	27	0	0	2	0	0	0.00	6.12	9.88	3.53	0.71	1.65	6.35	0.00	0.00	0.47	0.00	0.00
Grange	Private	83	32	2	49	10	31	30	78	0	0	0	0	19.53	7.53	0.47	11.53	2.35	7.29	7.06	18.35	0.00	0.00	0.00	0.00
	Public	1	11	28	16	6	7	11	4	1	2	17	6	0.24	2.59	6.59	3.76	1.41	1.65	2.59	0.94	0.24	0.47	4.00	1.41
Hendon	Private	146	81	10	16	7	35	26	0	0	0	0	0	34.35	19.06	2.35	3.76	1.65	8.24	6.12	0.00	0.00	0.00	0.00	0.00
	Public	3	11	56	9	4	14	7	0	0	0	0	0	0.71	2.59	13.18	2.12	0.94	3.29	1.65	0.00	0.00	0.00	0.00	0.00
Henley Beach	Private	119	37	1	26	11	20	35	7	0	0	0	0	28.00	8.71	0.24	6.12	2.59	4.71	8.24	1.65	0.00	0.00	0.00	0.00
	Public	2	28	42	14	6	17	18	8	0	0	30	4	0.47	6.59	9.88	3.29	1.41	4.00	4.24	1.88	0.00	0.00	7.06	0.94
Henley Beach South	Private	98	40	0	33	11	25	34	8	0	0	0	0	23.06	9.41	0.00	7.76	2.59	5.88	8.00	1.88	0.00	0.00	0.00	0.00
	Public	1	24	43	27	10	10	23	0	0	3	30	5	0.24	5.65	10.12	6.35	2.35	2.35	5.41	0.00	0.00	0.71	7.06	1.18
Hindmarsh	Private	155	96	3	9	7	9	3	5	0	0	0	0	36.47	22.59	0.71	2.12	1.65	2.12	0.71	1.18	0.00	0.00	0.00	0.00
	Public	6	25	55	16	18	11	4	0	1	2	0	0	1.41	5.88	12.94	3.76	4.24	2.59	0.94	0.00	0.24	0.47	0.00	0.00
Kidman Park	Private	133	64	3	34	4	20	39	9	0	0	0	0	31.29	15.06	0.71	8.00	0.94	4.71	9.18	2.12	0.00	0.00	0.00	0.00
	Public	2	19	29	16	11	12	20	8	0	2	0	0	0.47	4.47	6.82	3.76	2.59	2.82	4.71	1.88	0.00	0.47	0.00	0.00
Kilkenny	Private	159	107	7	19	11	20	16	4	0	0	0	0	37.41	25.18	1.65	4.47	2.59	4.71	3.76	0.94	0.00	0.00	0.00	0.00
	Public	0	13	53	2	5	4	5	0	0	0	0	0	0.00	3.06	12.47	0.47	1.18	0.94	1.18	0.00	0.00	0.00	0.00	0.00
Ovingham	Private	119	46	2	50	29	22	10	0	0	0	0	0	28.00	10.82	0.47	11.76	6.82	5.18	2.35	0.00	0.00	0.00	0.00	0.00
	Public	1	26	71	20	9	18	2	0	0	0	0	0	0.24	6.12	16.71	4.71	2.12	4.24	0.47	0.00	0.00	0.00	0.00	0.00

2014		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Pennington	Private	116	84	3	40	8	30	37	3	0	0	0	0	27.29	19.76	0.71	9.41	1.88	7.06	8.71	0.71	0.00	0.00	0.00	0.00
	Public	1	19	41	5	9	12	14	3	0	0	0	0	0.24	4.47	9.65	1.18	2.12	2.82	3.29	0.71	0.00	0.00	0.00	0.00
Renown Park	Private	108	54	0	37	12	21	29	7	0	0	0	0	25.41	12.71	0.00	8.71	2.82	4.94	6.82	1.65	0.00	0.00	0.00	0.00
	Public	1	23	51	30	9	17	5	21	0	0	0	0	0.24	5.41	12.00	7.06	2.12	4.00	1.18	4.94	0.00	0.00	0.00	0.00
Ridleyton	Private	127	87	0	25	19	26	21	0	0	0	0	0	29.88	20.47	0.00	5.88	4.47	6.12	4.94	0.00	0.00	0.00	0.00	0.00
	Public	2	23	38	11	11	17	13	5	0	0	0	0	0.47	5.41	8.94	2.59	2.59	4.00	3.06	1.18	0.00	0.00	0.00	0.00
Royal Park	Private	136	64	1	16	15	32	29	2	0	0	0	0	32.00	15.06	0.24	3.76	3.53	7.53	6.82	0.47	0.00	0.00	0.00	0.00
	Public	1	22	60	8	8	15	10	4	1	1	0	0	0.24	5.18	14.12	1.88	1.88	3.53	2.35	0.94	0.24	0.24	0.00	0.00
Seaton	Private	103	52	0	40	10	49	35	40	1	2	0	0	24.24	12.24	0.00	9.41	2.35	11.53	8.24	9.41	0.24	0.47	0.00	0.00
	Public	0	18	39	12	4	3	14	3	0	0	0	0	0.00	4.24	9.18	2.82	0.94	0.71	3.29	0.71	0.00	0.00	0.00	0.00
Semaphore Park	Private	95	48	0	33	14	15	31	0	0	0	0	1	22.35	11.29	0.00	7.76	3.29	3.53	7.29	0.00	0.00	0.00	0.00	0.24
	Public	1	19	42	20	5	13	11	3	0	29	29	16	0.24	4.47	9.88	4.71	1.18	3.06	2.59	0.71	0.00	6.82	6.82	3.76
St Clair	Private	74	32	2	53	6	8	13	3	0	0	0	0	17.41	7.53	0.47	12.47	1.41	1.88	3.06	0.71	0.00	0.00	0.00	0.00
	Public	7	46	49	35	14	17	42	17	12	15	0	0	1.65	10.82	11.53	8.24	3.29	4.00	9.88	4.00	2.82	3.53	0.00	0.00
Tennyson	Private	67	24	1	12	10	4	24	0	0	0	1	0	15.76	5.65	0.24	2.82	2.35	0.94	5.65	0.00	0.00	0.00	0.24	0.00
	Public	0	18	29	7	2	10	18	0	0	1	123	74	0.00	4.24	6.82	1.65	0.47	2.35	4.24	0.00	0.00	0.24	28.94	17.41
Welland	Private	155	100	0	27	13	21	40	0	0	0	0	0	36.47	23.53	0.00	6.35	3.06	4.94	9.41	0.00	0.00	0.00	0.00	0.00
	Public	0	12	29	12	5	2	7	0	0	2	0	0	0.00	2.82	6.82	2.82	1.18	0.47	1.65	0.00	0.00	0.47	0.00	0.00
West Beach	Private	102	36	6	30	6	11	46	15	0	0	10	4	24.00	8.47	1.41	7.06	1.41	2.59	10.82	3.53	0.00	0.00	2.35	0.94
	Public	0	24	36	21	3	7	21	0	1	2	34	10	0.00	5.65	8.47	4.94	0.71	1.65	4.94	0.00	0.24	0.47	8.00	2.35
West Croydon	Private	131	70	0	36	6	13	46	8	0	0	0	0	30.82	16.47	0.00	8.47	1.41	3.06	10.82	1.88	0.00	0.00	0.00	0.00
	Public	0	29	50	11	14	5	6	0	0	0	0	0	0.00	6.82	11.76	2.59	3.29	1.18	1.41	0.00	0.00	0.00	0.00	0.00

2014		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
West Hindmarsh	Private	130	62	0	32	14	14	47	0	0	0	0	0	30.59	14.59	0.00	7.53	3.29	3.29	11.06	0.00	0.00	0.00	0.00	0.00
	Public	0	26	52	14	13	12	7	0	2	0	0	0	0.00	6.12	12.24	3.29	3.06	2.82	1.65	0.00	0.47	0.00	0.00	0.00
West Lakes	Private	94	34	4	23	8	10	29	17	0	0	0	0	22.12	8.00	0.94	5.41	1.88	2.35	6.82	4.00	0.00	0.00	0.00	0.00
	Public	1	21	54	9	2	11	32	0	0	75	1	0	0.24	4.94	12.71	2.12	0.47	2.59	7.53	0.00	0.00	17.65	0.24	0.00
West Lakes Shore	Private	88	45	0	20	5	13	35	2	0	0	0	0	20.71	10.59	0.00	4.71	1.18	3.06	8.24	0.47	0.00	0.00	0.00	0.00
	Public	2	20	36	9	10	17	22	22	0	24	33	22	0.47	4.71	8.47	2.12	2.35	4.00	5.18	5.18	0.00	5.65	7.76	5.18
Woodville	Private	135	74	4	30	13	11	42	0	0	0	0	0	31.76	17.41	0.94	7.06	3.06	2.59	9.88	0.00	0.00	0.00	0.00	0.00
	Public	7	30	46	6	14	8	5	0	0	0	0	0	1.65	7.06	10.82	1.41	3.29	1.88	1.18	0.00	0.00	0.00	0.00	0.00
Woodville North	Private	162	84	5	20	6	17	48	0	0	0	0	0	38.12	19.76	1.18	4.71	1.41	4.00	11.29	0.00	0.00	0.00	0.00	0.00
	Public	2	22	30	6	4	4	9	6	0	0	0	0	0.47	5.18	7.06	1.41	0.94	0.94	2.12	1.41	0.00	0.00	0.00	0.00
Woodville Park	Private	123	74	0	34	18	14	63	0	0	0	0	0	28.94	17.41	0.00	8.00	4.24	3.29	14.82	0.00	0.00	0.00	0.00	0.00
	Public	1	28	30	15	9	2	14	0	0	0	0	0	0.24	6.59	7.06	3.53	2.12	0.47	3.29	0.00	0.00	0.00	0.00	0.00
Woodville South	Private	137	53	3	41	16	7	50	3	0	0	0	0	32.24	12.47	0.71	9.65	3.76	1.65	11.76	0.71	0.00	0.00	0.00	0.00
	Public	0	22	43	8	6	4	15	17	0	0	0	0	0.00	5.18	10.12	1.88	1.41	0.94	3.53	4.00	0.00	0.00	0.00	0.00
Woodville West	Private	110	59	0	58	30	34	46	0	0	0	0	0	25.88	13.88	0.00	13.65	7.06	8.00	10.82	0.00	0.00	0.00	0.00	0.00
	Public	0	24	44	12	8	23	11	4	0	0	0	0	0.00	5.65	10.35	2.82	1.88	5.41	2.59	0.94	0.00	0.00	0.00	0.00

Attachment D. Number of points and equivalent percent cover (%) for each land cover category in each tenure type in 2008 relative to the 425 points sampled in each suburb. Land cover categories are abbreviated as follows: ImpBld = impervious-building; ImpOth = impervious-other; ImpRd = impervious-road; TrPer = tree-pervious; TrImp = tree-impervious; BG = bare ground; GrOth = grass-other; GrSpt = grass sporting; WV = wetland vegetation; W = water; B = beach; DV = dune vegetation.

2008		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Albert Park	Private	138	66	1	31	8	27	40	0	0	0	0	0	32.47	15.53	0.24	7.29	1.88	6.35	9.41	0.00	0.00	0.00	0.00	0.00
	Public	1	25	39	11	11	17	10	0	0	0	0	0	0.24	5.88	9.18	2.59	2.59	4.00	2.35	0.00	0.00	0.00	0.00	0.00
Allenby Gardens	Private	142	77	10	19	7	31	35	0	0	0	0	0	33.41	18.12	2.35	4.47	1.65	7.29	8.24	0.00	0.00	0.00	0.00	0.00
	Public	0	19	51	26	17	7	19	5	1	0	0	0	0.00	4.47	12.00	6.12	4.00	1.65	4.47	1.18	0.24	0.00	0.00	0.00
Athol Park	Private	125	38	0	40	7	37	32	1	0	0	0	0	29.41	8.94	0.00	9.41	1.65	8.71	7.53	0.24	0.00	0.00	0.00	0.00
	Public	2	16	31	9	7	16	11	8	0	0	0	0	0.47	3.76	7.29	2.12	1.65	3.76	2.59	1.88	0.00	0.00	0.00	0.00
Beverley	Private	114	36	1	36	11	11	40	7	0	0	0	0	26.82	8.47	0.24	8.47	2.59	2.59	9.41	1.65	0.00	0.00	0.00	0.00
	Public	2	15	34	8	6	9	5	7	0	0	0	0	0.47	3.53	8.00	1.88	1.41	2.12	1.18	1.65	0.00	0.00	0.00	0.00
Bowden	Private	99	78	2	23	10	85	28	0	0	0	0	0	23.29	18.35	0.47	5.41	2.35	20.00	6.59	0.00	0.00	0.00	0.00	0.00
	Public	6	43	40	17	10	7	6	1	0	0	0	0	1.41	10.12	9.41	4.00	2.35	1.65	1.41	0.24	0.00	0.00	0.00	0.00
Brompton	Private	95	37	0	37	8	21	43	8	0	0	0	0	22.35	8.71	0.00	8.71	1.88	4.94	10.12	1.88	0.00	0.00	0.00	0.00
	Public	1	16	43	6	16	16	9	1	0	0	0	0	0.24	3.76	10.12	1.41	3.76	3.76	2.12	0.24	0.00	0.00	0.00	0.00
Cheltenham	Private	129	88	0	32	13	37	32	8	0	0	0	0	30.35	20.71	0.00	7.53	3.06	8.71	7.53	1.88	0.00	0.00	0.00	0.00
	Public	0	23	43	15	6	12	4	0	0	0	0	0	0.00	5.41	10.12	3.53	1.41	2.82	0.94	0.00	0.00	0.00	0.00	0.00
Croydon	Private	141	96	1	12	8	17	7	5	0	0	0	0	33.18	22.59	0.24	2.82	1.88	4.00	1.65	1.18	0.00	0.00	0.00	0.00
	Public	1	22	49	11	22	12	5	0	0	0	0	0	0.24	5.18	11.53	2.59	5.18	2.82	1.18	0.00	0.00	0.00	0.00	0.00
Devon Park	Private	149	60	7	27	12	30	9	1	0	0	0	0	35.06	14.12	1.65	6.35	2.82	7.06	2.12	0.24	0.00	0.00	0.00	0.00
	Public	0	24	72	7	15	13	3	0	0	0	0	0	0.00	5.65	16.94	1.65	3.53	3.06	0.71	0.00	0.00	0.00	0.00	0.00

2008		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Findon	Private	134	60	0	45	39	50	31	1	0	0	0	0	31.53	14.12	0.00	10.59	9.18	11.76	7.29	0.24	0.00	0.00	0.00	0.00
	Public	2	21	44	13	4	6	13	5	0	0	0	0	0.47	4.94	10.35	3.06	0.94	1.41	3.06	1.18	0.00	0.00	0.00	0.00
Flinders Park	Private	125	61	2	30	10	20	49	9	0	0	0	0	29.41	14.35	0.47	7.06	2.35	4.71	11.53	2.12	0.00	0.00	0.00	0.00
	Public	0	21	38	30	7	12	15	6	2	3	0	0	0.00	4.94	8.94	7.06	1.65	2.82	3.53	1.41	0.47	0.71	0.00	0.00
Fulham Gardens	Private	132	76	1	29	17	39	23	0	0	0	0	0	31.06	17.88	0.24	6.82	4.00	9.18	5.41	0.00	0.00	0.00	0.00	0.00
	Public	0	26	42	18	3	5	26	0	0	2	0	0	0.00	6.12	9.88	4.24	0.71	1.18	6.12	0.00	0.00	0.47	0.00	0.00
Grange	Private	149	93	5	20	12	32	28	4	0	0	0	0	35.06	21.88	1.18	4.71	2.82	7.53	6.59	0.94	0.00	0.00	0.00	0.00
	Public	1	11	28	14	7	6	13	4	1	2	17	6	0.24	2.59	6.59	3.29	1.65	1.41	3.06	0.94	0.24	0.47	4.00	1.41
Hendon	Private	132	83	0	30	11	22	44	0	0	0	0	0	31.06	19.53	0.00	7.06	2.59	5.18	10.35	0.00	0.00	0.00	0.00	0.00
	Public	3	12	56	10	2	7	14	0	0	0	0	0	0.71	2.82	13.18	2.35	0.47	1.65	3.29	0.00	0.00	0.00	0.00	0.00
Henley Beach	Private	111	45	2	51	30	20	19	0	0	0	0	0	26.12	10.59	0.47	12.00	7.06	4.71	4.47	0.00	0.00	0.00	0.00	0.00
	Public	2	25	42	18	7	11	22	8	0	0	30	4	0.47	5.88	9.88	4.24	1.65	2.59	5.18	1.88	0.00	0.00	7.06	0.94
Henley Beach South	Private	113	60	0	38	19	32	41	0	0	0	0	0	26.59	14.12	0.00	8.94	4.47	7.53	9.65	0.00	0.00	0.00	0.00	0.00
	Public	1	18	46	27	10	12	24	0	0	3	25	10	0.24	4.24	10.82	6.35	2.35	2.82	5.65	0.00	0.00	0.71	5.88	2.35
Hindmarsh	Private	108	84	3	42	7	25	49	3	0	0	0	0	25.41	19.76	0.71	9.88	1.65	5.88	11.53	0.71	0.00	0.00	0.00	0.00
	Public	6	24	57	16	14	10	8	0	1	2	0	0	1.41	5.65	13.41	3.76	3.29	2.35	1.88	0.00	0.24	0.47	0.00	0.00
Kidman Park	Private	128	45	0	48	23	22	25	0	0	0	0	0	30.12	10.59	0.00	11.29	5.41	5.18	5.88	0.00	0.00	0.00	0.00	0.00
	Public	2	18	28	15	13	10	23	8	0	2	0	0	0.47	4.24	6.59	3.53	3.06	2.35	5.41	1.88	0.00	0.47	0.00	0.00
Kilkenny	Private	102	50	0	40	16	19	34	7	0	0	0	0	24.00	11.76	0.00	9.41	3.76	4.47	8.00	1.65	0.00	0.00	0.00	0.00
	Public	0	12	53	3	6	4	4	0	0	0	0	0	0.00	2.82	12.47	0.71	1.41	0.94	0.94	0.00	0.00	0.00	0.00	0.00
Ovingham	Private	105	57	0	42	9	22	48	8	0	0	0	0	24.71	13.41	0.00	9.88	2.12	5.18	11.29	1.88	0.00	0.00	0.00	0.00
	Public	1	26	68	20	12	19	1	0	0	0	0	0	0.24	6.12	16.00	4.71	2.82	4.47	0.24	0.00	0.00	0.00	0.00	0.00

2008		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Pennington	Private	119	77	1	24	21	28	35	0	0	0	0	0	28.00	18.12	0.24	5.65	4.94	6.59	8.24	0.00	0.00	0.00	0.00	0.00
	Public	0	17	43	6	9	9	17	3	0	0	0	0	0.00	4.00	10.12	1.41	2.12	2.12	4.00	0.71	0.00	0.00	0.00	0.00
Renown Park	Private	146	51	1	27	9	15	54	0	0	0	0	0	34.35	12.00	0.24	6.35	2.12	3.53	12.71	0.00	0.00	0.00	0.00	0.00
	Public	1	23	53	32	6	15	6	21	0	0	0	0	0.24	5.41	12.47	7.53	1.41	3.53	1.41	4.94	0.00	0.00	0.00	0.00
Ridleyton	Private	134	63	2	23	12	22	38	1	0	0	0	0	31.53	14.82	0.47	5.41	2.82	5.18	8.94	0.24	0.00	0.00	0.00	0.00
	Public	2	24	42	9	6	16	16	5	0	0	0	0	0.47	5.65	9.88	2.12	1.41	3.76	3.76	1.18	0.00	0.00	0.00	0.00
Royal Park	Private	78	36	1	57	9	24	32	78	0	0	0	0	18.35	8.47	0.24	13.41	2.12	5.65	7.53	18.35	0.00	0.00	0.00	0.00
	Public	1	23	63	9	4	13	13	4	0	0	0	0	0.24	5.41	14.82	2.12	0.94	3.06	3.06	0.94	0.00	0.00	0.00	0.00
Seaton	Private	99	49	0	42	13	47	39	40	1	2	0	0	23.29	11.53	0.00	9.88	3.06	11.06	9.18	9.41	0.24	0.47	0.00	0.00
	Public	0	19	39	10	3	3	16	3	0	0	0	0	0.00	4.47	9.18	2.35	0.71	0.71	3.76	0.71	0.00	0.00	0.00	0.00
Semaphore Park	Private	91	41	0	31	17	15	41	0	0	0	0	1	21.41	9.65	0.00	7.29	4.00	3.53	9.65	0.00	0.00	0.00	0.00	0.24
	Public	1	21	40	20	5	9	15	3	0	29	29	16	0.24	4.94	9.41	4.71	1.18	2.12	3.53	0.71	0.00	6.82	6.82	3.76
St Clair	Private	28	20	0	100	8	12	5	20	0	0	0	0	6.59	4.71	0.00	23.53	1.88	2.82	1.18	4.71	0.00	0.00	0.00	0.00
	Public	9	17	14	136	21	24	11	29	0	0	0	0	2.12	4.00	3.29	32.00	4.94	5.65	2.59	6.82	0.00	0.00	0.00	0.00
Tennyson	Private	65	25	1	12	8	1	31	0	0	0	0	0	15.29	5.88	0.24	2.82	1.88	0.24	7.29	0.00	0.00	0.00	0.00	0.00
	Public	0	19	29	5	0	9	25	0	0	1	119	75	0.00	4.47	6.82	1.18	0.00	2.12	5.88	0.00	0.00	0.24	28.00	17.65
Welland	Private	150	96	0	33	16	22	39	0	0	0	0	0	35.29	22.59	0.00	7.76	3.76	5.18	9.18	0.00	0.00	0.00	0.00	0.00
	Public	0	10	30	9	6	2	11	0	0	1	0	0	0.00	2.35	7.06	2.12	1.41	0.47	2.59	0.00	0.00	0.24	0.00	0.00
West Beach	Private	95	31	7	29	10	17	48	15	0	0	10	4	22.35	7.29	1.65	6.82	2.35	4.00	11.29	3.53	0.00	0.00	2.35	0.94
	Public	0	22	37	20	3	9	22	0	1	3	30	12	0.00	5.18	8.71	4.71	0.71	2.12	5.18	0.00	0.24	0.71	7.06	2.82
West Croydon	Private	124	70	0	27	11	17	53	8	0	0	0	0	29.18	16.47	0.00	6.35	2.59	4.00	12.47	1.88	0.00	0.00	0.00	0.00
	Public	0	31	52	11	10	5	6	0	0	0	0	0	0.00	7.29	12.24	2.59	2.35	1.18	1.41	0.00	0.00	0.00	0.00	0.00

2008		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
West Hindmarsh	Private	129	54	0	41	13	22	40	0	0	0	0	0	30.35	12.71	0.00	9.65	3.06	5.18	9.41	0.00	0.00	0.00	0.00	0.00
	Public	0	29	50	14	12	13	5	0	3	0	0	0	0.00	6.82	11.76	3.29	2.82	3.06	1.18	0.00	0.71	0.00	0.00	0.00
West Lakes	Private	89	34	4	28	5	10	34	15	0	0	0	0	20.94	8.00	0.94	6.59	1.18	2.35	8.00	3.53	0.00	0.00	0.00	0.00
	Public	1	15	54	12	4	15	29	0	0	75	1	0	0.24	3.53	12.71	2.82	0.94	3.53	6.82	0.00	0.00	17.65	0.24	0.00
West Lakes Shore	Private	84	44	0	25	5	14	34	2	0	0	0	0	19.76	10.35	0.00	5.88	1.18	3.29	8.00	0.47	0.00	0.00	0.00	0.00
	Public	3	19	35	10	6	14	28	22	0	24	34	22	0.71	4.47	8.24	2.35	1.41	3.29	6.59	5.18	0.00	5.65	8.00	5.18
Woodville	Private	129	71	4	31	15	18	41	0	0	0	0	0	30.35	16.71	0.94	7.29	3.53	4.24	9.65	0.00	0.00	0.00	0.00	0.00
	Public	7	29	48	6	13	7	6	0	0	0	0	0	1.65	6.82	11.29	1.41	3.06	1.65	1.41	0.00	0.00	0.00	0.00	0.00
Woodville North	Private	147	83	3	24	9	23	53	0	0	0	0	0	34.59	19.53	0.71	5.65	2.12	5.41	12.47	0.00	0.00	0.00	0.00	0.00
	Public	2	21	28	6	9	1	10	6	0	0	0	0	0.47	4.94	6.59	1.41	2.12	0.24	2.35	1.41	0.00	0.00	0.00	0.00
Woodville Park	Private	121	69	0	44	18	15	59	0	0	0	0	0	28.47	16.24	0.00	10.35	4.24	3.53	13.88	0.00	0.00	0.00	0.00	0.00
	Public	1	29	30	12	9	3	15	0	0	0	0	0	0.24	6.82	7.06	2.82	2.12	0.71	3.53	0.00	0.00	0.00	0.00	0.00
Woodville South	Private	133	49	3	43	18	9	52	3	0	0	0	0	31.29	11.53	0.71	10.12	4.24	2.12	12.24	0.71	0.00	0.00	0.00	0.00
	Public	0	20	42	12	9	2	13	17	0	0	0	0	0.00	4.71	9.88	2.82	2.12	0.47	3.06	4.00	0.00	0.00	0.00	0.00
Woodville West	Private	109	60	0	42	44	51	45	0	0	0	0	0	25.65	14.12	0.00	9.88	10.35	12.00	10.59	0.00	0.00	0.00	0.00	0.00
	Public	2	25	46	12	10	23	9	1	0	0	0	0	0.47	5.88	10.82	2.82	2.35	5.41	2.12	0.24	0.00	0.00	0.00	0.00

Attachment E. Number of points and equivalent percent cover (%) for each land cover category in each tenure type in 1998 relative to the 425 points sampled in each suburb. Land cover categories are abbreviated as follows: ImpBld = impervious-building; ImpOth = impervious-other; ImpRd = impervious-road; TrPer = tree-pervious; TrImp = tree-impervious; BG = bare ground; GrOth = grass-other; GrSpt = grass sporting; WV = wetland vegetation; W = water; B = beach; DV = dune vegetation.

1998		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Albert Park	Private	137	70	1	24	6	14	59	0	0	0	0	0	32.24	16.47	0.24	5.65	1.41	3.29	13.88	0.00	0.00	0.00	0.00	0.00
	Public	1	22	40	9	13	8	21	0	0	0	0	0	0.24	5.18	9.41	2.12	3.06	1.88	4.94	0.00	0.00	0.00	0.00	0.00
Allenby Gardens	Private	109	38	0	29	7	52	44	1	0	0	0	0	25.65	8.94	0.00	6.82	1.65	12.24	10.35	0.24	0.00	0.00	0.00	0.00
	Public	0	18	52	19	14	13	23	5	1	0	0	0	0.00	4.24	12.24	4.47	3.29	3.06	5.41	1.18	0.24	0.00	0.00	0.00
Athol Park	Private	112	82	3	20	2	19	87	0	0	0	0	0	26.35	19.29	0.71	4.71	0.47	4.47	20.47	0.00	0.00	0.00	0.00	0.00
	Public	2	22	32	7	4	3	22	8	0	0	0	0	0.47	5.18	7.53	1.65	0.94	0.71	5.18	1.88	0.00	0.00	0.00	0.00
Beverley	Private	125	95	2	28	15	24	43	7	0	0	0	0	29.41	22.35	0.47	6.59	3.53	5.65	10.12	1.65	0.00	0.00	0.00	0.00
	Public	4	15	34	9	6	2	9	7	0	0	0	0	0.94	3.53	8.00	2.12	1.41	0.47	2.12	1.65	0.00	0.00	0.00	0.00
Bowden	Private	144	59	7	26	7	20	31	1	0	0	0	0	33.88	13.88	1.65	6.12	1.65	4.71	7.29	0.24	0.00	0.00	0.00	0.00
	Public	5	39	41	11	11	10	13	0	0	0	0	0	1.18	9.18	9.65	2.59	2.59	2.35	3.06	0.00	0.00	0.00	0.00	0.00
Brompton	Private	125	79	1	28	10	22	52	0	0	0	0	0	29.41	18.59	0.24	6.59	2.35	5.18	12.24	0.00	0.00	0.00	0.00	0.00
	Public	3	24	42	2	4	17	15	1	0	0	0	0	0.71	5.65	9.88	0.47	0.94	4.00	3.53	0.24	0.00	0.00	0.00	0.00
Cheltenham	Private	124	76	0	48	6	13	55	0	0	0	0	0	29.18	17.88	0.00	11.29	1.41	3.06	12.94	0.00	0.00	0.00	0.00	0.00
	Public	0	22	43	14	7	5	12	0	0	0	0	0	0.00	5.18	10.12	3.29	1.65	1.18	2.82	0.00	0.00	0.00	0.00	0.00
Croydon	Private	113	61	0	39	15	14	61	0	0	0	0	0	26.59	14.35	0.00	9.18	3.53	3.29	14.35	0.00	0.00	0.00	0.00	0.00
	Public	3	25	50	9	19	10	6	0	0	0	0	0	0.71	5.88	11.76	2.12	4.47	2.35	1.41	0.00	0.00	0.00	0.00	0.00
Devon Park	Private	126	57	0	42	11	10	45	0	0	0	0	0	29.65	13.41	0.00	9.88	2.59	2.35	10.59	0.00	0.00	0.00	0.00	0.00
	Public	0	29	80	6	5	4	10	0	0	0	0	0	0.00	6.82	18.82	1.41	1.18	0.94	2.35	0.00	0.00	0.00	0.00	0.00

1998		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Findon	Private	121	67	0	38	5	25	62	3	0	0	0	0	28.47	15.76	0.00	8.94	1.18	5.88	14.59	0.71	0.00	0.00	0.00	0.00
	Public	2	20	42	3	4	5	23	5	0	0	0	0	0.47	4.71	9.88	0.71	0.94	1.18	5.41	1.18	0.00	0.00	0.00	0.00
Flinders Park	Private	95	43	0	36	16	26	67	8	0	0	0	0	22.35	10.12	0.00	8.47	3.76	6.12	15.76	1.88	0.00	0.00	0.00	0.00
	Public	1	18	34	28	8	8	28	6	1	2	0	0	0.24	4.24	8.00	6.59	1.88	1.88	6.59	1.41	0.24	0.47	0.00	0.00
Fulham Gardens	Private	127	58	1	25	6	11	75	0	0	0	0	0	29.88	13.65	0.24	5.88	1.41	2.59	17.65	0.00	0.00	0.00	0.00	0.00
	Public	0	25	41	12	3	4	35	0	0	2	0	0	0.00	5.88	9.65	2.82	0.71	0.94	8.24	0.00	0.00	0.47	0.00	0.00
Grange	Private	63	31	1	56	9	10	74	70	0	1	0	0	14.82	7.29	0.24	13.18	2.12	2.35	17.41	16.47	0.00	0.24	0.00	0.00
	Public	2	9	29	13	4	0	23	4	1	2	17	6	0.47	2.12	6.82	3.06	0.94	0.00	5.41	0.94	0.24	0.47	4.00	1.41
Hendon	Private	121	76	10	22	8	13	71	0	0	0	0	0	28.47	17.88	2.35	5.18	1.88	3.06	16.71	0.00	0.00	0.00	0.00	0.00
	Public	2	13	56	14	3	2	13	0	0	1	0	0	0.47	3.06	13.18	3.29	0.71	0.47	3.06	0.00	0.00	0.24	0.00	0.00
Henley Beach	Private	104	35	1	37	13	2	57	7	0	0	0	0	24.47	8.24	0.24	8.71	3.06	0.47	13.41	1.65	0.00	0.00	0.00	0.00
	Public	2	17	40	16	9	3	39	8	0	0	34	1	0.47	4.00	9.41	3.76	2.12	0.71	9.18	1.88	0.00	0.00	8.00	0.24
Henley Beach South	Private	82	31	0	43	13	6	66	8	0	0	0	0	19.29	7.29	0.00	10.12	3.06	1.41	15.53	1.88	0.00	0.00	0.00	0.00
	Public	1	20	45	23	8	1	38	0	0	3	30	7	0.24	4.71	10.59	5.41	1.88	0.24	8.94	0.00	0.00	0.71	7.06	1.65
Hindmarsh	Private	135	91	3	13	15	11	14	5	0	0	0	0	31.76	21.41	0.71	3.06	3.53	2.59	3.29	1.18	0.00	0.00	0.00	0.00
	Public	6	26	58	12	9	9	14	0	3	1	0	0	1.41	6.12	13.65	2.82	2.12	2.12	3.29	0.00	0.71	0.24	0.00	0.00
Kidman Park	Private	108	59	2	38	6	15	66	12	0	0	0	0	25.41	13.88	0.47	8.94	1.41	3.53	15.53	2.82	0.00	0.00	0.00	0.00
	Public	2	19	30	13	10	6	29	8	0	2	0	0	0.47	4.47	7.06	3.06	2.35	1.41	6.82	1.88	0.00	0.47	0.00	0.00
Kilkenny	Private	146	99	4	24	9	14	43	4	0	0	0	0	34.35	23.29	0.94	5.65	2.12	3.29	10.12	0.94	0.00	0.00	0.00	0.00
	Public	1	12	55	4	3	3	4	0	0	0	0	0	0.24	2.82	12.94	0.94	0.71	0.71	0.94	0.00	0.00	0.00	0.00	0.00
Ovingham	Private	108	39	1	77	19	6	28	0	0	0	0	0	25.41	9.18	0.24	18.12	4.47	1.41	6.59	0.00	0.00	0.00	0.00	0.00
	Public	1	30	73	14	6	9	14	0	0	0	0	0	0.24	7.06	17.18	3.29	1.41	2.12	3.29	0.00	0.00	0.00	0.00	0.00

1998		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
Pennington	Private	98	76	2	45	8	15	74	3	0	0	0	0	23.06	17.88	0.47	10.59	1.88	3.53	17.41	0.71	0.00	0.00	0.00	0.00
	Public	1	16	43	5	7	3	26	3	0	0	0	0	0.24	3.76	10.12	1.18	1.65	0.71	6.12	0.71	0.00	0.00	0.00	0.00
Renown Park	Private	105	49	0	32	10	11	54	7	0	0	0	0	24.71	11.53	0.00	7.53	2.35	2.59	12.71	1.65	0.00	0.00	0.00	0.00
	Public	1	25	52	24	7	9	17	22	0	0	0	0	0.24	5.88	12.24	5.65	1.65	2.12	4.00	5.18	0.00	0.00	0.00	0.00
Ridleyton	Private	112	70	0	30	19	17	57	0	0	0	0	0	26.35	16.47	0.00	7.06	4.47	4.00	13.41	0.00	0.00	0.00	0.00	0.00
	Public	2	25	37	8	5	7	27	9	0	0	0	0	0.47	5.88	8.71	1.88	1.18	1.65	6.35	2.12	0.00	0.00	0.00	0.00
Royal Park	Private	118	53	1	28	12	13	68	2	0	0	0	0	27.76	12.47	0.24	6.59	2.82	3.06	16.00	0.47	0.00	0.00	0.00	0.00
	Public	0	17	59	16	5	4	23	6	0	0	0	0	0.00	4.00	13.88	3.76	1.18	0.94	5.41	1.41	0.00	0.00	0.00	0.00
Seaton	Private	90	48	0	57	7	23	62	45	0	0	0	0	21.18	11.29	0.00	13.41	1.65	5.41	14.59	10.59	0.00	0.00	0.00	0.00
	Public	0	19	39	9	2	3	19	2	0	0	0	0	0.00	4.47	9.18	2.12	0.47	0.71	4.47	0.47	0.00	0.00	0.00	0.00
Semaphore Park	Private	93	32	0	27	10	8	66	0	0	0	0	1	21.88	7.53	0.00	6.35	2.35	1.88	15.53	0.00	0.00	0.00	0.00	0.24
	Public	1	18	42	17	5	7	22	3	0	30	30	13	0.24	4.24	9.88	4.00	1.18	1.65	5.18	0.71	0.00	7.06	7.06	3.06
St Clair	Private	35	28	0	7	2	10	67	36	0	0	0	0	8.24	6.59	0.00	1.65	0.47	2.35	15.76	8.47	0.00	0.00	0.00	0.00
	Public	21	24	14	21	2	14	112	32	0	0	0	0	4.94	5.65	3.29	4.94	0.47	3.29	26.35	7.53	0.00	0.00	0.00	0.00
Tennyson	Private	57	18	1	16	6	9	36	0	0	0	0	0	13.41	4.24	0.24	3.76	1.41	2.12	8.47	0.00	0.00	0.00	0.00	0.00
	Public	0	17	28	7	0	1	31	0	0	2	122	74	0.00	4.00	6.59	1.65	0.00	0.24	7.29	0.00	0.00	0.47	28.71	17.41
Welland	Private	147	98	1	34	9	20	47	0	0	0	0	0	34.59	23.06	0.24	8.00	2.12	4.71	11.06	0.00	0.00	0.00	0.00	0.00
	Public	0	10	29	7	6	2	13	0	0	2	0	0	0.00	2.35	6.82	1.65	1.41	0.47	3.06	0.00	0.00	0.47	0.00	0.00
West Beach	Private	81	25	7	38	7	8	74	17	0	0	9	0	19.06	5.88	1.65	8.94	1.65	1.88	17.41	4.00	0.00	0.00	2.12	0.00
	Public	0	19	37	15	2	2	34	0	1	3	32	14	0.00	4.47	8.71	3.53	0.47	0.47	8.00	0.00	0.24	0.71	7.53	3.29
West Croydon	Private	117	66	0	35	6	10	68	8	0	0	0	0	27.53	15.53	0.00	8.24	1.41	2.35	16.00	1.88	0.00	0.00	0.00	0.00
	Public	0	31	50	13	13	4	4	0	0	0	0	0	0.00	7.29	11.76	3.06	3.06	0.94	0.94	0.00	0.00	0.00	0.00	0.00

1998		NUMBER OF POINTS PER SUBURB												PERCENT COVER PER SUBURB (%)											
		Impervious			Tree		Plantable Space		Other					Impervious			Tree		Plantable Space		Other				
Suburb	Tenure	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV	ImpBld	ImpOth	ImpRd	TrPer	TrImp	BG	GrOth	GrSpt	WV	W	B	DV
West Hindmarsh	Private	123	51	0	49	11	7	58	0	0	0	0	0	28.94	12.00	0.00	11.53	2.59	1.65	13.65	0.00	0.00	0.00	0.00	0.00
	Public	0	28	51	13	11	8	12	0	2	1	0	0	0.00	6.59	12.00	3.06	2.59	1.88	2.82	0.00	0.47	0.24	0.00	0.00
West Lakes	Private	87	38	2	27	5	9	37	14	0	0	0	0	20.47	8.94	0.47	6.35	1.18	2.12	8.71	3.29	0.00	0.00	0.00	0.00
	Public	1	18	53	13	4	6	35	0	0	75	1	0	0.24	4.24	12.47	3.06	0.94	1.41	8.24	0.00	0.00	17.65	0.24	0.00
West Lakes Shore	Private	79	37	0	24	7	10	49	2	0	0	0	0	18.59	8.71	0.00	5.65	1.65	2.35	11.53	0.47	0.00	0.00	0.00	0.00
	Public	2	19	38	12	6	1	36	22	0	25	31	25	0.47	4.47	8.94	2.82	1.41	0.24	8.47	5.18	0.00	5.88	7.29	5.88
Woodville	Private	125	69	2	34	12	7	60	0	0	0	0	0	29.41	16.24	0.47	8.00	2.82	1.65	14.12	0.00	0.00	0.00	0.00	0.00
	Public	8	30	48	8	11	2	9	0	0	0	0	0	1.88	7.06	11.29	1.88	2.59	0.47	2.12	0.00	0.00	0.00	0.00	0.00
Woodville North	Private	140	62	2	35	8	16	79	0	0	0	0	0	32.94	14.59	0.47	8.24	1.88	3.76	18.59	0.00	0.00	0.00	0.00	0.00
	Public	2	20	29	9	7	2	8	6	0	0	0	0	0.47	4.71	6.82	2.12	1.65	0.47	1.88	1.41	0.00	0.00	0.00	0.00
Woodville Park	Private	118	67	0	47	10	12	72	0	0	0	0	0	27.76	15.76	0.00	11.06	2.35	2.82	16.94	0.00	0.00	0.00	0.00	0.00
	Public	1	26	31	10	11	0	20	0	0	0	0	0	0.24	6.12	7.29	2.35	2.59	0.00	4.71	0.00	0.00	0.00	0.00	0.00
Woodville South	Private	120	45	3	53	13	10	62	4	0	0	0	0	28.24	10.59	0.71	12.47	3.06	2.35	14.59	0.94	0.00	0.00	0.00	0.00
	Public	0	21	44	10	7	1	15	17	0	0	0	0	0.00	4.94	10.35	2.35	1.65	0.24	3.53	4.00	0.00	0.00	0.00	0.00
Woodville West	Private	101	56	0	38	6	9	97	0	0	0	0	0	23.76	13.18	0.00	8.94	1.41	2.12	22.82	0.00	0.00	0.00	0.00	0.00
	Public	1	21	45	11	13	6	20	1	0	0	0	0	0.24	4.94	10.59	2.59	3.06	1.41	4.71	0.24	0.00	0.00	0.00	0.00

APPENDIX 6

Completed or completed and ongoing - 17 Actions

These are actions which are wholly completed and a discrete body of work or wholly complete and have an ongoing nature of implementation being part of 'business as usual'. These are predominantly actions within the strategy that are listed as 'High' priority and noted as to be actioned within 1-2 years of the strategy commencement in November 2021 or were identified as an 'ongoing' action.

Action Number	Action	Priority HML	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	Status
1.1	Plant more trees in a programmed and strategic manner to achieve the endorsed target of 25% cover by 2045.	**H**	*x*	*x*	*x*	*x*				*x*	Completed and ongoing.
1.2	Undertake work to identify the number of trees required to be planted across the City to achieve this target (using existing LiDAR data, i-tree canopy measurements, tree inventory)	**H**		*x*	*x*	*x*	*x*				Completed.
1.3	Once the number of trees is identified, develop a (whole street) planting program that provides a roadmap to achieving this increase by 2045 with annual targets in place.	**H**	*x*	*x*	*x*					*x*	Completed and ongoing.
1.5	Prioritise planting in areas using the following factors: lower canopy coverage, higher urban heat, greater social vulnerability, consideration to establishing green linkages and wildlife corridors.	**H**	*x*	*x*		*x*	*x*				Completed and ongoing.
1.6	Before planting, getting growing conditions right, and ensure we are planting good quality stock, during a climatically appropriate planting season, including that water urban sensitive design practices and other innovative solutions for passive watering using stormwater are considered and implemented for plantings where possible.	**H**	*x*		*x*		*x*				Completed and ongoing.
1.7	Undertake a review of existing tree species diversity and success across the City (including identifying species that are failing)	**L**		*x*		*x*			*x*		Completed and ongoing.
1.9	In making species selection, ensure trees being planted are viable in a changing climate (hotter, drier, stormier).	**H**	*x*		*x*					*x*	Completed and ongoing.
1.12	Adopt principle of “Size Matters” when choosing species, noting that large trees provide far more benefits than smaller trees. While it's not always possible to plant large trees, we should aim to plant the largest size (at maturity) trees for the space available and aim to follow the principle of the right trees in the right places	**H**	*x*		*x*		*x*				Completed and ongoing.

Action Number	Action	Priority HML	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	Status
1.13	Review existing planting typologies - uniform avenue /mix of species, optimise tree size to available planting size, "green tunnel", trees in the carriageway, and explore other typologies mix of all depending on area. Using these findings to modify, maintain, refine practices.	**H**	*x*	*x*	*x*	*x*	*x*				Completed and ongoing.
1.14	Review existing street tree policy and trial new approaches and practices to encourage greater plantings of street trees.	**H**	*x*		*x*		*x*				Completed and ongoing.
2.1	Council to endorse this plan and the ambitious target to achieve 25% tree canopy cover by 2045.	**H**	*x*		*x*		*x*				Completed.
2.3	Undertake modelling to identify the numbers of trees that a required to be planted annually to achieve the target and translate this into short-term plans.	**H**		*x*		*x*	*x*				Completed.
3.3	The intent, application, and effect of the provisions of the Planning and Design Code to be closely monitored to determine the "on-ground" effects of these on trees planted, retained or removed, particularly on privately owned lands and help the community understand the planning system as it relates to tree retention and removals.	**H**	*x*	*x*	*x*	*x*				*x*	Completed.
3.6	Continue to advocate for improved tree planting and retention settings in the planning system to support expansion of urban tree canopy and green cover.	**H**	*x*		*x*					*x*	Completed.
3.7	Where possible and appropriate, create more space for planting trees such as in road reconstructions, new developments and within the changing urban form.	**H**	*x*	*x*	*x*	*x*				*x*	Completed and ongoing.
4.1	Ensure the current practice of inspecting and pruning all Council trees across the City at least once every three years is maintained.	**H**	*x*		*x*					*x*	Completed and ongoing.
4.8	Ensure a diversity of age spread by maintaining appropriately to gain the full asset life of a tree.	**H**	*x*		*x*					*x*	Completed and ongoing.

Commenced and in progress - 18 Actions

These are predominantly actions within the strategy that are listed as 'High' priority and noted as to be actioned within 1-2 years of the strategy commencement in November 2021 and have substantially progressed, though not finalised.

Action Number	Action	Priority HML	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	Status
1.4	Identify the physical, financial and human resources required to achieve this target, including understanding and programming for up front and ongoing maintenance costs and reviewing service levels and budget allocations and obtain Council support to secure recurrent funding to achieve this.	**H**	*x*	*x*	*x*	*x*	*x*				Commenced & in progress
2.2	Acknowledge that a change to "business as usual" is required and commit to provision of adequate resources to achieve the target.	**H**	*x*		*x*		*x*				Commenced & in progress
2.4	Identify locations where trees are to be planted – both on public and private land, targeting the hotter parts of the city as a priority and make this information available to the community.	**H**		*x*		*x*	*x*				Commenced & in progress
3.1	Adopt and promote the concept that we are custodians of trees for current and future generations.	**H**	*x*	*x*	*x*	*x*	*x*				Commenced & in progress
3.2	Advocate for and demonstrate well-considered and thoughtful design choices that allow for existing trees to be retained as part of development.	**M**	*x*		*x*					*x*	Commenced & in progress
3.4	In the absence of legislative instruments, education, encouragement and other mechanisms (such as policy change and financial incentives) need to be explored and implemented to ensure greater protection (leading to increased retention) is given to privately owned trees.	**H**	*x*		*x*		*x*				Commenced & in progress
3.5	In cases where private development will impact on public trees, particularly in the case of cross-overs, mechanisms to influence the retention of these trees need to be introduced.	**H**	*x*		*x*		*x*				Commenced & in progress
4.3	Investigate / develop business intelligence tools for better urban forest management, so that we know more about what we are managing, noting that data is helpful but can be costly to collect.	**L**	*x*	*x*	*x*	*x*			*x*		Commenced & in progress

Action Number	**Action**	**Priority HML**	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	**Status**
4.4	Investigate what data sets already exist and where are our critical information gaps - identify how much new data we really need. Consider the following data: Where are the trees located? What species are they? How old are they? What is the turn-over rate? What is the tree health like? How are the trees distributed across the landscape? Number of trees by suburb? Number of trees per capita? Number of species of trees?	**L**	*x*	*x*		*x*			*x*		Commenced & in progress
4.6	Encouragement of community support to better care for public and private trees by understanding and responding to signs of tree stress such as pest or disease attack, providing supplementary watering during times of drought, and reporting of tree issues, allows for the best chance of successfully growing a tree to maturity.	**L**	*x*	*x*	*x*	*x*			*x*		Commenced & in progress
4.7	Adopt a succession planning approach for when trees reach the end of its life plan and consider carefully how to manage the potential impact on the landscape and the succession of removed trees.	**L**	*x*		*x*					*x*	Commenced & in progress
5.1	Develop and implement a range of engagement tools so that the community understand how urban heat islands relate to their place of residence and how we are working to create urban cool islands as places of refuge.	**H**	*x*	*x*	*x*	*x*	*x*				Commenced & in progress
5.2	Educate our community about the work we do to maintain and enhance the urban forest to increase visibility of the efforts being made and appreciation of the long-term goals and aspirations we have as a Council on behalf of our community	**H**	*x*		*x*		*x*				Commenced & in progress

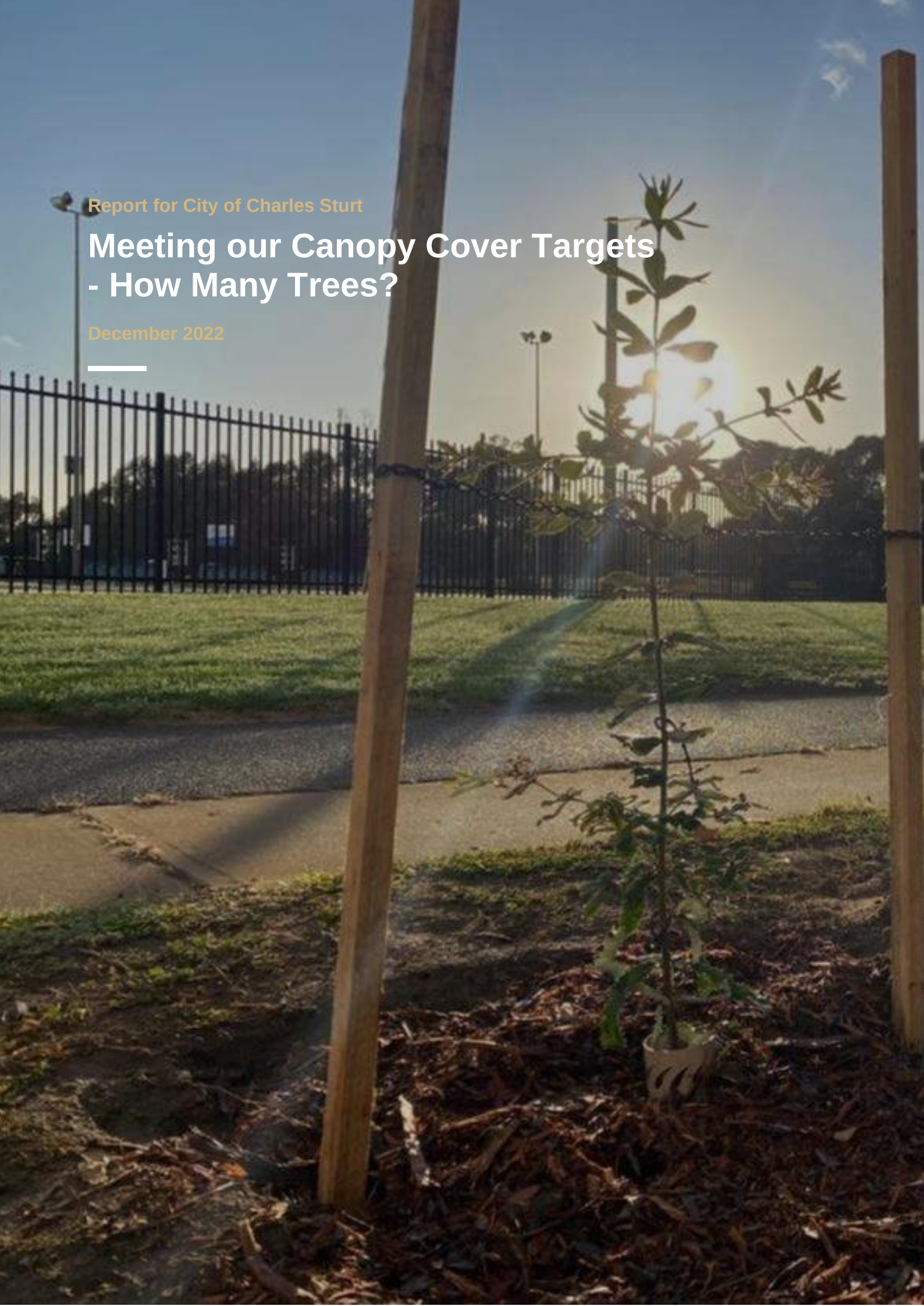
Action Number	**Action**	**Priority HML**	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	**Status**
5.3	Develop and implement a long-term communications strategy to educate and engage our residents about tree protection and planting goals to garner greater civic pride and "ownership", as well as advocacy and support for better greening outcomes.	**H**	*x*		*x*		*x*			*x*	Commenced & in progress
5.5	Educate our colleagues & internal stakeholders so that they understand that urban forest management is highly complex and requires specialist skills and adequate resourcing to achieve targets (and that these skills and resources are made available for urban forest management).	**H**	*x*		*x*		*x*				Commenced & in progress
6.1	Develop a monitoring and evaluation plan including suite of indicators and parameters to understand the impact and effectiveness of this strategy, ensuring the plan contains information about of trees planted within the last quarter and cumulative total for that year, and reporting via social media and our website.	**H**	*x*		*x*		*x*				Commenced & in progress
6.2	Measure progress against these indicators and parameters to understand emerging issues, improve our performance and ensure we are accountable to our community.	**M**	*x*		*x*	*x*		*x*			Commenced & in progress
6.3	Every five years measure the amount of tree canopy cover (and other cover types) across the city on public and private lands	**M**		*x*		*x*		*x*			Commenced & in progress

Not Started - 7 Actions

These are primarily actions within the strategy that are listed as 'Low' priority and noted as to be actioned within 5 or more years of the strategy commencement in November 2021

Action Number	Action	Priority HML	*Within existing resources*	*Additional resources required*	*In-house Delivery method/ Provider*	*External Delivery method/ Provider*	*1-2 years (years from 2021)*	*3-5 years (years from 2021)*	*5+ years (years from 2021)*	*ongoing*	Status
1.8	Review species being planted to ensure species diversity targets of no more than 30% per family, 20% per genus and 10% per species thereby increasing resilience are achieved and maintained.	**L**		*x*		*x*			*x*		Not started.
1.10	Implement trials of new species (including consideration of allergen potential & plant gender diversity issues) and planting practices with monitoring and evaluation for a minimum of 5 years	**L**		*x*	*x*	*x*			*x*		Not started.
1.11	Implement trials of different planting and establishment practices such as: Pre-planting soil amelioration - test soil and correct any nutrient deficiencies, assess permeability and apply wetting agents, apply soil microbiological stimulants, decompaction of planting area (eg. deep ripping) increases to frequency and duration of establishment watering	**L**		*x*	*x*				*x*		Not started.
4.2	Undertake analysis to ensure that we are maintaining our existing tree stock in the best way we can.	**L**	*x*		*x*	*x*			*x*		Not started.
4.5	Identify what are the triggers for intervention when tree health is declining and what are the responses and determine whether intervention occurring at the right time	**L**	*x*	*x*	*x*	*x*			*x*		Not started.
5.4	Consider methods to understand the asset value of our public realm tree population to raise the profile of green assets and put them on par with grey assets in terms of asset management planning principles.	M	*x*	*x*	*x*	*x*			*x*		Not started.
6.4	Review and update this plan every five years.	M	*x*		*x*			*x*			Not started.

APPENDIX 7



Report for City of Charles Sturt

Meeting our Canopy Cover Targets - How Many Trees?

December 2022

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Acknowledgement of Country

We acknowledge the traditional custodians of the land on which we work and live, the Kaurna people of the Adelaide Plains. We recognise their continuing connection to land, water and community, and pay respect to Elders past and present.

Front cover image

Newly planted tree in the City of Charles Sturt. Photo credit: Jenni Garden 2022

Revision	Revision Details	Author	Approved by	Date Approved
V1	First draft	JG, MS, JVB	JG	12 August 2022
V2	Second draft	JG, JVB	JG	2 October 2022
V3	Final	JG	JG	16 December 2022

Executive Summary

Take home messages:

Council's current 'business as usual' planting rate of 2,999 trees per year will not achieve the 25% canopy cover target by 2045.

Modelling demonstrates that achieving the canopy cover target will require planting 10,000 trees per year (across the whole City) for the next 12 years, including more larger trees, followed by replacement plantings as required to ensure no loss of canopy cover after 2045.

Edge Environment was engaged by the City of City of Charles Sturt to help with strategic planning relating to informing planting programs and investment in tree planting required to achieve their urban tree canopy cover target of 25% by 2045. The project was delivered in two parts as detailed in this report.

Part 1. How many trees?

This part focused on modelling the number of trees required to meet future canopy cover targets using the Tree Planting Predictor (TPP) tool, based on inputs including tree size categories, number of plantings, establishment success rates, and current rate of change in canopy cover.

Five categories of size classes (at maturity) of trees are used in the TPP tool. The categories group together different tree species based on similarities in their average growth rates and crown spreads at maturity. The five categories of size classes are very small, small, medium, large and very large. Very small and small trees, tend to be faster growing and have a smaller crowns at maturity, whereas large and very large trees tend to be slower growing and have larger crowns at maturity.

Key **findings**:

- Council's current planting programs (BAU planting numbers and species mix) will not achieve the 25% canopy cover target by 2045;
- A number of scenarios were modelled, varying the numbers of trees to be planted and the proportion of species (sizes at maturity) in the 'planting mix';
- The only scenario modelled that achieved the 25% canopy cover target by 2045 was the combination of a 'more larger trees' planting mix and a very high planting rate of 10,000 trees per year, each year from 2023 to 2035;
- A significant increase in current investment will be required to achieve the canopy cover target;
- Investments in tree plantings could be reduced with increased investments in other aspects that influence canopy cover, such as improving the establishment success of planted trees; and
- Achieving the canopy cover target will require collaborative planting efforts on public and private land.

Part 2. Where to prioritise street tree plantings?

This part focused on where to prioritise tree plantings in street corridors to maximise benefits. The modelling integrated data on urban heat, plantable opportunities, current tree canopy to enable prioritisations of streets that would maximise beneficial outcomes for urban heat and human health and well-being.

Key **findings**:

- The road corridor (i.e. fence-to-fence) covers 10,202,527m^2 of Council area, equivalent to approximately 18.41% of the total Council area;
- A total of 51,156 individual trees were identified along Council's road corridors;
- Together, these trees provide 1,068,731m^2 of canopy cover, which is 10.48% of the road corridor area, and 13.93% of the total canopy cover across the whole Council area;
- Street tree planting provides a key opportunity to increase the urban forest;
- A total of 34,667 potential plantable opportunities were identified within Council's road corridors. Potential tree planting opportunities are those identified in the 'machine learning' process and are subject to further ground-truthing provisions;
- Major thoroughfares tend to have limited canopy coverage compared to smaller local traffic streets, but also are some of the hottest areas;
- The eastern road corridors tended to be warmer than in the west;
- Combining plantable opportunities within road corridors with urban heat patterns identifies priority roads for tree plantings.

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Glossary

The following terms are defined relevant to their use in the context of the Tree Planting Predictor™ and Street Tree Prioritiser™ tools. Words shown in bold in the descriptions indicate that they themselves are defined within the Glossary.

Baseline context	Used within the **Tree Planting Predictor™** tool, it refers to a set of metrics that describe the: area of investigation, current canopy cover, canopy change trends over time, and current plantable space. These metrics are applied, unchanged, to all **planting scenarios** modelled.
BAU planting scenario	This **planting scenario** reflects Council's current average **planting rate**s and **planting mix**es**.** When modelled, this planting scenario demonstrates what will happen to total canopy cover if no changes are made to the existing planting programs.
Canopy	Multiple tree **crown**s growing in specified area.
Canopy Cover Target	A quantifiable and time-based percentage **canopy** cover for a given area. May be presented either as a total percentage cover by a specific year, or as a percentage increase from the current **canopy** cover by a specific year. For example, if current total **canopy** cover is 20%, the target may be 30% total cover by 2050 (i.e. an increase of 50% by 2050), or an increase of 10% cover by 2050 (i.e. total cover of 22% by 2050).
Canopy rate of change	The average annual change in canopy cover within the study area. This value may be positive (i.e. average increase in canopy cover) or negative (i.e. decrease in canopy cover).
Crown	The foliage cover of a single tree.
Digital surface model	LiDAR based modelling that captures natural and built features on the Earth's surface. Differs from a digital elevation model (DEM) which is a bare-earth elevation model that filters out non-ground points (e.g. built surfaces and vegetation).
Establishment success rate	The proportion of trees planted each year that survive the initial 2-4 years of establishment. Surviving trees are assumed to survive to maturity.
Growth parameter	The **crown** size at planting, years to maturity, and **crown** size at maturity of a given **tree type/size**. This variable is customised for each **tree type/size** and region of interest.
Growth profile	The trend in **canopy cover** change over modelled years as new trees are planted and existing trees grow or are lost.
Planting mix	Used in developing **planting scenarios** within the **Tree Planting Predictor™** tool. It refers to a specific combination of different **tree categories** (e.g. 30% very small trees, 30% small trees, 20% medium trees, 15% large trees, 5% very large trees).
Plantable opportunity	**Plantable space** that meets the criteria of having 1m^2 of contiguous plantable space spaced at least 5m from the next plantable opportunity or current tree canopy within the road corridors.
Planting rate	Used in developing **planting scenarios** within the **Tree Planting Predictor™** tool. It refers to the total number of trees to be planted per year within each tenure type.

Planting scenario

Planting scenarios are a specific combination of tree species (i.e. planting mix) and number of plantings per year (i.e. planting rate) for a given area A specific combination of tree species (i.e. **planting mix**) and average number of plantings per year (i.e. **planting rate**) for a given area. The planting scenario assumes the same **canopy rate of change** and **establishment success rate** as defined for the **baseline context**. By varying the **planting mix** and **planting rate**, we can explore tree planting program requirements needed to achieve a **canopy cover target**.

Plantable space

Currently un-treed bare ground or grass areas considered to have potential for planting a tree. The amount of plantable space would need to be ground-truthed to determine the actual plantable space (e.g. areas mapped as plantable may not be given constraints not apparent through spatial analysis (e.g. underground/overhead utilities).

Street Tree Prioritiser™

A powerful modelling tool developed by Edge Environment that uses spatial analysis with machine learning algorithms to identify plantable opportunities within street corridors and prioritise street tree plantings based on plantable opportunities combined with other project specific metrics, such as heat or social vulnerability, calculated for each street segment.

Tenure types

Two land tenure types were defined for this project based on land ownership and management: (1) public; and (2) private.

Tree category

Five categories of trees are used in the **Tree Planting Predictor™** tool. The categories group together different tree species based on similarities in their average growth rates and crown spreads at maturity. Faster growing trees tend to have a smaller **crowns**, whilst slower growing trees tend to have larger **crowns** at maturity. Average growth rates and **crown** spreads for each tree category are customised in consultation with Council to suit local growing conditions.

Category Name	Average Years to Maturity	Average Crown Spread at Maturity
Very small	5	2m
Small	10	4m
Medium	15	6.5m
Large	20	11.5m
Very large	30	22.5m

Tree Planting Predictor™

An excel-based modelling tool developed by Edge Environment to aid decision-makers in setting their **canopy** cover **targets** and plans. Through a series of algorithm models based on several input variable parameters, the tool estimates the aggregate **growth profile** of new and existing tree plantings within a given area.

1 Introduction

1.1 Context

Councils around Australia have been actively working to grow their urban forest and strategies to better understand, manage, and grow their urban tree assets. A key component of these strategies is setting targets for future tree canopy cover, primarily to help create cooler and more liveable cities. Most targets require an increase in tree canopy cover and hence involve tree planting.

Despite enthusiasm for increasing tree canopy cover, consideration is rarely given until after targets have been set as to how many trees, of what size and species, need to be planted each year to achieve future canopy cover targets and, further, where such tree plantings should be prioritised, if plantings on public land alone can achieve targets, and what financial commitments will be required.

The potential consequences of this absence of information are threefold: (1) canopy cover targets may not be achieved; (2) insufficient funds may be allocated in annual budget planning processes and long-term financial plans to support tree planting commitments (including people and physical resources), and (3) trees may not be planted in areas that will deliver the greatest benefits to the community.

1.2 Objectives

Edge was engaged by the City of City of Charles Sturt (Council) to help with strategic planning and building a business case for necessary and appropriate resourcing relating to achieving their endorsed canopy cover target of 25% cover across the City (public and private land combined) by 2045 (up from 13.84% cover as at 2020). The key objectives of this project were to:

1. Determine the potential increase in tree canopy cover that can be achieved through different planting scenarios to assist with setting a science-based canopy cover target;
2. Understand the costs for funding these scenarios including a more accelerated increase in canopy cover; and,
3. Identify where to prioritise street tree plantings to maximise the ability to mitigate urban heat island effects.

The following report is comprised of two Stages; Stage 1 focuses on objectives one and two, and Stage 2 focuses on objective 3.

Part 1

How Many Trees

are needed to achieve our canopy cover target?

2 Tree Planting Predictor™ Modelling

This Part of the project applies Edge's Tree Planting Predictor™ (TPP) tool to model tree planting requirements to achieve the canopy cover target. The tool presents modelling which considers several variables and allows users to enter and directly compare combinations of variables for multiple scenarios. Variables include:

- available land by tenure type (public, private);
- tree types and their growth parameters;
- net annual tree loss;
- current canopy cover;
- planting and maintenance costs;
- planting success rates; and
- proposed targets

Further details on the TPP process are provided in Appendix A (*Tree Planting Predictor™ Tool (TPP)*).

Initial variables used in the modelling were customised for the City of Charles Sturt through a request for information (RFI) as shown in Appendix B (*TPP Request For Information Responses*). These variables were used to generate the baseline context and also the business as usual (BAU) planting scenario (see Section 2.1).

It should be noted that the TPP provides landscape scale forecasts of changes in canopy at a whole of Council scale, and changes in canopy at a suburb or smaller scales may vary due to site-specific factors such as, lines of sight, verge widths, and overhead and underground utilities.

2.1 Baseline land cover context

All modelling in the TPP uses a pre-defined baseline land cover context (Table 1) that relates to:

- land tenure areas (private, public);
- current canopy cover;
- current potential plantable space;
- rate of canopy cover change over time; and
- establishment success rate.

Most of the baseline data applied for this project were taken or derived from Council's *Tree Canopy Cover in the City of Charles Sturt: 2020 update* (2021) report. Plantable space was derived for this project through an artificial intelligence process (see Appendix A), and the establishment success rate was based on consensus from Council staff during the first TPP workshop (see Appendix A). Establishment success rate refers to the proportion of tree plantings that survive the first few years of establishment and are then assumed to reach maturity. For the modelling herein, an establishment success rate of 90% was applied, meaning that 10% of trees planted are not expected to survive the establishment period due to various reasons, such as: vandalism, stock condition, or inappropriate planting conditions.

Table 1. Baseline land-cover context metrics used within the TPP modelling.

	Total Council Area	
	m^2	%
Area	55,419,520	100
Current canopy[1]	7,670,062	13.84
Plantable space	10,029,600	18.10
Net canopy change per year	2,770,976	-0.05
Establishment success rate	n/a	90

2.2 Canopy cover target

Council has committed to a target of 25% total canopy cover by the year 2045 (Table 2. Canopy cover target selected for modelling; Figure 1. Visualisation of current canopy cover and cover target relative to the whole of Council area.). Based on the current canopy cover of 13.84%, this means that an additional 11.16% of the Council area must be covered by canopy within the next 23 years to achieve the target.

Table 2. Canopy cover target selected for modelling.

	Total Area (m^2)	% Council Area
Target Canopy (%)	13,854,880	25
Canopy increase (%)	6,184,818	11.16

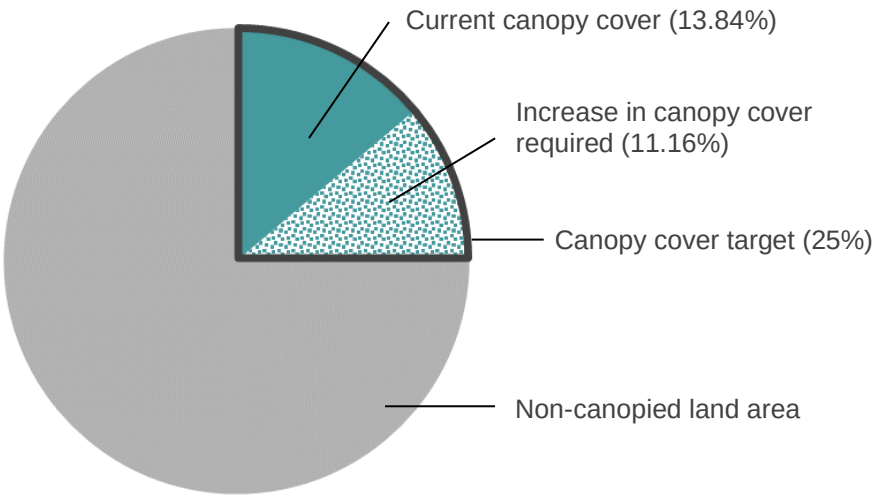


Figure 1. Visualisation of current canopy cover and cover target relative to the whole of Council area.

[1] The baseline canopy cover of 13.84% in 2022 was generated by applying the annual rate of canopy loss (0.05%) to the 2014 canopy estimate of 14.3%.

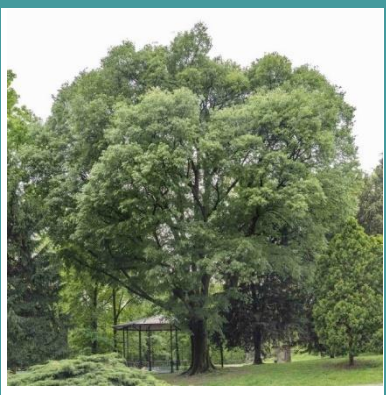
2.3 Tree categories

Five categories of trees are used in the TPP modelling (Table 3. Tree growth parameters applied for TPP tree categories…). The categories group together different tree species based on similarities in their average growth rates and crown spreads at maturity. Taking into account that faster growing trees tend to have a smaller crowns at maturity, whilst slower growing trees tend to have larger crowns. Average growth rates and crown spreads for each tree category were customised in consultation with Council to suit local growing conditions (see Attachment A, *Tree Planting Predictor™ Tool (TPP)*).

Council also provided their list of tree species that are generally planted and the number of each species planted each year on average. Each species was then allocated to one of the five categories based on known growth rates and crown spreads, and the number of each species planted was used to inform the planting scenarios (see Section 1.6).

Table 3. Tree growth parameters applied for TPP tree categories (very small to very large), including an example species from each Category.

Category	Average Crown Spread		Years to maturity	Example tree species	
	at planting	at maturity			
Very small	0.5m	2m	5	Crepe myrtle (*Lagerstroemia indica x fauriei* 'Tuscarora')	
Small	1.0m	4m	10	Bottlebrush (*Callistemon citrinus x viminalis*)	
Medium	1.0m	6.5m	15	Large-fruited yellow gum (*Eucalyptus leucoxylon ssp. megalocarpa*)	

Category	Average Crown Spread		Years to maturity	Example tree species	
	at planting	at maturity			
Large	1.0m	11.5m	20	European hackberry (*Celtis australis*)	
Very large	1.0m	22.5m	30	Moreton Bay fig (*Ficus macrophylla*)	

2.4 Planting scenarios

Planting scenarios are a specific combination of tree species (i.e. planting mix) and number of plantings per year (i.e. planting rate) applied to the TPP modelling. The purpose of applying different scenarios is to investigate the impact on achieving the canopy cover target of changing the number of trees planted and/or the species mix planted. Modelling with a planting scenario also includes the canopy rate of loss and establishment success rate as defined for the baseline context. In this way, planting scenarios are used within the TPP tool to model canopy cover change into the future.

Fifteen planting scenarios were investigated for this project, comprised of a combination of one of three *planting mixes* and one of five *planting rates*.

The three **planting mix scenarios** (Figure 2. Planting mixes applied in the TPP modelling…) were:

1. *business as usual* (BAU): reflects Council's current planting programs, and is dominated by medium-sized tree plantings and very few very large tree plantings;
2. *more smaller trees*: imagines a focus on street tree plantings (given streets are a constrained environment, more smaller trees are likely to be the dominant size class). Hence, compared to BAU, the number of small and very small trees were increased, and the number of medium to large trees decreased. No very large trees were included;
3. *more larger* trees: imagines increased focus on park and reserve plantings and/or modified existing landscapes to accommodate more large and very large trees to be planted, compared to the other two scenarios.

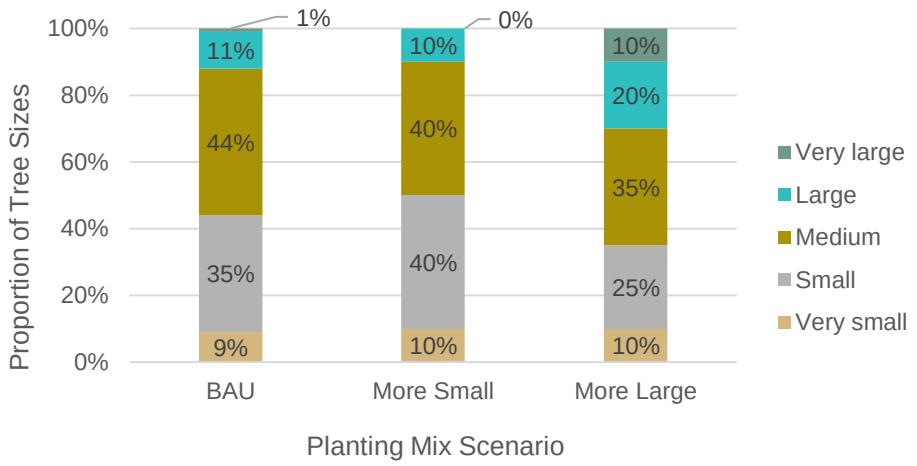


Figure 2. Planting mixes applied in TPP modelling, showing the proportions of very small to very large trees comprising each planting mix scenario.

The five **planting rates scenarios** (Figure 3. Planting rates applied in the TPP modelling…) were:

1. *BAU*: 2,999 trees planted per year to 2045 (total 71,976 trees planted). This reflects Council's current average annual planting rates continued through to 2045, which is when the canopy cover target needs to be met;
2. *Low*: 4,000 trees planted per year through to 2045 (total 96,000 trees planted). This represents an increase on the BAU rate of approximately one-third;
3. *Medium*: 5,000 trees planted per year through to 2045 (total 120,000 trees planted). This represents an increase on the BAU rate of approximately two-thirds;
4. *High*: 7,500 trees planted per year through to 2040 (total 142,500 trees planted). This represents a planting rate approximately 2.5 times the BAU, which results in just under double the number of trees planted. This rate tests the benefit of greater initial planting rates; and
5. *Very high*: 10,000 trees planted per year through to 2035 (total 140,000 trees planted). This represents a planting rate more than 3 times the BAU rate, and one-third more than the high planting rate, though resulting in 2,500 fewer trees planted than the high rate. This rate tests an even greater accelerated initial planting rate compared to the high planting rate.

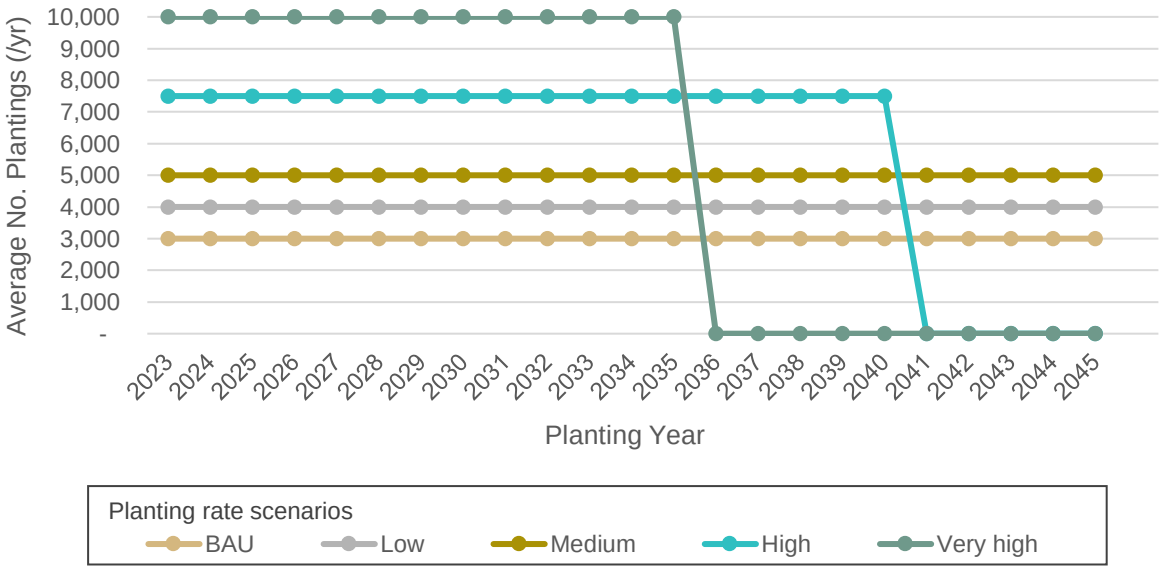


Figure 3. Planting rates applied in the TPP modelling showing the average number of trees planted each year to 2045, and the total number of plantings.

2.5 Budget-forecast

As advised by Council, a base cost of $139 was applied per tree planted. This cost is derived from an internal Council 2020 assessment of average planting costs and covers establishment and maintenance costs for the first three years following planting only. Specifically considered in the costing is: purchase of a semimature tree, labour, materials, and planting equipment in an unconstrained location. It is noted though that the costs of tree planting and establishment do vary based on the associated resources required for the tree planting such as the location, site conditions, proximity to other assets, constraints of the site, and requirements for consultation as prescribed by legislation. Costs can range to be 3-4 times the base cost if a higher order of resource requirements are applied such as root control devices, prescribed consultative measures and soil amelioration.

To provide input into long-term budget modelling, this average base cost per tree was increased at a rate of 2.5% CPI per year for each year after 2020 through to 2045. This means, for example, the average base cost to plant a tree in the year 2023 was $149.69, compared to $257.70 in 2045. Costs can range to be 3-4 times the base cost if a higher order of resource requirements are applied such as root control devices, prescribed consultative measures and soil amelioration. In setting budgets and long-term financial plans this should be recognised, and figures adjusted as required to reflect the nature of the planting type and resourcing needed.

It should be noted that the investment required by Council to achieve future canopy targets is not only influenced by the cost per tree, but also the number of trees planted per year, and the ability to spread plantings across tenure types – Council owned land, commercial land and private land.

3 Key Findings

Council's current planting programs (BAU planting scenario) will not achieve the 25% canopy cover target by 2045. What's more, under this planting scenario, a 25% canopy cover target was not even achieved by the year 2070 (the furthest duration of modelling currently within the TPP), meaning that significant improvements need to be made to current planting programs if the target is to be achieved.

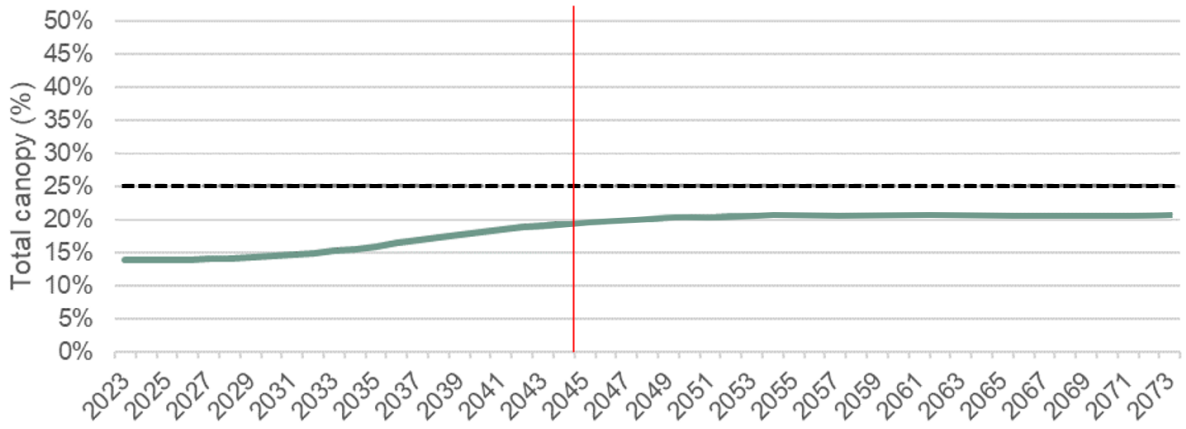
The only scenario modelled that achieved the 25% canopy cover target by 2045 was the combination of a 'more larger trees' planting mix and a very high planting rate of 10,000 trees per year, each year from 2023 to 2035 (Figure 4. Even under the very high planting rate of 10,000 trees per year, only the 'more larger trees' planting mix achieves the canopy cover target). After the year 2035, additional plantings were not required to reach the target, though ongoing replacement plantings will be required to ensure the 25% canopy cover is at least maintained after 2045.

A significant increase in the current financial investment will be required to achieve the canopy cover target. Based on the average planting cost per tree, Council's current BAU planting scenario, which will not achieve the canopy cover target, will cost just over $13.7M to deliver over the next 22 years (2023 to 2045). Comparatively, the modelled scenario that will achieve the canopy cover target will cost an estimated additional 65% ($22.6M) but over the next 13 years (to 2035).

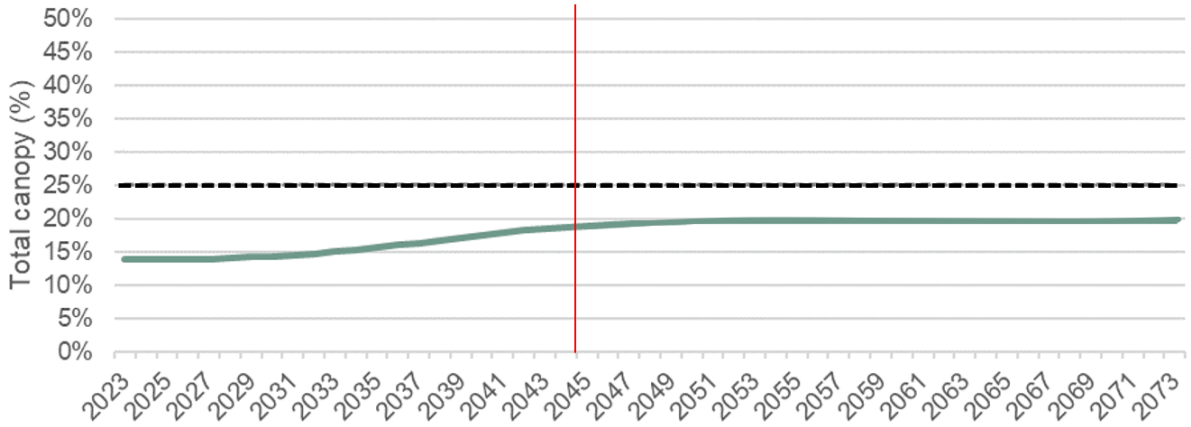
Achieving the canopy cover target will require collaborative planting efforts on public and private land. To reach the 25% cover target requires an additional 6.18km^2 of canopy cover. With 10.03km^2 of plantable space across the Council area there appears to be more than enough space to meet the target. However, there is not enough plantable space on public land alone to achieve the canopy cover target. Just over 70% of the plantable space (7.06km^2) falls within private land, and the remaining plantable space on public land (2.97km^2) is just under half (47%) of what is needed to meet the target; and this assumes every square meter of plantable space is used, which in reality is not reasonable given the need for open public green spaces (e.g. sporting fields).

Investments in tree plantings could be reduced with increased investments in other aspects that influence canopy cover. The number of trees needed to achieve the canopy cover target is substantially influenced by the baseline change in canopy cover and also the establishment success rate. Investing in reducing or reversing the rate of canopy loss on private land (e.g. due to infill development) and also on improving the establishment success of trees will decrease the number of trees needed to achieve the canopy cover target and the associated investment. By how much decrease would need to be investigated through additional refined sensitivity testing within the TPP model.

BAU Planting Mix



More Smaller Trees Planting Mix



More Larger Trees Planting Mix

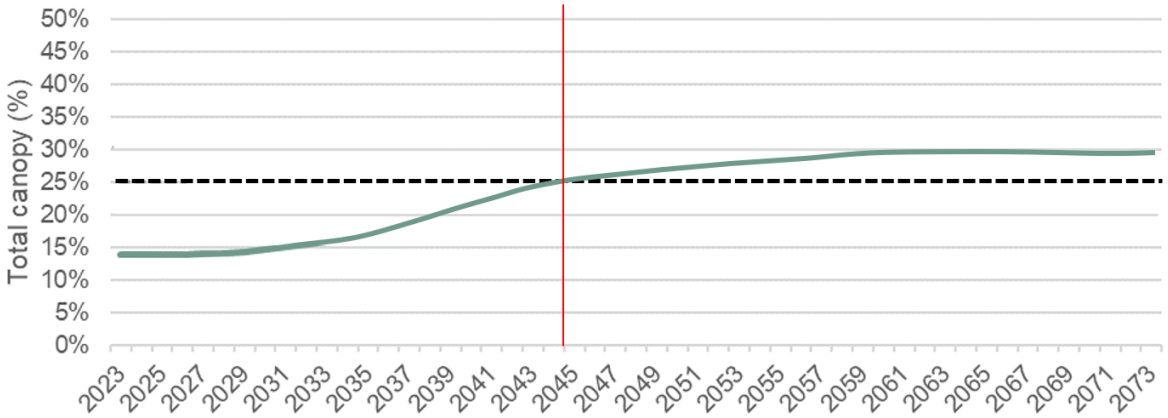


Figure 4. Even under the very high planting rate of 10,000 trees per year, only the 'more larger trees' planting mix achieves the canopy cover target. In the graphs above, the green curve shows canopy cover over time, the dashed black line shows the canopy cover target amount, and the red line shows the canopy cover target due date.

4 Recommendations

Based on the key findings from the TPP modelling, the following is recommended:

1. **Increase tree planting resourcing –** the modelling shows that Council needs to substantially increase the number of trees planted each year in order to achieve their canopy cover target. This will require an associated increases in tree planting resourcing, including budget allocations and staff resources. By how much the resourcing needs to increase should be informed by the findings from Recommendations 6 and 7.
2. **Plant more large and very large trees –** the modelling showed that small changes in the percentage mix of very small to very large trees can have a major impact on the magnitude and rate of change in future tree canopy. Specifically, at a whole of planting strategy scale, the canopy cover target could be met through fewer tree plantings and maintained for longer, if the planting mix incorporates a greater proportion of larger trees.
3. **Engage and incentivise tree planting on private land –** the dominance of private land within the Council area means that achieving the canopy cover target on public land alone will be difficult, if not impossible. Engaging and incentivising tree plantings on private land will therefore be essential in achieving the canopy cover target. Such actions should consider not only private residents, but also developers and local businesses.
4. **Explore opportunities for increasing public plantable space –** the limited public plantable space is a significant risk to Council in achieving the canopy cover target, with a heavy reliance currently being needed on private land plantings. However, the rate of canopy loss on private land currently exceeds any gains on public land, making a reliance on increasing canopy cover on private land an exceedingly difficult challenge and potentially an unrealistic one in the face of development growth objectives. Council therefore needs to identify and create additional planting spaces within public land, with a particular focus on planting spaces that can accommodate large and very large trees. Such opportunities may include, for example, integrating large tree plantings into public car parking lots, widening street verges through 'street diets', the installation of road protuberances, or the creation of planted round abouts and pocket parks.
5. **Parks and reserves are vital for reaching the canopy cover target** – current Council tree planting programs often focus on street plantings, where planting efforts are more visible day-to-day and also have some of the greatest impact on reducing urban heat (e.g. through shading of sealed road and footpath surfaces). However, the opportunity to plant larger trees is often limited in the streetscape due to smaller verges, line of sight requirements, and a complex network of overhead and underground utilities. Parks and reserves therefore are of high important for enabling planting of larger sized trees.
6. **Investigate complimentary investment avenues -** this recommendation recognises that the number of trees required to achieve the canopy cover target could be substantially reduced if the establishment success rate of plantings and/or the baseline rate of canopy loss could be improved. However, such improvements will themselves require investment additional to that already budgeted. Realistic and impactful actions that could generate required improvements should be identified and costed to allow for a cost-benefit comparison with the tree plantings that could be offset from such improvements.
7. **Undertake TPP sensitivity testing –** this will focus on refining the balance between planting mix and planting rate, together with quantifying the impacts of improved establishment success rates and baseline rates of canopy loss. Such sensitivity testing should specifically seek to identify the most cost-efficient and realistic balance. In doing so, consideration should be given to the complimentary investment findings from Recommendation 1.

Part 2

Where to Prioritise Plantings

of Street Trees

5 Street Tree Prioritiser™ Modelling

Street tree plantings within the public road network is a key Council activity that contributes to urban greening and canopy cover goals, and also helps to mitigate urban heat. The purpose of this Stage of the project is to identify where street tree planting should be prioritised in the road network across the City of Charles Sturt. This will aid in planning future street tree planting requirements, to inform where trees should be planted, how many trees could potentially be planted, and apply a prioritisation approach for tree planting based on current canopy cover, plantable opportunities, and urban heat. This modelling is a complementary action to the TPP modelling (see Part 1) to assist Council in achieving the tree canopy target of 25% canopy cover by the year 2045.

This Stage of the project applied a combination of machine-learning, artificial intelligence datasets, spatial GIS analysis, and Edge's Street Tree Prioritiser™ (STP) tool to prioritise street tree planting locations within Council's road corridor network. The approach applied is summarised below and further detailed in Appendix C (Prioritising Street Tree Plantings):

- **Develop road corridor spatial layer:** spatial GIS analysis was used to spatially map Council's road corridors, defined as the area between property boundaries and comprising the road surface and verge areas (Figure 5). For spatial analysis purposes, each road corridor was divided into its composite 'street segments', defined as the section of a road corridor between intersections (Figure 5);
- **Identify individual trees:** machine-learning was used to identify individual trees crowns falling within the road corridors – this allowed for existing trees to be spatially located, counted, and the canopy cover within the road corridor quantified. Noting that a tree was defined as vegetation greater than 2m in height;
- **Quantify potential plantable opportunities:** artificial intelligence datasets were used to identify all potential plantable space areas (i.e. un-treed bare ground or grassed surfaces), and spatial analysis was then used to quantify and locate potential plantable opportunities (i.e. 1m^2 of contiguous plantable space at least 5m from the next plantable opportunity or existing tree crown) (see Appendix C, Figure C2).
- **Prioritise potential tree planting locations:** spatial analysis was used to integrate urban heat[2], canopy cover, and plantable opportunities within the road corridors to prioritise each street segment. Highest priority segments are those with the highest urban heat, lowest canopy cover, and greatest plantable opportunities.
- **Generate prioritised annual street planting schedules:** for practical implementation purposes, prioritised street segments were amalgamated across entire road corridors to provide a ranking for whole streets/roads. This, combined with the outputs of required planting rates and planting mix from the Stage 1 TPP modelling, allows for a prioritised annual street tree planting schedule to be generated.

Figure 5. Example of road corridor area (red shaded) and a street segment (indicated by yellow bracket).

[2] Taken from the Western Adelaide Urban Heat Island Mapping Project Report (2017)

6 Key Findings

The road corridor covers 10,202,527m2 of Council area, equivalent to approximately 18.41% of the total Council area.

A total of 51,156 individual trees were identified along Council's road corridors (see Figure 8a. Individual trees identified within the road corridors; Figure 8b. Inset map from Figure 8a, showing individual trees identified within the road corridors at a finer-scale b). Together, these trees provide 1,068,731m^2 of canopy cover, which is 10.47% of the road corridor area, and 13.93% of the total canopy cover across the whole Council area (Figure 6).

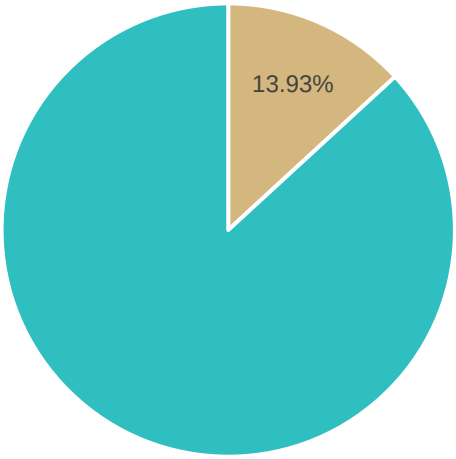


Figure 6. Council's entire canopy cover showing the proportion occurring just within the street corridors (tan), versus that outside of the street corridor (blue).

Street tree planting provides a key opportunity to increase the urban forest. A total of 34,667 potential plantable opportunities were identified within Council's road corridors (see Figure 9a. Individual potential plantable opportunities within the road corridors; Figure 9b. Inset map from Figure 9a, showing individual potential plantable opportunities identified within the road corridors at a finer-scale). It should be noted though that as this number has not been ground-truthed and so the actual number of plantable opportunities are likely to be lower due to site-specific constraints such as overhead or underground utilities.

Assuming all of these opportunities are filled with small and very small trees, as per the 'more larger trees' planting mix in Section 1.4, these plantings will increase Council's total number of street trees by 68% and contribute 5.5% of the total canopy increase needed to reach the canopy cover target (Figure 7. Visualisation relative to whole Council area of…). Road corridor plantings could contribute more to the canopy cover target if larger trees are able to be planted in the road corridor (Figure 10. The impact of varying the size of trees planted in road corridors on the number of trees able to be planted…), though planting larger trees will also increase the impact of losing any one tree (e.g. to removal, pest/disease).

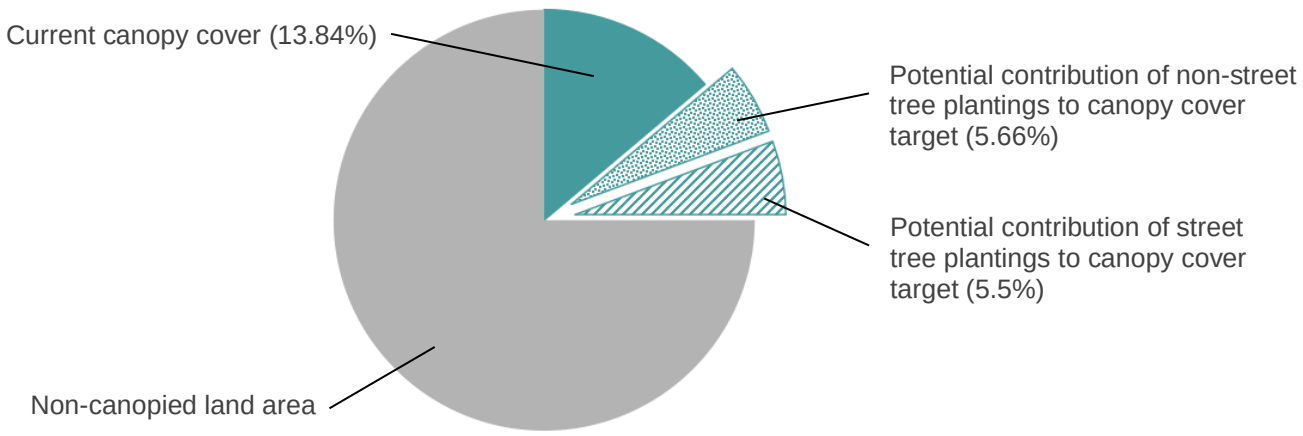


Figure 7. Visualisation relative to the whole Council area of: current canopy cover (solid green); total canopy cover target (green shaded areas); increase in canopy cover needed (exploded pie segments); and potential contribution to canopy increase by street tree plantings (lined shading) and non-street tree plantings (dotted shading).

There appears to be an optimal street tree planting size related to road width. Increasing the size of trees planted generally reduces the number of plantable opportunities but increases the overall contribution to canopy cover (Figure 10. The impact of varying the size of trees planted in road corridors on the number of trees able to be planted…). However, there appears to be an optimal crown diameter by which tree size can be increased without decreasing the number of plantable opportunities, meaning the maximum benefit is gained relating to increasing the number of trees, canopy cover, and associated urban cooling from road surface shading. This optimal size appears to be related to road width. For example, the case study analysis on Winser Avenue, a 7m wide road in Seaton (Figure 10. The impact of varying the size of trees planted in road corridors on the number of trees able to be planted…) shows that increasing the size of trees planted from 5m to 6.5m crowns does not reduce the number of plantable opportunities but does increase the overall canopy cover contribution by 59%. This suggests that planting trees with a crown spread proportional to the road widths may be an effective strategy towards maximising over-road canopy cover. Additional investigations are warranted to further refine this relationship.

Of Council's 39 suburbs Seaton has the greatest number of street trees and plantable opportunities, and Grange has the greatest area of road corridor covered by canopy. Seaton is also the largest suburb in area and not surprisingly has the greatest road corridor area. Relative to the road corridor area within each suburb, Croydon has the most street trees, Devon Park the greatest area of canopy cover within the road corridor, and Seaton still has the most plantable opportunities. Further information for all suburbs is available in Appendix D (*Tree Counts, Canopy Cover, and Plantable Opportunities Within Road Corridors of Each Suburb*).

Major thoroughfares tend to have limited canopy coverage compared to smaller local traffic streets, but also are some of the hottest areas (Figure 11. Proportion of canopy cover within the road corridors; Figure 13. Average surface temperatures of road corridors). In particular, Tapleys Hill Road and Grange Road both stand out as examples of such high thoroughfare roads with limited canopy cover and high surface temperatures. This is a product of several factors, including wider road surfaces extending beyond the reach of verge trees, and competing uses for verge space including shop fronts and car parks; and presents a particular challenge for heat mitigation within Council. However, Military Road provides an example of how major thoroughfares can be relatively well treed if opportunities for median planting and additional verge plantings are implemented.

The eastern road corridors tended to be warmer than in the west (Figure 13. Average surface temperatures of road corridors). As per the *Western Adelaide Urban Heat Mapping Project Report*, the cooler temperatures in the west are driven by the cooling influence of ocean breezes, whilst the hotter areas tend be located further from the coast and coincide with higher density residential areas with limited tree coverage. The warm central corridor east of Tapleys Hill Road is an example of this, with this area containing some of the hottest roads in the Council region. Specifically,

Hindmarsh, Brompton, and Bowden have the highest concentrations of above average road corridor temperatures with those three suburbs accounting for 12 of the 20 hottest roads. Further details provided in Appendix E (*Prioritised Annual Planting Schedule*).

Combining plantable opportunities within road corridors with urban heat patterns identifies priority roads for tree plantings (Figure 133. Street tree plantings within road corridors…). Seaton, Findon, Woodville West, and Kidman Park all emerge as having many high priority roads, with Seaton and Findon containing 12 of the top 20 highest priority roads (Appendix E, *Prioritised Annual Planting Schedule*). Lower priority suburbs tend to be those cooler coastal suburbs such as Henley Beach and Tennyson, and also the more heavily treed areas such as Woodville Park and Croydon.

At the individual road level, Brice Street in Findon is the highest priority for tree plantings due to the high density of plantable opportunities together with a relatively high heat score. It should be noted that some of the hottest roads do not emerge has high priorities in this analysis because of their relatively low density of plantable opportunities. Examples of such roads include: Torrens Road and Guild Place in Bowden and Tilly Court in Brompton. Such roads may warrant consideration of how plantable opportunities could be created within the road corridor to enable trees to be planted.

It could take up to 9 years to fill all plantable opportunities within the road corridors (Figure 144. Integrated priority street tree planting schedule…). This is based on the findings from the TPP analysis which showed the only planting scenario to achieve Council's canopy cover target has a planting rate of 10,000 trees per year, and a planting mix that includes 10% very small trees and 25% small trees. This means that for each of those 9 years, all 3,500 of the small and very small trees to be planted per year, would occur in the road corridors only. Combining the priority ranking of roads corridors with this anticipated planting rate (assuming only small and very small trees can be planted in the road corridors), allows for the creation of a prioritised annual planting schedule (Figure 144. Integrated priority street tree planting schedule…).

It should be noted that large-crowned trees could be planted in road corridors, subject to local conditions (e.g. verge widths) or altered infrastructure or road designs, such as inclusions of road protuberances or narrower overall roads to allow for space for larger crowned trees. This would alter the number of trees able to be planted within the road corridors and ultimately the number of years taken to fill all plantable opportunities in the road corridor.

Based on this scenario of a prioritised annual planting schedule, planting in year one (e.g. 2023) will focus on roads in 18 suburbs, dominated by plantings in Seaton, Findon, and Kidman Park. The second year will see plantings continue in those dominant suburbs from year one, with additional plantings across 22 other suburbs. This will continue until the final year of planting in road corridors, which will focus on the lower priority plantable opportunities in Henley Beach, Grange, Brompton, Allenby Gardens, and West Lakes, together with additional plantings in 32 other suburbs. This is a suggested approach and subject to Council approval, availability of increased resourcing, and other necessary requirements.

Note that as the density of plantable opportunities is factored into the prioritisation criteria, the first years of planting will target streets with higher numbers of plantable opportunities. However, as planting continues through the years into areas of lower plantable opportunity density the time to complete plantings may increase given the more sparsely located plantable opportunities. The full proposed 9 year prioritised annual planting schedule is provided in Appendix E (*Prioritised Annual Planting Schedule*).

Figure 8a. Individual trees identified within the road corridors. Inset map (red boundary) shown in Figure 9b.

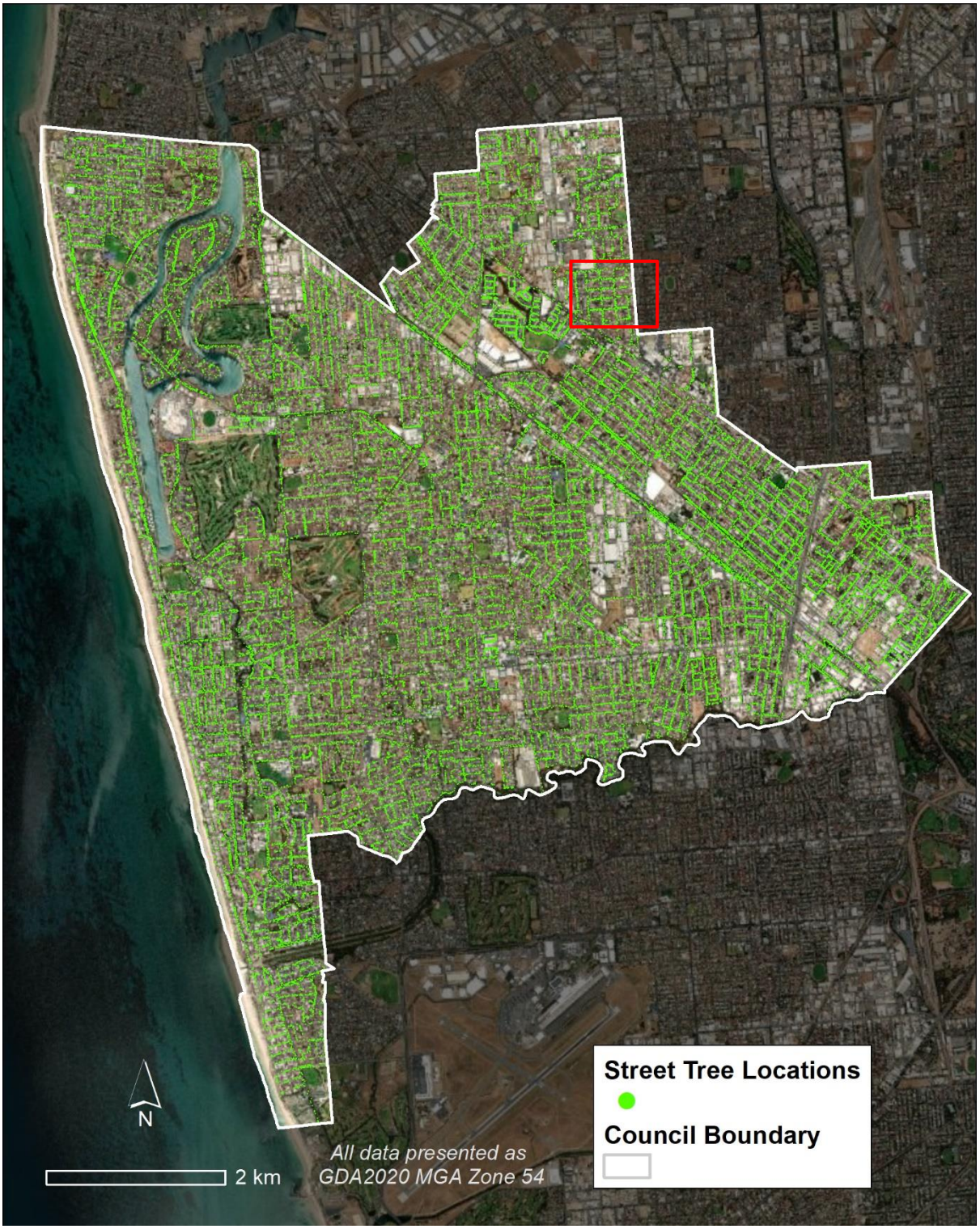


Figure 8b. Inset map from Figure 8a, showing individual trees identified within the road corridors at a finer-scale.

Figure 9a. Individual potential plantable opportunities identified within the road corridors. Inset map (red boundary) shown in Figure 9b.

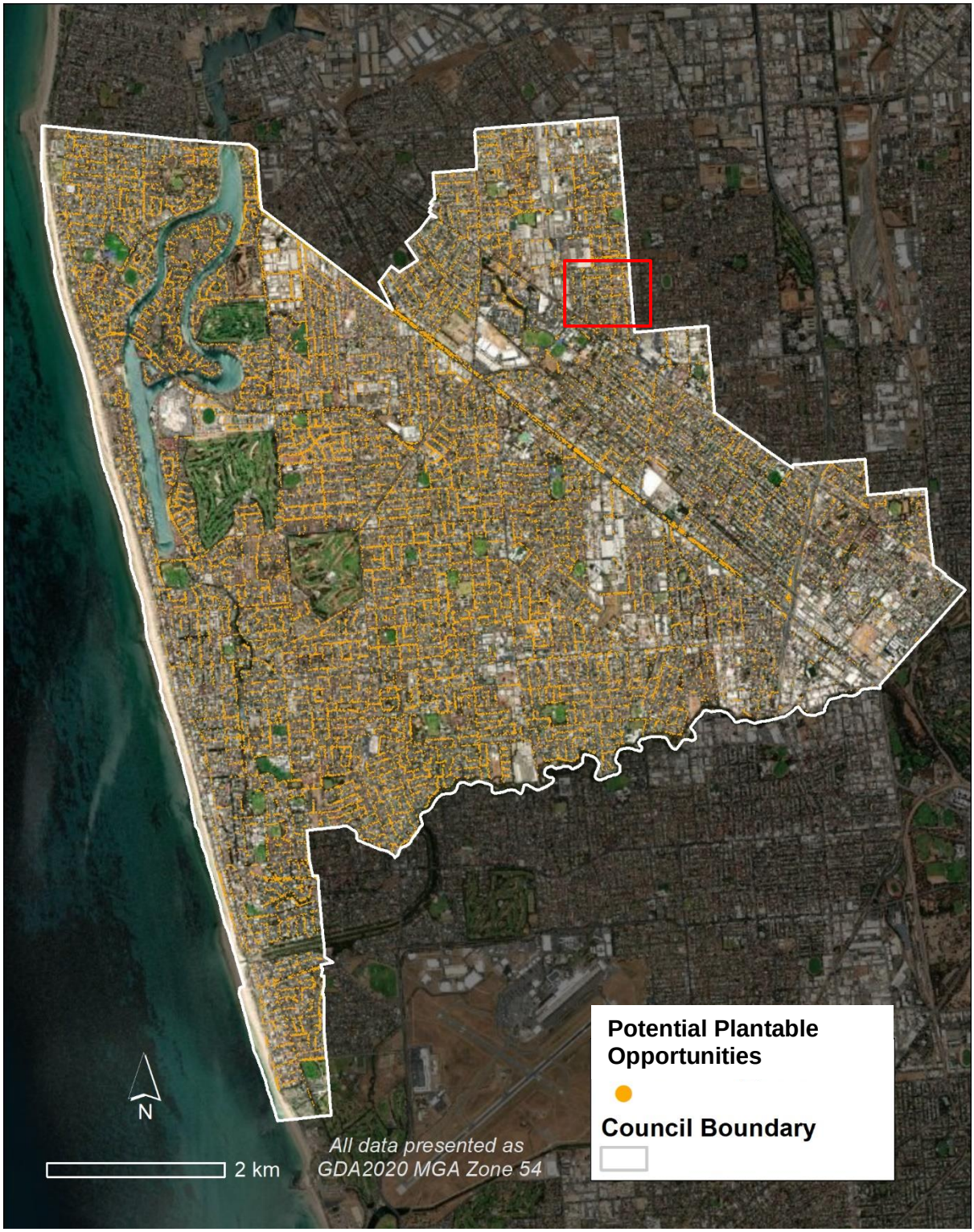


Figure 9b. Inset map from Figure 9a, showing individual plantable opportunities identified within the road corridors at a finer-scale.

Figure 10. The impact of varying the size of trees planted in road corridors on the number of trees able to be planted and the resulting canopy cover within the road corridor. Case study based on a section of Winser Avenue, Seaton. Purple circles show existing trees with a 5m buffer as applied in the analysis of plantable opportunities. Orange dots show plantable opportunities, surrounded by tan circles indicating crown spread at maturity for: (a) very small trees (2m crown); (b) STP default tree size (5m crown); (c) medium trees (6.5m crown); and (d) very large trees (22.5m crown).

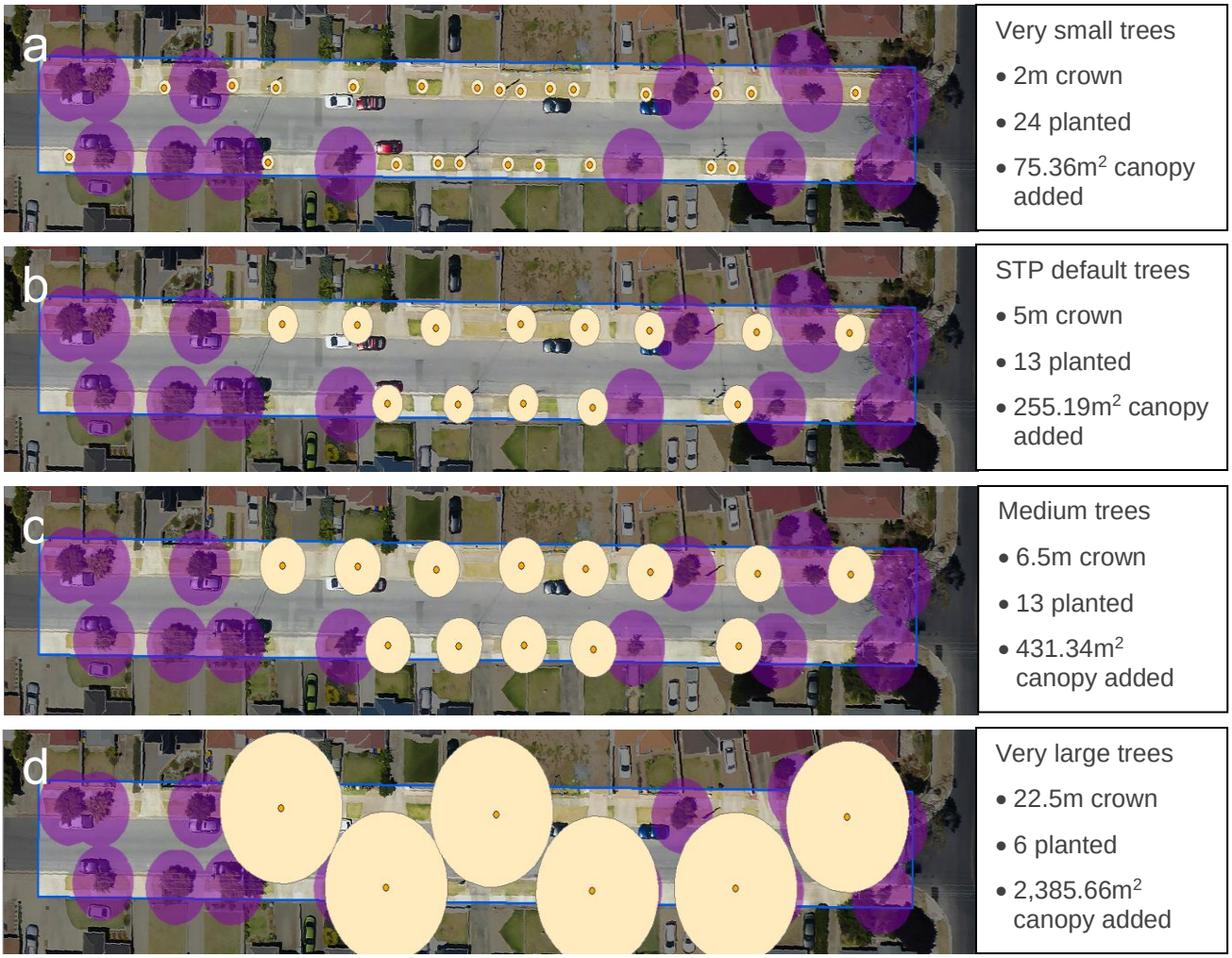


Figure 11. Proportion of canopy cover within the road corridors.

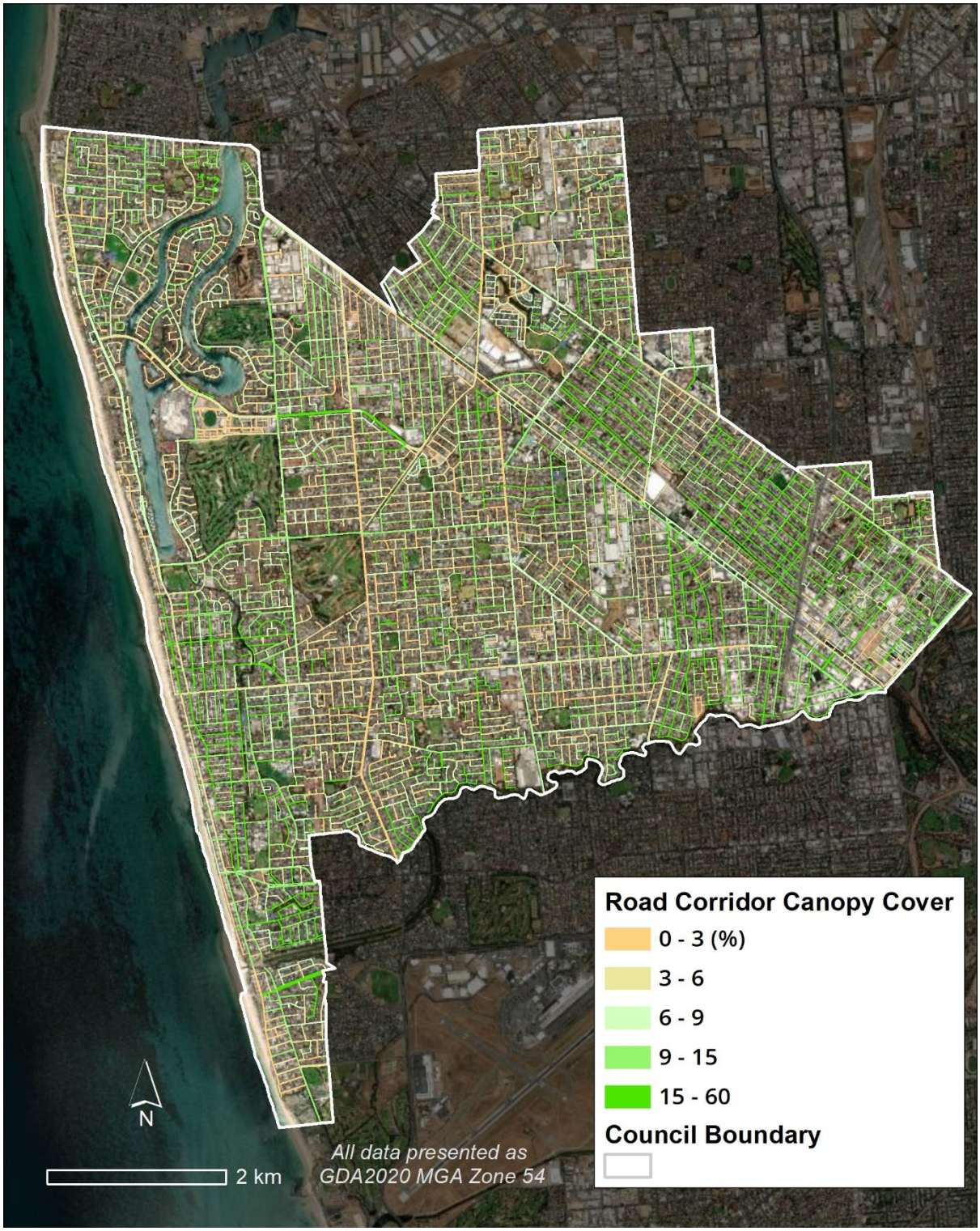


Figure 12. Average surface temperatures of road corridors.

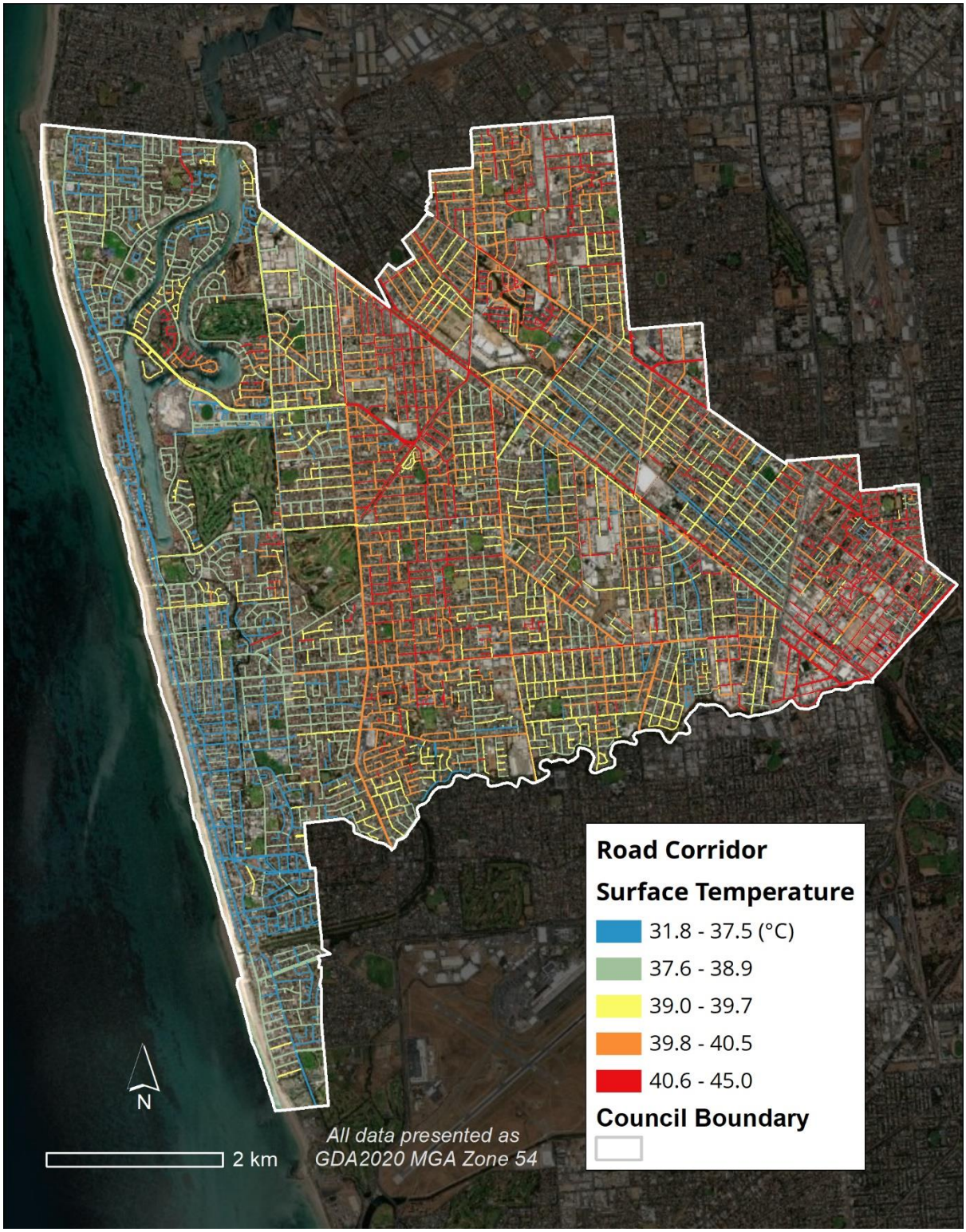


Figure 13. Street tree planting priorities within the road corridors based on the combined urban heat, canopy cover, and plantable opportunity variables.

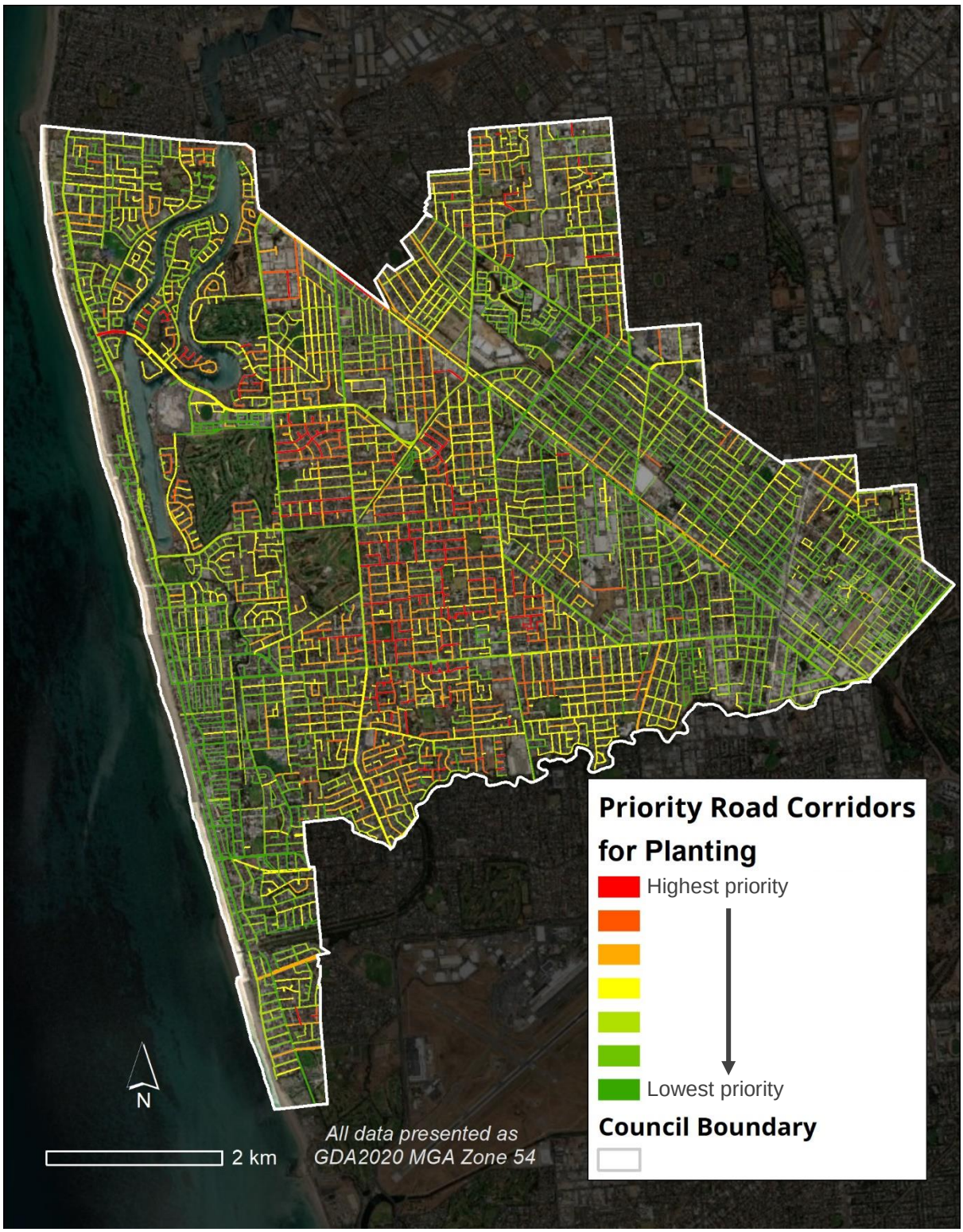
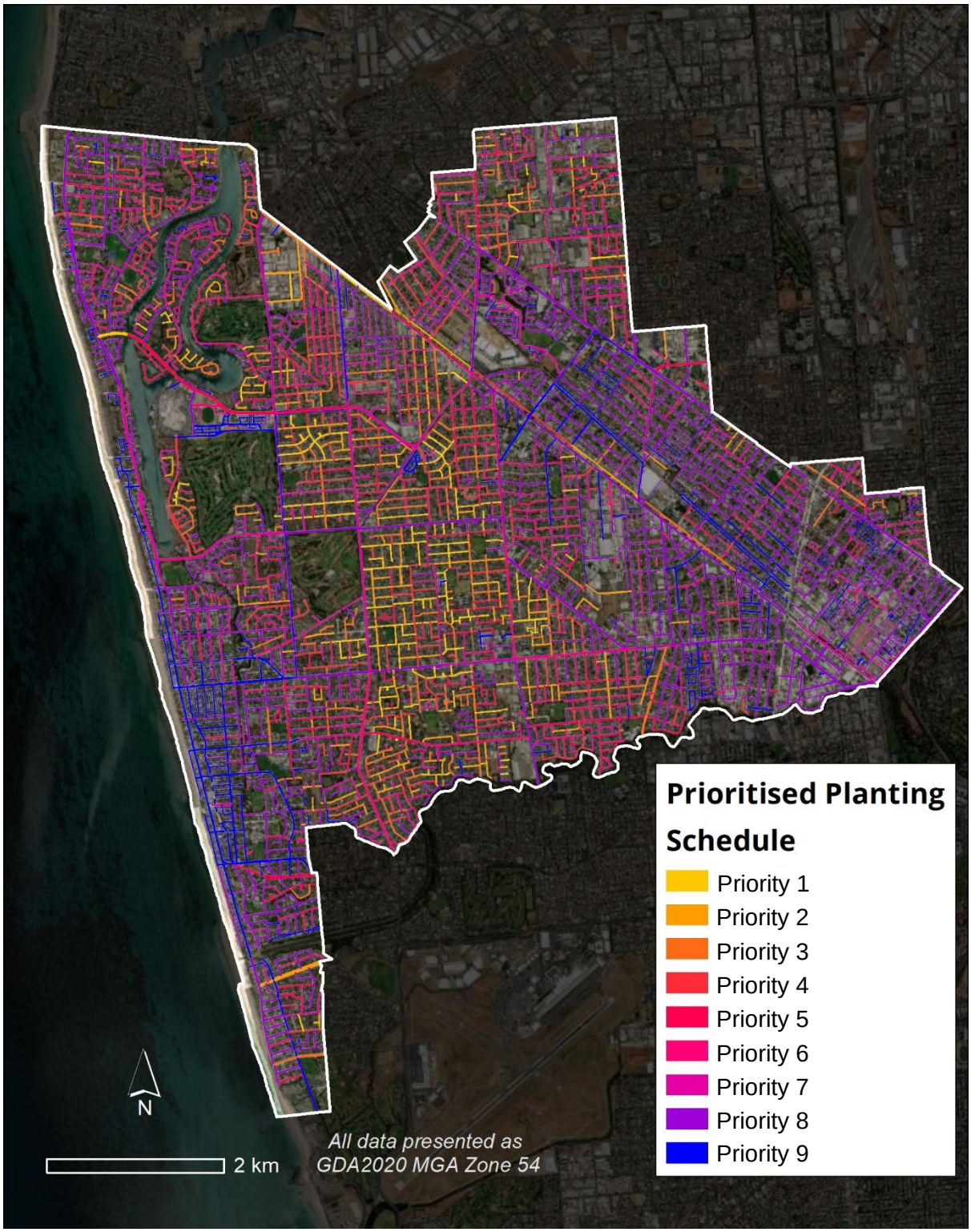


Figure 14. Integrated priority street tree planting schedule showing the order in which plantings within road corridors should be undertaken to maximise canopy cover growth and urban cooling impacts. Schedule is based on 3,500 small and very small street tree plantings per year (see Part 1, Section 3).



7 Recommendations

Based on the key findings from the STP modelling, the following is recommended:

1. **Clarify the optimal street tree size relative to road width** relationship – the case study undertaken for Wisner Avenue suggested an optimal tree size for planting relative to road widths (Figure 10. The impact of varying the size of trees planted in road corridors on the number of trees able to be planted…). Such a relationship should be clarified through additional local street case studies. Understanding optimal tree sizes for different streets will provide important insights for achieving the canopy cover target and mitigating heat in the efficient and cost effective way.

2. **Refine potential plantable opportunities within road corridors based on planting constraints** – the spatial analyses applied here to identify potential plantable opportunities considered only the area of plantable spaces (minimum $1m^2$) and the distance to an existing tree crown or another plantable opportunity (i.e. minimum 5m). Additional constraints though will exist in road verges that may impact tree plantings. Most prominent is the presence of overhead and underground utilities. Such constraints should be used to refine the number and location of plantable opportunities, or to further inform tree sizes (e.g. smaller trees planted under overhead powerlines) or alternative actions (e.g. installation of aerial cable bundling to allow for larger trees to be planted under overhead powerlines).

3. **Explore how road planting prioritisation varies with additional criteria** – the STP analysis applied here prioritised road corridor plantings based on plantable opportunities and urban heat. A number of additional criteria though could be applied to further refine these prioritisations, such as social vulnerability, overhead/underground utilities, or biodiversity links/connections.

4. **Investigate opportunities to increase plantable opportunities within road verges, particularly along major thoroughfares** – major roads are often some of least treed and hottest areas. Identifying opportunities to increase tree plantings within these major road corridors (with consideration to recommendation 1) will help to increase canopy cover and also mitigate urban heat. Opportunities may include installing centre islands or widening verges to allow for tree plantings.

5. **Encourage and incentivise tree planting on private land –** street tree plantings will achieve only 5.5% of the total 11.16% (leaving a deficit of 5.66%) of the required increase in canopy cover, if undertaken using only small and very small trees and in accordance with the planting scenario identified that will achieve the canopy cover target. This means that plantings within parks and reserves, and on private land will be essential in achieving the canopy cover target.

Appendix A. Tree Planting Predictor™ Tool (TPP)

Edge's TPP is an Excel-based tool that seeks to aid decision-makers in setting their canopy cover targets and plans. It presents modelling which considers several variables and allows users to enter and directly compare combinations of variables for multiple scenarios. Variables include:

- Available land by tenure type (public, private);
- Tree types and their growth parameters (tree categories -see Table A1. Tree growth parameters applied for TPP tree categories…);
- Net annual tree loss;
- Current canopy cover;
- Planting and maintenance costs;
- Planting success rates; and
- Proposed targets.

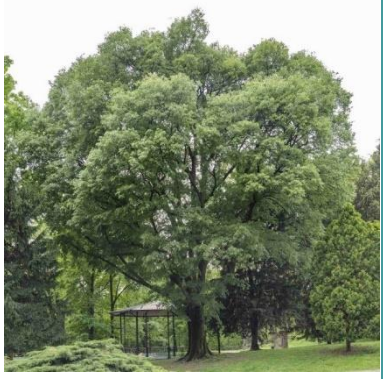
Five categories of trees are used in the TPP. The categories group together different tree species based on similarities in their average growth rates and crown spreads at maturity (Table A1. Tree growth parameters applied for TPP tree categories…). Faster growing trees tend to have a smaller crowns, whilst slower growing trees tend to have larger crowns at maturity. Average growth rates and crown spreads for each tree category are customised in consultation with Council to suit local growing conditions.

The tool collects and processes the variable parameters with the help over 500,000 calculations to determine the aggregate growth profile of new and existing plantings. First, the model determines the growth pattern of each type of tree and multiplies and sums these patterns according to the proposed planting schedule. The year-to-year development of the new and existing trees is then estimated, including any tree losses (e.g. success of new plantings and loss of pre-existing trees due to natural and human causes). The modelled output is presented in an excel-based dashboard for further analysis.

The dashboard of the TPP provides valuable insights into the results that ultimately helps in making better-informed decisions. It presents the absolute canopy growth profile for each scenario over the coming years, up to 50 years. It also shows a detailed growth canopy for each scenario, including a breakdown per land tenure and tree types. These results are presented and compared against the proposed targets. This level of granularity and detail allows users to test different variables against goals in real-time.

It should be noted that the TPP provides landscape scale forecasts of changes in canopy at a whole of council scale, and changes in canopy at a suburb or smaller scales may vary due to site-specific factors such as verge widths, overhead and underground utilities, and lines of sight.

Table A1. Tree growth parameters applied for TPP tree categories (very small to very large), including an example of a species from each tree Category.

Category	Average Crown Spread at planting	Average Crown Spread at maturity	Years to maturity	Example tree species	
Very small	0.5m	2m	5	Crepe myrtle (*Lagerstroemia indica x fauriei* 'Tuscarora')	
Small	1.0m	4m	10	Bottlebrush (*Callistemon citrinus x viminalis*)	
Medium	1.0m	6.5m	15	Large-fruited yellow gum (*Eucalyptus leucoxylon ssp. megalocarpa*)	
Large	1.0m	11.5m	20	European hackberry (*Celtis australis*)	
Very large	1.0m	22.5m	30	Moreton Bay fig (*Ficus macrophylla*)	

The TPP is delivered through a paired workshop process (Figure A1. Tree planting Predictor™ process…) which specifically involved Council staff involved in tree planting programs and landscape planning, from on-site field staff through to administration staff. This input from Council staff is important for customising the tool and its outputs for the local context.

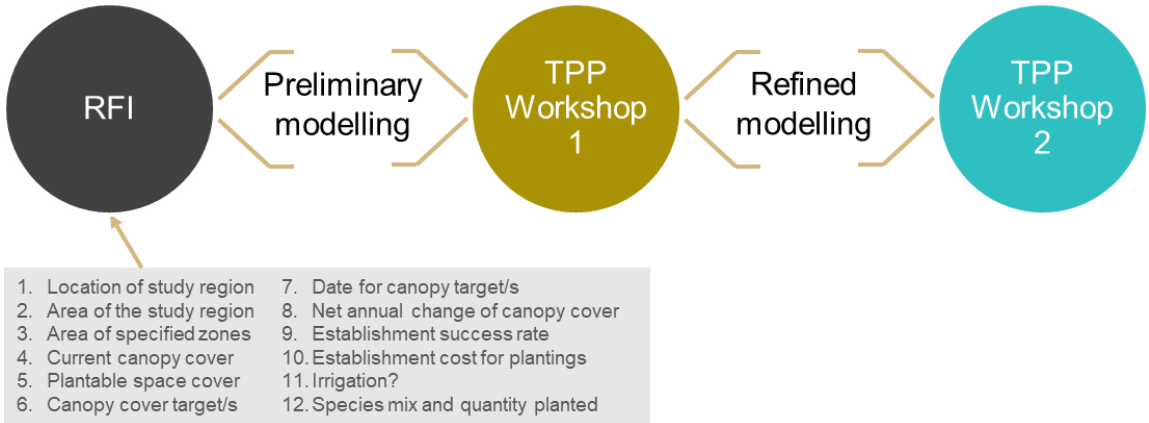


Figure A1. Tree Planting Predictor™ process. 'RFI' refers to the Request for Information issued to Council prior to the first workshop.

Prior to the first workshop we issue Council a request for information (RFI) requesting information about current tree planting processes (Appendix B. Request for Information Responses). This information is used to establish baseline metrics relating to canopy cover and change, as well develop the "business as usual" (BAU) modelling scenario.

The first workshop introduces the TPP tool to Council officers, presents preliminary modelled findings for the BAU scenario, reviews RFI information, and discusses desired additional scenarios for ongoing modelling.

Following the first workshop, a second round of modelling is undertaken using refined parameters and desired scenarios to generate canopy growth curves into the future (up to the year 2070, as needed). These outputs are then presented at the second workshop. The second workshop delves into the modelled scenarios and investigates sensitivity testing. Running this process live within the workshop allows for a greater level of understanding and buy-in from Council staff around the modelled outputs.

Appendix B. TPP Request For Information Responses

Table B1. Request for information responses

RFI	Council Response
1. Location of the site	City of Charles Sturt
2. Area of the study region (m^2)	55,419,520m^2
3. Area of specified zones (m^2 or %)	Public land: 37% Private land: 63%
4. Current canopy area (m^2 or %)	Total: 13.84% Public: 8.79% Private: 5.05%
5. Plantable space (m^2 or %)	Total: 17.91% Public: 5.3% Private: 12.61%
5. Target canopy area (m^2 or %)	25% total cover
6. Date for future canopy target (Year: 20xx)	2045
7. Net annual change of current canopy (%)	0.05% per year (loss)
8. Establishment success rate (%)	90%
9. Species to be planted	See Table 2 (below)
10. Establishment cost for plantings	$139 per tree
11. Plantable space	Total: 17.91% Public: 5.3% Private: 12.61%
12. Irrigation (yes/no)	Yes, for 3-4 years

Table B2. Tree species planted and average numbers of each planted per year under Council's current BAU scenario. For each species, the TPP tree category is also shown.

Species	Common name	Average Number Planted Per Year	TPP Category
Acacia melanoxylon	Blackwood	2	MEDIUM
Acacia pendula	Weeping myall	1	MEDIUM
Acer buergeranium	Trident maple	11	MEDIUM
Acer negundo	Box elder	33	MEDIUM
Acer x freemanii 'Jeffers red'	Autumn blaze maple	98	MEDIUM
Acmena smithii	Lilly-pilly	74	MEDIUM
Allocasuarina verticillata	Drooping she-oak	1	MEDIUM

Species	Common name	Average Number Planted Per Year	TPP Category
Angophra costata	Smooth-bark apple	47	MEDIUM
Araucaria heterophylla	Norfolk Island pine	43	LARGE
Banksia integrifolia	Coastal banksia	137	MEDIUM
Banksia marginata	Silver banksia	27	SMALL
Brachychiton acerifolius	Coastal banksia	3	LARGE
Brachychiton populneus	Kurrajong	4	SMALL
Brachychiton poulneus x acerifolius	Brachychiton 'Bella Donna'	11	SMALL
Brachychiton rupestris	Queensland bottle tree	5	VERY SMALL
Callistemon citrinus	Crimson bottlebrush	52	SMALL
Callistemon harkness	Gawler hybrid bottlebrush	42	VERY SMALL
Callistemon viminalis	Weeping bottlebrush	14	SMALL
Callitris gracilis	Southern cypress pine	2	SMALL
Callitris preissii	Slender cypress pine	14	SMALL
Casuarina cunninghamiana	River she-oak	4	MEDIUM
Casuarina verticillata	Drooping she-oak	4	SMALL
Celtis australis	Mediterranean hackberry	82	LARGE
Celtis occidentalis	Common hackberry	4	MEDIUM
Corymbia citridora	Lemon-scented gum	66	MEDIUM
Corymbia eximia	Yellow bloodwood	4	MEDIUM
Corymbia ficifolia	Red flowering gum	89	SMALL
Corymbia maculata	Spotted gum	48	MEDIUM
Cupaniopsis anacardioides	Tuckeroo	75	SMALL
Eucalyptus caesia	Gungurru	1	SMALL
Eucalyptus camaldulensis	River red gum	23	LARGE
Eucalyptus cosmophylla	Cup gum	1	SMALL
Eucalyptus erythrocorys	Red-capped gum	3	SMALL
Eucalyptus fasciculosa	Pink gum	4	MEDIUM
Eucalyptus largiflorens	Black box	1	LARGE
Eucalyptus leucoxylon ssp. megalocarpa	Large-fruited yellow gum	52	MEDIUM
Eucalyptus leucoxylon	Pink-flowered blue gum	40	LARGE
Eucalyptus leucoxylon 'Euky Dwarf'	Dwarf yellow gum	101	SMALL
Eucalyptus leucoxylon rosea	Red-flowering yellow gum	129	LARGE
Eucalyptus porosa	Mallee box	1	MEDIUM
Eucalyptus scoparia	Wallangarra white gum	6	MEDIUM
Eucalyptus sideroxylon ssp. sideroxylon	Mugga ironbark	3	LARGE
Eucalyptus socialis	Red mallee	1	MEDIUM
Eucalyptus sp. 'Summer breeze'	Eucalyptus 'summer breeze'	1	MEDIUM
Eucalyptus torquata	Coral gum	59	MEDIUM
Flindersia australis	Crow's ash, Australian teak	1	MEDIUM
Fraxinus griffithii	Evergreen ash	7	SMALL
Fraxinus ornus	Manna ash	1	MEDIUM
Fraxinus pennsylvanica	Red ash	13	MEDIUM

Species	Common name	Average Number Planted Per Year	TPP Category
Fraxinus pennsylvanica 'Urbanite'	Urbanite ash	15	MEDIUM
Geijera parviflora	Wilga	91	MEDIUM
Ginkgo biloba	Ginko	3	VERY LARGE
Hakea burrendong	Hakea 'Burrendong Beauty'	2	VERY SMALL
Hakea laurina	Pincushion hakea	49	SMALL
Hymenosporum flavum	Native frangipani	1	SMALL
Jacaranda mimosifolia	Jacaranda	193	MEDIUM
Koelreuteria bipinnata	Chinese golden rain tree	7	SMALL
Koelreuteria paniculata	Golden rain tree	57	SMALL
Lagerstroemia indica	Crepe myrtle	90	SMALL
Lagerstroemia indica 'Natchez'	White crepe myrtle	3	SMALL
Lagerstroemia indica 'Sioux'	Indian summer	9	VERY SMALL
Lagerstroemia indica 'Tuscarora'	Crepe Myrtle (Hot Pink)	34	SMALL
Lophostemon confertus	Queensland box	15	MEDIUM
Melia azedarach 'Liliac Lady'	White cedat 'Lilac Lady'	7	SMALL
Melia azederach	White cedar	14	MEDIUM
Pistacia chinensis	Chinese pistachio	230	MEDIUM
Platanus x acerifolia	London plane	13	VERY LARGE
Prunus blireana	Purple-leafed plum	48	SMALL
Prunus cerasifera	Cherry plum	46	SMALL
Prunus dulcis	Almond	1	VERY SMALL
Pyrus betulaefolia 'Southworth Dancer'	Birchleaf pear 'Southworth Dancer'	39	SMALL
Pyrus calleryana	Callery pear	1	SMALL
Pyrus calleryana ‘Capital’	Ornamental pear	203	VERY SMALL
Pyrus calleryana ‘Chanticleer’	Chanticleer pear	206	SMALL
Pyrus ussuriensis	Manchurian flowering pear	78	MEDIUM
Quercus ilex	Evergreen oak	6	MEDIUM
Sapium sebiferum	Chinese tallow tree	57	SMALL
Tristaniopsis laurina	Water gum	1	SMALL
Ulmus parvifolia	Chinese elm	35	MEDIUM

Appendix C. Prioritising Street Tree Plantings

The following provides a detailed description of the approach and processes applied to prioritise street tree plantings through Edge's Street Tree Prioritiser™ tool (STP).

Defining road corridor and street segment boundaries

Road corridors represent a major interface between urban forests and citizens, with street verges containing large amounts of public land and many of the Council's publicly owned trees. Road corridors for this analysis are defined using Council's Parcel dataset[3]. Road corridors were identified as any area not demarcated as an identified parcel within the Council boundary. Additional areas identified by council as "Possible Road Parcels" were also included in this assessment including new and planned develops such as the redevelopment surrounding around the former AAMI Stadium. The road parcels layer captures almost most all verge areas between the kerbside and footpath of most roads. Due to minor spatial disparities between imagery and data alignment, a small proportion of identified trees do fall on private property, and some Council-owned street trees will be excluded from this assessment. Visual quality assurance checks have removed most of these errors, but a small proportion will remain.

Road corridors were then disaggregated into individual street segments. Individual street segments were recombined within each suburb with results aggregated to a single road corridor within a single suburb. For individual road corridor calculations, all intersections were included, meaning some trees and plantable opportunities were assigned to multiple streets for management purposes. This double counting was excluded from suburb and council level results. Summary statistics are calculated at the street segment, suburb[4], and council level[5].

Counting trees

The number and spatial location of trees within Council's road corridors was quantified using supervised classification of available RGB (3-band) imagery together with specially trained neural network classification algorithms (aka. Deep Learning, Artificial Intelligence, Machine Learning) to automatically draw bounding boxes around urban trees and to rapidly identify individual trees and canopy areas (Figure C1. Example of machine-learning approach to identify individual tree crowns).

A data training technique using several hundred training samples from the image data were manually identified from which the machine learning algorithm extracted a spectral signature and expected geometry for trees specific to conditions present within the Council area. The training enabled the automated classifier to "learn" what a tree looks like in the imagery and then apply this in an automated method across the council area. Development of a training model using the actual imagery is important as pixel sizes, shadows, leaf colour and seasonal change can all affect the accuracy of the algorithm.

An additional topographic filter removed false positive results created by the classifier (i.e. non-tree vegetation and non-vegetation items initially classified as trees) through incorporating elevation data (Figure C1. Example of machine-learning approach to identify individual tree crowns). This filter removed most shrubs and bushes from the results, but occasionally removed some small trees as well. Results were then visually verified through a manual editing process that removed duplicates, re-added smaller trees, and adjusted placements of tree points.

The output of this approach produced a polygon shapefile with discrete ellipses identifying each individual tree's crown area as well as a point shapefile identifying the centre of each individual tree feature (Figure C2a. Visual representation of refined machine learning outputs within an example road corridor segment…).

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[3] Parcels.shp provided by City of Charles Sturt.

[4] Spatial GIS database provided by SA Government Data.SA: Suburbs.shp. Suburbs include some results from neighbouring areas that fell partially within the Council boundary but not wholly included within the City of Charles Sturt.

[5] Spatial GIS dataset provided by Council: Boundary.shp

The benefits of this approach are that it can be applied to standard data (RGB imagery) that most councils have in-house, which allows for cheaper initial assessments and more frequent interval assessments without requiring additional LiDAR data acquisitions.

Figure C1. Example of machine-learning approach to identify individual tree crowns. Note that additional filtering and manually cleaning removed false positive results due to non-vegetation items such as the stobie pole and port-a-loo shown in the image, and also non-tree vegetation such as shrubs.

Quantifying plantable space and potential plantable opportunities

Plantable space, the dataset from which plantable opportunities were calculated, was developed by integrated several datasets acquired from NearMap, specifically their Vegetation and Surface AI datapacks. NearMap AI datapacks use a deep repository of sample sites to inform their machine learning algorithms used to classify recent imagery. The Surfaces AI Datapack classifies the landscape by the likelihood that any given parcel is concrete, asphalt, water, lawn grass, or natural (soft). The Vegetation AI datapack classifies all vegetated area into low, medium, and tall height groups, with tall vegetation being more than 2m tall.

Plantable space is defined here as grassy and natural ground areas, as identified from the Surfaces AI datapack, where a tree could potentially be planted (Figure C2b. Visual representation of refined machine learning outputs within an example road corridor segment…). It should be noted that plantable space locations were not ground-truthed for suitability as part of this project, which means that some identified spaces may be deemed unsuitable due to elements not captured in this analysis (e.g. underground or overhead services). For this project, plantable space was quantified only within defined road corridors.

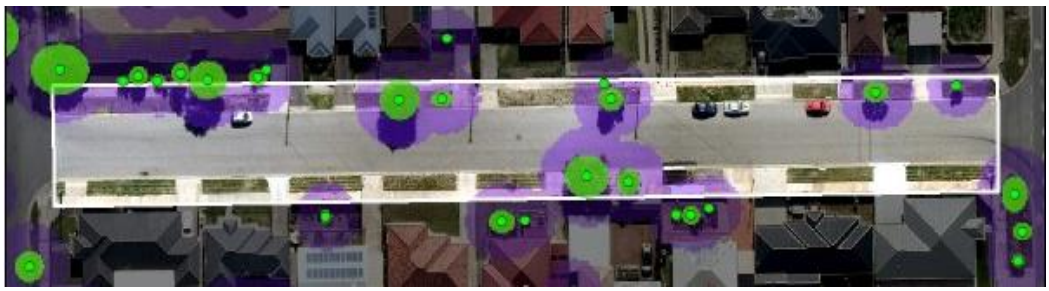
Potential Plantable opportunities were defined as a 1m^2 contiguous area of plantable space that occurs at least 5m away from any adjacent plantable opportunity or existing tree crown. A 5m exclusion zone was therefore applied to existing tree crowns, identified by the Near Map Vegetation AI datapack as all vegetation taller than 2m, to represent the area within which another tree should not be planted (Figure C2c. Visual representation of refined machine learning outputs within an example road corridor segment…). A bin-packing algorithm was then applied to identify plantable opportunities within the plantable space areas but outside of the 5m exclusion zones (Figure C2d. Visual representation of refined machine learning outputs within an example road corridor segment…).

Further, each plantable opportunity also needed to be at least 5m apart. This was calculated by converting each square metre of plantable space into a plantable point, and then applying an iterative winnowing process until the minimum spacing threshold of 5m was achieved. Only potential plantable opportunities within the defined street segments were quantified.

(a) Existing trees (green dots) and tree crown areas (green circles)

(b) Potential plantable space (orange shaded areas)

(c) 5m exclusion zone around existing tree crowns (purple shaded areas)



(d) Potential plantable opportunities (orange points) with at least 1m^2 of plantable space and at least 5m from the nearest tree crown and plantable opportunity

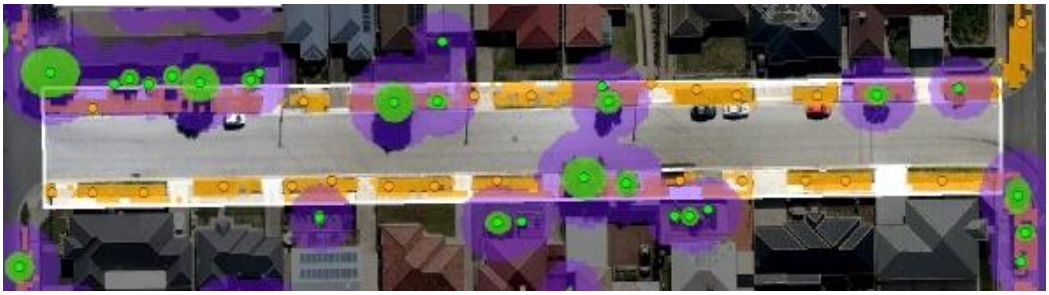


Figure C2. Visual representation of refined machine learning outputs within an example road corridor segment and showing: (a) existing trees (green dots) and tree crown areas (green circles); (b) potential plantable space (orange shaded areas); (c) 5m exclusion zone around existing tree crowns (purple shaded areas); and (d) potential plantable opportunities (orange points) with at least 1m^2 of plantable space and at least 5m from the nearest tree crown and potential plantable opportunity.

Prioritising street tree plantings

To identify where street tree plantings should be prioritised to maximise benefits to heat island mitigation and subsequently to human health and well-being, we undertook an integrated prioritisation assessment (IPA), using heat and plantable opportunities for each street segment as input criteria.

The input criteria were quantified as follows:

- **Heat:** for each street segment the average surface temperature and relative temperature were calculated using 2017 thermal data collected from the Western Adelaide Urban Heat Mapping Project. Relative street heat temperatures were used to determine how much each street segment contributed to the urban heat island effect; and
- **Plantable opportunities:** using outputs from Sections 4.3 and 4.4, we calculated the density of plantable opportunities along each 100m of a street segment. This metric highlights both where trees are needed and where there is an opportunity to plant. Other areas may have high need for trees, but no feasible planting locations (such as Torrens Road in Bowden).

Each of the input criteria represent areas where tree planting would have additional benefit, with new trees reducing urban heat and increasing urban canopy in areas with fewer trees. For each criteria the mean value for each street segment were normalised from 0-1. These were then averaged together to produce the Integrated Priority Score (IPS) which is a prioritised ranking of planting suitability within street segment (i.e. segments of road corridor between intersections). This provides an equal weight ranking of the two criteria, though different weights and different datasets can be integrated if needed.

Informing tree planting schedules

Whilst analysis at the individual tree level is possible from these analyses, this fine-scale detail is not realistic for informing whole of Council street planting programs and schedules, which realistically focus on whole roads, rather than individual trees scattered across the Council area. We therefore amalgamated the IPS results for each street segment to the whole street scale and calculated priority road corridors based on this.

This meant that we now know the number of plantable opportunities within each road corridor, and also the priority ranking for tree plantings of each road. To develop a prioritised tree planting schedule then simply requires an understanding of how many trees are to be planted each year. Once the number of trees to be planted each year is known, an annual prioritised planting schedule is developed by grouping together the highest ranking roads with total plantable opportunities that add up to the number of trees to be planted each year. For example, assuming 1,000 trees are to be planted each year, the first year's planting schedule will occur on the highest priority streets that have plantable opportunities that sum to 1,000. Once a road corridor has been included in a planting year, it is not included in subsequent planting years. Therefore, the second year's planting schedule will include the next highest priority streets whose total plantable opportunities sum to 1,000. And so on, until all plantable opportunities have been filled, or all trees have been planted.

Limitations and quality control

- The machine learning algorithm, trained specifically using Council data, performed very well overall in identifying tree canopy. However, the conversion from canopy to bounding boxes to tree points created some difficulty in determining the number of tree stems (trunks) per canopy with some broader trees being identified as have up to 10 different stems. These known errors were sought out and removed during the visual quality assurance check, but some over counting, especially among larger trees may still persist. This is a fundamental challenge to this process and one that is continually being refined. Similarly, tree shadows occasionally were also identified as trees separate to the trees that generated the shadow. Significant efforts have been made to remove these duplications. Due to the birds-eye, straight down view of the canopy presented in areal imagery, the location of tree stems is an estimate. Some trees may be identified as being within the road corridor while, in actuality, they may be located on private property, or vice versa.
- The plantable opportunities analysis was refined through manual verification and visual quality assurance process. Due to the winnowing process, each plantable opportunity has a 5-metre range of error meaning the actual plantable opportunity may not be exactly at

the identified location's coordinates but will be within 5m. This is a product of the clustering and aggregation steps taken to generate a 5m spacing between plantable opportunities.

- This analysis does not account for other planting considerations such as safety and visibility (specifically at intersections), and utilities and traffic light placement. Further, the construction being undertaken during the time of imagery acquisition along much of South Road (M2 motorway), meant that clear road surface and road corridor boundaries were unable to be derived from aerial imagery. This meant that plantable opportunities and heat signatures were unable to be determined for this road and as such it was necessarily excluded from this analysis.
- As with all spatial data, there is a measure of error associated with the road corridor shapefile. As a result, the road corridor does include some private property and excludes some Council managed area. This error is minor and will not influence the main findings reported herein but may have an impact of individual tree planting site locations.

Appendix D. Tree Counts, Canopy Cover, and Plantable Opportunities within Road Corridors of Each Suburb

Suburbs listed in alphabetical order.

Suburb	Suburb Area (m^2)	Road Corridor Area (m^2)	No. Trees in Road Corridor	No. Plantable Opportunities in Road Corridor	Road Corridor Canopy Cover (m^2)	Road Corridor Canopy Cover (%)
Albert Park	912,359	212,592	893	748	25,761	12.12
Allenby Gardens	823,190	194,065	1,200	444	38,145	19.66
Athol Park	923,734	151,027	661	512	19,291	12.77
Beverley	1,498,920	247,047	933	556	9,532	3.86
Bowden	404,082	111,123	619	39	12,410	11.17
Brompton	1,103,940	250,093	1,641	176	23,816	9.52
Cheltenham	1,138,490	244,290	1,300	848	24,876	10.18
Croydon	571,949	118,590	1,047	207	39,099	32.97
Devon Park	62,196	21,661	108	37	1,913	8.83
Findon	2,448,560	546,486	2,128	2,146	38,919	7.12
Flinders Park	2,154,550	484,223	1,998	1,697	44,458	9.18
Fulham Gardens	2,416,700	571,417	2,148	2,281	41,170	7.20
Grange	3,654,990	628,952	2,875	2,051	69,897	11.11
Hendon	709,416	147,331	725	332	12,528	8.50
Henley Beach	2,670,640	572,204	2,548	1,437	65,774	11.49
Henley Beach South	1,092,000	253,024	1,146	841	62,042	24.52
Hindmarsh	878,783	177,684	743	102	22,238	12.52
Kidman Park	1,789,240	349,522	1,300	1,449	37,104	10.62
Kilkenny	1,088,030	193,207	726	353	15,269	7.90
Ovingham	153,613	53,478	348	18	7,952	14.87
Pennington	1,354,030	268,842	1,130	970	17,115	6.37
Renown Park	621,685	135,038	822	308	17,731	13.13
Ridleyton	419,366	61,265	484	113	10,279	16.78
Royal Park	1,631,190	406,584	1,484	1,486	36,720	9.03

Suburb	Suburb Area (m^2)	Road Corridor Area (m^2)	No. Trees in Road Corridor	No. Plantable Opportunities in Road Corridor	Road Corridor Canopy Cover (m^2)	Road Corridor Canopy Cover (%)
Seaton	4,585,230	881,105	3,110	3,731	57,653	6.54
Semaphore Park	1,962,210	362,133	1,621	1,283	33,174	9.16
St Clair	936,197	209,132	1,356	255	9,169	4.38
Tennyson	889,502	134,212	655	380	6,605	4.92
Welland	598,483	97,438	482	269	14,730	15.12
West Beach	1,449,990	259,222	1,006	960	21,415	8.26
West Croydon	1,696,610	356,371	2,403	839	21,439	6.02
West Hindmarsh	615,617	132,333	909	199	19,998	15.11
West Lakes	4,390,430	715,426	2,726	2,738	41,854	5.85
West Lakes Shore	1,772,840	336,126	1,646	1,260	21,727	6.46
Woodville	1,214,010	223,135	1,380	477	31,388	14.07
Woodville North	1,398,670	239,176	1,037	708	13,188	5.51
Woodville Park	754,438	159,326	1,021	503	23,448	14.72
Woodville South	1,442,190	302,107	1,583	896	36,750	12.16
Woodville West	1,191,450	295,500	1,183	1,092	22,160	7.50

Appendix E. Prioritised Annual Planting Schedule

Roads are listed in order of planting year as determined by the integrated priority assessment (IPA) score (see Section 5 and Appendix C). Also shown in the table for each road corridor are the total number of plantable opportunities, the average surface temperature, and the relative urban heat island (UHI) represented by the surface temperature (i.e. the how much higher or lower the road corridor surface temperature is compared to the daytime average temperature, as taken from the *Western Adelaide Urban Heat Mapping Project Report*).

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Brice Street	Findon	18	40.97	2.07	1	1
Adermener Street	Athol Park	29	39.81	0.91	2	1
Elm Street	Kidman Park	13	41.05	2.15	3	1
McMurtrie Place	Seaton	16	40.16	1.26	4	1
Jan Street	Fulham Gardens	21	41.08	2.18	5	1
McNeilly Crescent	Seaton	26	40.33	1.43	6	1
Matthews Avenue	Seaton	122	38.92	0.02	7	1
Troon Avenue	Seaton	62	39.97	1.07	8	1
Nicholls Terrace	Woodville West	76	41.11	2.21	9	1
West Lakes Boulevard	West Lakes Shore	51	38.45	-0.45	10	1
Foot Avenue	Seaton	26	40.32	1.42	11	1
Telford Avenue	Findon	35	39.78	0.88	12	1
Thorn Street	Findon	13	40.01	1.11	13	1
McAllan Avenue	Seaton	33	41.25	2.35	14	1
Jordan Avenue	Fulham Gardens	25	40.92	2.02	15	1
Findon Avenue	Seaton	89	40.23	1.33	16	1
Cooinda Street	Findon	18	40.85	1.95	17	1
McAllan Avenue	Findon	14	41.42	2.52	18	1
Barbara Street	Fulham Gardens	38	39.28	0.38	19	1
Symonds Street	Royal Park	40	39.24	0.34	20	1
Old Port Road	Hendon	59	40.35	1.45	21	1
Katcomba Court	West Lakes	13	41.15	2.25	22	1
Janet Street	Seaton	19	40.11	1.21	23	1
Kerr Grove	West Lakes	20	41.32	2.42	24	1
Newington Avenue	Woodville South	21	39.51	0.61	25	1
Bridgman Road	Findon	50	39.34	0.44	26	1
Jervois Street	Albert Park	26	39.46	0.56	27	1
Cooke Street	Findon	49	39.45	0.55	28	1
Denbrow Street	West Beach	12	37.26	-1.64	29	1
Ailsa Avenue	Seaton	33	40.85	1.95	30	1
Marinoff Street	Seaton	29	40.47	1.57	31	1
Eagle Place	Seaton	12	38.77	-0.13	32	1
Tobago Court	West Lakes	18	39.55	0.65	33	1
Thirteenth Avenue	Woodville North	46	39.60	0.70	34	1
Alfred Street	Pennington	13	40.67	1.77	35	1

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Slade Place	Seaton	12	39.48	0.58	36	1
Flavel Street	Seaton	20	39.96	1.06	37	1
Lucerne Grove	Findon	52	39.77	0.87	38	1
Honeyton Street	Seaton	64	39.79	0.89	39	1
Grace Street	Albert Park	21	40.50	1.60	40	1
Stewart Street	Kidman Park	20	40.33	1.43	41	1
Amy Street	Athol Park	16	40.71	1.81	42	1
Truro Place	Woodville West	11	40.00	1.10	43	1
Ruth Street	Findon	15	40.18	1.28	44	1
	Seaton	13	39.52	0.62	45	1
Seaton Terrace	Seaton	102	38.27	-0.63	46	1
Leerama Court	Kidman Park	12	39.12	0.22	47	1
Tiranna Way	West Lakes	47	39.31	0.41	48	1
Francis Street	Kidman Park	18	40.21	1.31	49	1
Buccleuch Avenue	Findon	78	40.59	1.69	50	1
Shandon Avenue	Seaton	52	39.55	0.65	51	1
Ballater Avenue	Seaton	30	41.32	2.42	52	1
Fidock Avenue	Seaton	57	37.97	-0.93	53	1
Whimpress Avenue	Findon	34	39.70	0.80	54	1
Arthur Street	Seaton	21	40.29	1.39	55	1
Buchan Street	Seaton	13	40.64	1.74	56	1
Bass Place	Flinders Park	12	41.46	2.56	57	1
Otway Place	Woodville West	12	40.55	1.65	58	1
Hall Court	Woodville North	7	40.79	1.89	59	1
Lee Street	Fulham Gardens	18	39.68	0.78	60	1
Chapman Street	Findon	13	40.08	1.18	61	1
Cairns Avenue	Seaton	19	39.61	0.71	62	1
Balmoral Place	Kidman Park	10	40.25	1.35	63	1
	Findon	46	41.73	2.83	64	1
Golfers Avenue	Seaton	90	39.13	0.23	65	1
Gawler Street	Woodville West	51	40.01	1.11	66	1
Artarki Avenue	Kidman Park	14	39.34	0.44	67	1
Kidman Avenue	Kidman Park	73	40.30	1.40	68	1
Hart Street	Kidman Park	14	40.23	1.33	69	1
Munro Avenue	Seaton	23	40.42	1.52	70	1
Noblet Street	Findon	19	40.25	1.35	71	1
Ella Avenue	Fulham Gardens	9	40.07	1.17	72	1
Trinidad Court	West Lakes	31	40.82	1.92	73	1
Wallis Street	West Beach	24	38.74	-0.16	74	1
Carter Place	Seaton	8	39.53	0.63	75	1
Wychwood Court	Findon	8	40.58	1.68	76	1
Barbados Court	West Lakes	12	40.01	1.11	77	1
Tina Court	Fulham Gardens	6	40.98	2.08	78	1
Henry Street	Royal Park	25	40.35	1.45	79	1
Allerdice Court	West Lakes	17	41.24	2.34	80	1

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Beatrice Avenue	Seaton	25	40.56	1.66	81	1
Harcourt Avenue	Pennington	7	40.04	1.14	82	1
Bach Crescent	Seaton	6	40.23	1.33	83	1
Valentine Street	Kidman Park	14	38.65	-0.25	84	1
Centenary Avenue	Findon	45	40.25	1.35	85	1
Roder Avenue	Kidman Park	19	39.96	1.06	86	1
Milford Street	Kidman Park	13	40.46	1.56	87	1
Mallan Street	Findon	16	41.01	2.11	88	1
Elizabeth Street	Woodville West	50	40.21	1.31	89	1
Pape Avenue	Seaton	22	40.14	1.24	90	1
Elizabeth Street	Pennington	12	41.06	2.16	91	1
Browning Avenue	Kidman Park	38	38.78	-0.12	92	1
Dunn Avenue	Findon	30	39.94	1.04	93	1
Lomond Court	West Lakes	12	40.64	1.74	94	1
Smith Avenue	Woodville West	31	41.05	2.15	95	1
Robins Avenue	Findon	18	37.91	-0.99	96	1
Pamela Street	Findon	25	38.73	-0.17	97	1
Torrens Crescent	Pennington	34	41.02	2.12	98	1
Murphy Street	Fulham Gardens	49	40.16	1.26	99	1
Squires Avenue	Seaton	48	40.23	1.33	100	1
Fox Street	Pennington	12	39.78	0.88	101	1
Emily Street	Woodville West	24	40.53	1.63	102	1
Caddy Court	Grange	10	40.50	1.60	103	1
Parker Avenue	Seaton	45	38.54	-0.36	104	1
Short Street	Woodville South	19	39.19	0.29	105	1
Duncan Street	Findon	22	39.36	0.46	106	1
Birkdale Grove	West Lakes	43	39.12	0.22	107	1
Booker Court	Pennington	14	40.06	1.16	108	1
Beachway Avenue	Semaphore Park	26	37.95	-0.95	109	1
Norman Street	Findon	52	38.92	0.02	110	1
Walkom Avenue	Woodville South	20	38.92	0.02	111	1
Thornton Street	Findon	18	39.86	0.96	112	1
The Parkway	Fulham Gardens	23	39.85	0.95	113	1
Elaine Avenue	Seaton	51	39.20	0.30	114	1
Dumfries Avenue	Seaton	68	40.65	1.75	115	1
Olympia Street	Kidman Park	41	38.35	-0.55	116	1
Godson Street	Woodville South	13	39.80	0.90	117	1
Sims Crescent	West Lakes	42	38.41	-0.49	118	2
Tuart Place	West Lakes	9	40.77	1.87	119	2
Worthley Road	Findon	23	39.15	0.25	120	2
Laurel Street	Pennington	26	39.44	0.54	121	2
Windermere Avenue	West Lakes	19	42.38	3.48	122	2
Arooma Street	Findon	14	40.46	1.56	123	2
Briese Court	Findon	7	40.66	1.76	124	2
Woodlake Avenue	West Lakes	36	39.85	0.95	125	2

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Pine Lodge Crescent	Grange	60	39.03	0.13	126	2
Hartog Street	Flinders Park	19	39.29	0.39	127	2
Glenwood Crescent	Kidman Park	42	39.23	0.33	128	2
Wilson Street	Royal Park	107	38.86	-0.04	129	2
Farman Avenue	Albert Park	15	41.68	2.78	130	2
Elgar Crescent	Fulham Gardens	11	40.03	1.13	131	2
Craig Avenue	Fulham Gardens	9	40.49	1.59	132	2
Lasscock Avenue	Findon	18	38.80	-0.10	133	2
Judith Avenue	Findon	16	39.13	0.23	134	2
County Street	Fulham Gardens	11	38.58	-0.32	135	2
McNab Place	Seaton	10	40.61	1.71	136	2
Washington Crescent	Findon	21	39.15	0.25	137	2
Irwin Street	Woodville West	23	40.67	1.77	138	2
Dundee Avenue	Seaton	17	40.24	1.34	139	2
Morrell Street	Allenby Gardens	22	38.95	0.05	140	2
Kingfisher Drive	Semaphore Park	43	38.67	-0.23	141	2
David Avenue	Findon	27	39.83	0.93	142	2
Moorea Court	West Lakes	10	42.60	3.70	143	2
Messenger Road	Fulham Gardens	56	39.97	1.07	144	2
Old Port Road	Albert Park	19	41.70	2.80	145	2
Stanley Street	Fulham Gardens	27	38.11	-0.79	146	2
Airdrie Avenue	Seaton	39	40.57	1.67	147	2
Bruce Street	Fulham Gardens	8	40.78	1.88	148	2
Florey Street	Seaton	22	38.68	-0.22	149	2
Fowler Avenue	Flinders Park	18	39.50	0.60	150	2
Henderson Avenue	Woodville West	21	40.20	1.30	151	2
Canino Drive	Kidman Park	44	38.99	0.09	152	2
Chatswood Crescent	Kidman Park	40	39.97	1.07	153	2
Byron Court	Fulham Gardens	10	40.05	1.15	154	2
Moss Court	Grange	12	38.50	-0.40	155	2
Nerida Court	Kidman Park	11	38.23	-0.67	156	2
Fairway Drive	Seaton	32	39.52	0.62	157	2
Adele Avenue	Kidman Park	26	38.77	-0.13	158	2
Minns Street East	Seaton	37	40.24	1.34	159	2
Warru Court	Kidman Park	10	39.08	0.18	160	2
Dayman Avenue	Albert Park	15	41.92	3.02	161	2
Broden Road	West Beach	23	38.27	-0.63	162	2
Old Port Road	West Lakes	88	38.21	-0.69	163	2
Menkens Street	Fulham Gardens	22	39.02	0.12	164	2
Fairmont Avenue	Kidman Park	15	39.56	0.66	165	2
Newport Road	Woodville West	16	39.30	0.40	166	2
Virginia Avenue	Fulham Gardens	13	39.17	0.27	167	2
Flamingo Grove	Semaphore Park	20	39.00	0.10	168	2
Marinna Court	West Lakes	14	40.31	1.41	169	2
John Street	Flinders Park	61	39.48	0.58	170	2

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Cook Street	West Croydon	7	40.05	1.15	171	2
Isabel Court	Seaton	7	41.01	2.11	172	2
Alfrina Street	Kidman Park	24	38.42	-0.48	173	2
Owen Street	Seaton	24	39.68	0.78	174	2
Brenthorpe Road	Seaton	37	40.88	1.98	175	2
Leven Avenue	Seaton	56	40.11	1.21	176	2
Mitchell Street West	Seaton	20	40.37	1.47	177	2
Hogben Street	Grange	15	39.32	0.42	178	2
Westall Avenue	Flinders Park	36	39.91	1.01	179	2
Chenoweth Avenue	West Croydon	23	39.96	1.06	180	2
Pinda Street	Kilkenny	20	42.18	3.28	181	2
Brandwood Street	Royal Park	39	39.13	0.23	182	2
Riverway Place	Kidman Park	7	39.99	1.09	183	2
Glyde Street	Albert Park	77	40.43	1.53	184	2
Mallacoota Place	West Lakes Shore	13	38.53	-0.37	185	2
Rawlings Avenue	Flinders Park	9	39.29	0.39	186	2
Carey Avenue	Seaton	30	37.73	-1.17	187	2
Pedlar Street	Seaton	77	38.67	-0.23	188	2
Baka Avenue	Fulham Gardens	11	41.38	2.48	189	2
Ascot Court	Fulham Gardens	14	38.28	-0.62	190	2
Sandra Court	Fulham Gardens	7	40.33	1.43	191	2
Albany Street	Woodville West	16	40.42	1.52	192	2
Paruna Road	Henley Beach	6	38.60	-0.30	193	2
Panmure Place	Woodville North	34	39.81	0.91	194	2
Condon Street	Pennington	20	38.73	-0.17	195	2
Balcombe Avenue	Findon	60	41.10	2.20	196	2
Richardson Avenue	Findon	21	39.38	0.48	197	2
Gray Street	Kilkenny	25	40.87	1.97	198	2
Cameron Avenue	Findon	12	40.56	1.66	199	2
Fisher Place	West Lakes	12	40.39	1.49	200	2
Shelley Avenue	Fulham Gardens	40	39.90	1.00	201	2
Dillon Avenue	Flinders Park	37	39.56	0.66	202	2
Toogood Avenue	Beverly	49	39.45	0.55	203	2
Glenburnie Street	Seaton	80	38.40	-0.50	204	2
Gateshead Street	Athol Park	17	41.30	2.40	205	2
Harrow Road	Kidman Park	24	39.97	1.07	206	2
Selkirk Avenue	Seaton	32	40.75	1.85	207	2
Barrey Avenue	Seaton	26	37.04	-1.86	208	2
Emma Street	Athol Park	32	40.28	1.38	209	2
Port Road	Woodville Park	69	40.94	2.04	210	2
Corymbia Avenue	Athol Park	6	40.70	1.80	211	2
Burbridge Road	West Beach	90	38.00	-0.90	212	2
Columbine Avenue	West Lakes Shore	23	37.74	-1.16	213	2
Egret Street	Semaphore Park	16	38.57	-0.33	214	2
Hazel Grove	Semaphore Park	20	36.77	-2.13	215	2

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Marelle Place	Fulham Gardens	18	37.04	-1.86	216	2
Lanark Avenue	Seaton	30	41.07	2.17	217	2
McKell Street	Kidman Park	16	40.38	1.48	218	2
Greville Avenue	Flinders Park	59	40.04	1.14	219	2
Merlin Road	Fulham Gardens	34	39.74	0.84	220	2
Ayr Avenue	Seaton	17	40.44	1.54	221	2
Caruso Avenue	Seaton	10	39.13	0.23	222	2
Nash Street	Grange	66	39.58	0.68	223	2
Harris Place	Seaton	9	39.36	0.46	224	2
Etna Avenue	Pennington	10	39.91	1.01	225	2
Litchfield Crescent	Findon	7	40.15	1.25	226	2
Kinross Avenue	Seaton	19	39.99	1.09	227	2
Abelia Avenue	Flinders Park	31	38.81	-0.09	228	2
Newton Street	Grange	12	40.08	1.18	229	2
Parklink Terrace	Devon Park	7	42.90	4.00	230	2
Frome Crescent	West Lakes	48	37.95	-0.95	231	2
Crighton Avenue	Royal Park	25	39.28	0.38	232	2
Clarence Street	Fulham Gardens	11	39.17	0.27	233	2
Broadford Crescent	Findon	30	39.82	0.92	234	2
Keith Avenue	Fulham Gardens	7	40.76	1.86	235	2
Morley Road	Seaton	50	40.78	1.88	236	2
Nedford Crescent	Fulham Gardens	37	37.56	-1.34	237	2
Everritt Avenue	Fulham Gardens	44	37.65	-1.25	238	2
Winser Avenue	Seaton	16	40.62	1.72	239	2
Port Road	Cheltenham	90	41.62	2.72	240	2
Bentley Avenue	Fulham Gardens	26	39.28	0.38	241	2
Guernsey Terrace	Woodville	9	40.54	1.64	242	2
Third Avenue	Seaton	24	40.68	1.78	243	2
Anne Street	Royal Park	17	39.36	0.46	244	2
Jennifer Street	Seaton	10	40.09	1.19	245	2
James Street	Royal Park	31	38.76	-0.14	246	2
Alexander Avenue	Devon Park	14	42.20	3.30	247	2
Tunbridge Street	Woodville South	30	39.78	0.88	248	3
Columbine Avenue	Semaphore Park	4	35.96	-2.94	249	3
Cardiff Street	Woodville West	28	40.55	1.65	250	3
Day Street	Kidman Park	8	40.45	1.55	251	3
Joseph Avenue	Fulham Gardens	19	39.02	0.12	252	3
Lisa Court	Pennington	10	38.67	-0.23	253	3
Gail Road	Fulham Gardens	21	40.96	2.06	254	3
Adamson Avenue	Findon	24	39.86	0.96	255	3
Amos Way	Royal Park	21	39.74	0.84	256	3
Walter Street	Kidman Park	29	40.90	2.00	257	3
Merion Court	West Lakes	9	39.36	0.46	258	3
Caroline Drive	Fulham Gardens	37	40.17	1.27	259	3
Botting Street	Albert Park	82	40.68	1.78	260	3

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Patricia Street	Woodville West	39	39.24	0.34	261	3
Andrews Street	Athol Park	13	40.58	1.68	262	3
Hamlyn Court	Kidman Park	13	38.64	-0.26	263	3
Park Avenue	Pennington	16	42.56	3.66	264	3
Sando Street	Findon	42	40.38	1.48	265	3
Reedbeds Court	Seaton	7	40.40	1.50	266	3
King Street	Pennington	52	40.07	1.17	267	3
Commane Avenue	Seaton	14	40.89	1.99	268	3
Ashington Court	Findon	5	41.36	2.46	269	3
Lancaster Avenue	Fulham Gardens	37	38.38	-0.52	270	3
Rosemary Street	Woodville West	33	39.05	0.15	271	3
Small Street	Seaton	14	36.52	-2.38	272	3
Palmer Court	Renown Park	20	40.83	1.93	273	3
Cocos Grove	West Lakes	18	41.50	2.60	274	3
Green Avenue	Seaton	68	38.34	-0.56	275	3
Paterson Avenue	Fulham Gardens	17	37.84	-1.06	276	3
Northgate Street	Pennington	49	40.35	1.45	277	3
Tulloch Avenue	Pennington	16	40.60	1.70	278	3
Albany Street	Grange	18	37.77	-1.13	279	3
Somerset Avenue	Fulham Gardens	47	39.05	0.15	280	3
Hayes Court	West Lakes	24	39.29	0.39	281	3
Dame Pattie Circuit	West Lakes	32	36.97	-1.93	282	3
Windsor Avenue	Pennington	22	40.62	1.72	283	3
Badenoch Street	Henley Beach	29	37.82	-1.08	284	3
Traphen Street	Seaton	11	40.87	1.97	285	3
Hammond Road	Findon	57	39.68	0.78	286	3
Corio Avenue	Seaton	10	38.40	-0.50	287	3
Albert Parade	Semaphore Park	12	38.55	-0.35	288	3
Hampton Court	Kidman Park	10	39.25	0.35	289	3
Eldridge Crescent	Grange	34	38.44	-0.46	290	3
Old Port Road	Royal Park	83	39.16	0.26	291	3
Pitcairn Avenue	Kidman Park	23	39.68	0.78	292	3
Marlborough Avenue	Woodville Park	28	39.73	0.83	293	3
Robe Street	Kidman Park	24	39.76	0.86	294	3
Annette Street	Athol Park	31	40.21	1.31	295	3
Norfolk Avenue	Fulham Gardens	50	37.11	-1.79	296	3
Kelsey Street	Kidman Park	22	40.60	1.70	297	3
Lefkas Court	Seaton	19	40.54	1.64	298	3
Lindsay Street	Fulham Gardens	10	39.85	0.95	299	3
Fortisgreen Avenue	Pennington	37	39.48	0.58	300	3
Krista Court	Kidman Park	11	39.60	0.70	301	3
Browning Avenue	Fulham Gardens	29	39.89	0.99	302	3
Gardner Avenue	West Croydon	18	40.56	1.66	303	3
Huron Grove	West Lakes	18	39.74	0.84	304	3
Port Road	West Croydon	87	40.74	1.84	305	3

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Edgecombe Street	Woodville North	33	39.79	0.89	306	3
Risely Avenue	Royal Park	45	39.50	0.60	307	3
Tyrie Avenue	Findon	46	38.50	-0.40	308	3
Heath Street	Flinders Park	5	38.88	-0.02	309	3
Nelson Avenue	Flinders Park	71	39.84	0.94	310	3
Mary Street	Pennington	28	39.02	0.12	311	3
Martinique Court	West Lakes	16	39.34	0.44	312	3
Drummond Avenue	Findon	83	37.60	-1.30	313	3
Myrtle Street	Royal Park	28	40.25	1.35	314	3
Lola Avenue	Fulham Gardens	7	40.74	1.84	315	3
Judith Place	Grange	12	38.75	-0.15	316	3
Tait Street	Renown Park	35	42.28	3.38	317	3
Rivett Avenue	Fulham Gardens	42	37.69	-1.21	318	3
Rulana Court	Kidman Park	8	39.40	0.50	319	3
St Andrews Way	West Lakes	57	37.79	-1.11	320	3
Burleigh Avenue	Pennington	31	40.47	1.57	321	3
Waikiki Court	West Lakes	16	38.87	-0.03	322	3
Oakmount Court	West Lakes	20	38.28	-0.62	323	3
Redsails Court	West Lakes Shore	10	38.12	-0.78	324	3
Pudney Street	Seaton	29	40.05	1.15	325	3
Schenker Drive	Royal Park	25	38.73	-0.17	326	3
Fourth Avenue	Semaphore Park	34	38.76	-0.14	327	3
Richard Street	Fulham Gardens	4	39.98	1.08	328	3
Starr Street	Findon	13	39.60	0.70	329	3
Blaikie Court	Brompton	5	41.38	2.48	330	3
Yorktown Crescent	Henley Beach South	32	38.77	-0.13	331	3
Lothian Avenue	Seaton	21	39.62	0.72	332	3
West Beach Road	West Beach	56	37.87	-1.03	333	3
Lylow Court	Findon	5	40.81	1.91	334	3
Sinclair Square	Pennington	19	40.22	1.32	335	3
Wright Street	Ridleyton	23	40.98	2.08	336	3
Ryan Avenue	Woodville West	52	40.30	1.40	337	3
Holbrooks Road	Flinders Park	75	39.75	0.85	338	3
Pitman Avenue	Woodville West	49	39.74	0.84	339	3
Alma Terrace	Seaton	42	41.16	2.26	340	3
Murray Street	Albert Park	51	40.14	1.24	341	3
Reginald Avenue	Findon	11	39.07	0.17	342	3
Farman Avenue	Hendon	25	40.36	1.46	343	3
Sharpes Avenue	Fulham Gardens	21	39.24	0.34	344	3
Northey Avenue	Henley Beach	50	37.51	-1.39	345	3
Carley Crescent	Seaton	17	39.03	0.13	346	3
Prior Avenue	Seaton	23	38.79	-0.11	347	3
Maria Street	Findon	17	39.24	0.34	348	3
Santin Avenue	Kidman Park	20	38.73	-0.17	349	3

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Camillo Way	Fulham Gardens	8	39.02	0.12	350	3
Levistone Street	Seaton	37	40.37	1.47	351	3
Niblic Court	Grange	11	39.46	0.56	352	3
Northumberland Avenue	Findon	17	39.13	0.23	353	3
Wanda Avenue	Findon	4	41.05	2.15	354	3
Wandilla Street	Grange	19	41.95	3.05	355	3
Clovelly Avenue	Royal Park	59	38.25	-0.65	356	3
Shearwater Place	Semaphore Park	13	37.88	-1.02	357	3
Dampier Avenue	Findon	33	38.69	-0.21	358	3
Oliver Avenue	Fulham Gardens	18	39.15	0.25	359	3
Fairford Terrace	West Lakes Shore	41	37.95	-0.95	360	3
Oliphant Avenue	Seaton	19	37.04	-1.86	361	3
Irene Avenue	Fulham Gardens	27	40.04	1.14	362	3
Piovesan Court	Kidman Park	13	39.14	0.24	363	3
Gregory Crescent	Seaton	22	40.65	1.75	364	3
Lord Hobart Way	West Lakes	29	38.52	-0.38	365	3
Lambert Avenue	West Lakes Shore	50	38.52	-0.38	366	3
Lark Avenue	Seaton	19	38.28	-0.62	367	3
Frogmore Road	Kidman Park	99	38.84	-0.06	368	3
Sir John Marks Drive	West Lakes	57	40.43	1.53	369	3
Settlers Drive	West Lakes	40	36.85	-2.05	370	4
Third Avenue	Semaphore Park	44	39.02	0.12	371	4
Lincoln Street	Woodville North	9	39.04	0.14	372	4
Carlo Street	Kidman Park	28	38.87	-0.03	373	4
Lewis Crescent	Woodville West	45	40.39	1.49	374	4
Wayne Avenue	Fulham Gardens	11	40.02	1.12	375	4
Railway Terrace	Cheltenham	37	40.31	1.41	376	4
Anthony Street	Seaton	14	38.54	-0.36	377	4
Iris Court	Grange	10	38.75	-0.15	378	4
Bowen Avenue	Seaton	8	38.59	-0.31	379	4
Lawhill Avenue	Seaton	20	37.65	-1.25	380	4
Hector Street	Seaton	21	39.45	0.55	381	4
Ethelbert Square	Brompton	14	42.47	3.57	382	4
Nieass Place	Renown Park	7	41.49	2.59	383	4
Singleton Avenue	Seaton	14	40.72	1.82	384	4
Fifth Avenue	Cheltenham	39	39.75	0.85	385	4
Martins Road	Seaton	23	40.67	1.77	386	4
McEwan Avenue	Seaton	18	38.45	-0.45	387	4
Dora Avenue	Seaton	10	38.95	0.05	388	4
Toledo Avenue	West Beach	35	37.85	-1.05	389	4
Wisdom Street	Seaton	18	39.91	1.01	390	4
McCoy Place	West Lakes	17	37.68	-1.22	391	4
Howie Court	Woodville South	4	40.45	1.55	392	4
Beverley Crescent	Beverly	9	39.37	0.47	393	4
Torrens Road	Bowden	1	44.92	6.02	394	4

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Veronica Court	Kidman Park	6	37.92	-0.98	395	4
Sixth Avenue	Seaton	14	39.97	1.07	396	4
Bunker Court	Seaton	9	37.87	-1.03	397	4
Moore Drive	Fulham Gardens	29	40.15	1.25	398	4
Manly Circuit	West Lakes Shore	63	37.84	-1.06	399	4
Gould Street	Flinders Park	24	39.40	0.50	400	4
James Street	Cheltenham	20	40.29	1.39	401	4
Hoylake Crescent	West Lakes	41	38.32	-0.58	402	4
Craddock Street	Flinders Park	15	39.47	0.57	403	4
Morris Street	Kidman Park	10	39.65	0.75	404	4
Debney Street	Fulham Gardens	30	39.65	0.75	405	4
Burns Avenue	Fulham Gardens	10	40.09	1.19	406	4
Mariners Crescent	West Lakes	60	37.26	-1.64	407	4
Huntingdale Avenue	West Lakes	28	38.95	0.05	408	4
Thain Avenue	Findon	29	39.58	0.68	409	4
Foxgreen Avenue	Findon	9	39.73	0.83	410	4
Festival Crescent	Kidman Park	19	38.46	-0.44	411	4
Kingborn Avenue	Seaton	63	40.79	1.89	412	4
Spad Street	Albert Park	11	40.33	1.43	413	4
Rudolph Avenue	Findon	9	39.20	0.30	414	4
Boyce Street	Seaton	10	40.43	1.53	415	4
Willcocks Avenue	Seaton	56	38.59	-0.31	416	4
Clare Street	Athol Park	28	40.51	1.61	417	4
Nottingham Avenue	Fulham Gardens	18	37.61	-1.29	418	4
Matson Court	West Lakes	7	39.79	0.89	419	4
Hansen Court	West Lakes Shore	15	38.83	-0.07	420	4
Galleon Street	Grange	13	38.68	-0.22	421	4
Playford Court	Pennington	6	41.00	2.10	422	4
Crown Terrace	Royal Park	82	38.76	-0.14	423	4
Gay Court	Woodville South	4	40.22	1.32	424	4
Hann Street	Fulham Gardens	9	40.47	1.57	425	4
Polynesia Grove	West Lakes	21	38.60	-0.30	426	4
Lowe Street	Royal Park	18	40.00	1.10	427	4
Gurrs Road	Seaton	8	40.15	1.25	428	4
Went Street	Woodville West	8	40.31	1.41	429	4
Haynes Crescent	Woodville South	8	39.41	0.51	430	4
Raymond Avenue	Seaton	47	38.92	0.02	431	4
Grebe Street	Semaphore Park	15	39.37	0.47	432	4
Owen Street	Woodville North	33	39.23	0.33	433	4
Audley Street	Pennington	1	43.29	4.39	434	4
Elford Street	Beverly	7	41.23	2.33	435	4
Knight Street	Welland	7	38.80	-0.10	436	4
Victor Avenue	Woodville West	43	38.15	-0.75	437	4
Angus Court	Renown Park	6	40.78	1.88	438	4
Livingstone Court	Findon	6	40.43	1.53	439	4

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Balcombe Avenue	Seaton	12	41.72	2.82	440	4
Montrose Avenue	Seaton	17	40.37	1.47	441	4
Opal Street	Kidman Park	6	38.71	-0.19	442	4
Woodmore Street	Woodville North	20	39.71	0.81	443	4
Shackleton Place	Flinders Park	7	39.83	0.93	444	4
Gleneagles Court	Seaton	31	37.60	-1.30	445	4
Philip Court	Fulham Gardens	7	40.11	1.21	446	4
Allan Street	Royal Park	23	38.52	-0.38	447	4
Sydney Avenue	Kidman Park	27	39.98	1.08	448	4
Port Road	Woodville	85	40.34	1.44	449	4
Sixth Avenue	Cheltenham	26	39.35	0.45	450	4
Bannon Court	Pennington	10	40.83	1.93	451	4
Betty Avenue	Fulham Gardens	11	40.12	1.22	452	4
Garnet Street	West Croydon	18	39.18	0.28	453	4
Sunset Crescent	Grange	53	38.50	-0.40	454	4
Bond Street	Welland	19	39.34	0.44	455	4
Fourth Avenue	Cheltenham	35	40.11	1.21	456	4
Etna Avenue	Cheltenham	7	39.56	0.66	457	4
Cheltenham Lane	St Clair	8	42.22	3.32	458	4
Belgrave Avenue	Flinders Park	58	38.40	-0.50	459	4
Hamish Court	Seaton	7	38.99	0.09	460	4
Florence Street	Woodville	8	39.91	1.01	461	4
Granville Street	Semaphore Park	42	37.28	-1.62	462	4
Sheils Street	Findon	4	41.03	2.13	463	4
Blue Sails Court	West Lakes	15	41.37	2.47	464	4
Cedar Avenue	Flinders Park	12	39.20	0.30	465	4
McKenzie Court	Royal Park	20	38.89	-0.01	466	4
Rapson Street	Grange	26	37.65	-1.25	467	4
Circuit Drive	Hendon	48	40.30	1.40	468	4
George Street	Pennington	24	39.79	0.89	469	4
Rositano Avenue	Seaton	16	40.24	1.34	470	4
Cheadle Street	Fulham Gardens	60	38.19	-0.71	471	4
Keats Grove	Fulham Gardens	13	39.97	1.07	472	4
Barker Avenue	Findon	45	38.84	-0.06	473	4
Second Avenue	Cheltenham	32	39.25	0.35	474	4
Matheson Avenue	Findon	38	39.35	0.45	475	4
Wynette Street	Pennington	26	40.50	1.60	476	4
Nathan Court	Kidman Park	4	41.49	2.59	477	4
Grenada Court	West Lakes	9	39.66	0.76	478	4
Dunstan Court	Pennington	6	40.55	1.65	479	4
Lamont Street	Renown Park	25	39.07	0.17	480	4
Sportsmans Drive	West Lakes	112	38.19	-0.71	481	4
Kerry Street	Athol Park	8	41.79	2.89	482	4
Davis Street	Woodville South	30	40.10	1.20	483	4
Coppins Terrace	Fulham Gardens	20	39.77	0.87	484	4

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Poplar Street	West Beach	4	38.57	-0.33	485	4
Miami Court	Fulham Gardens	4	39.74	0.84	486	4
Kamo Way	West Lakes	6	40.35	1.45	487	4
Marlborough Crescent	Fulham Gardens	9	38.54	-0.36	488	4
Beth Court	Pennington	5	40.54	1.64	489	4
Esk Street	Woodville South	37	39.39	0.49	490	4
High Street	Cheltenham	46	40.23	1.33	491	4
Yellow Gum Avenue	Athol Park	7	41.19	2.29	492	4
Jamaica Avenue	Fulham Gardens	35	40.46	1.56	493	4
Todville Street	Woodville West	49	40.50	1.60	494	4
Roslyn Close	Fulham Gardens	4	40.76	1.86	495	4
Cedar Avenue	Royal Park	82	39.17	0.27	496	4
Holden Avenue	Woodville West	33	38.98	0.08	497	4
Amanda Avenue	Findon	15	39.39	0.49	498	4
Harrison Road	Pennington	43	39.80	0.90	499	4
Mitchell Street East	Seaton	26	40.83	1.93	500	4
Edwin Avenue	Pennington	5	40.08	1.18	501	4
Pine Street	Royal Park	22	40.41	1.51	502	4
Alexander Avenue	Grange	27	39.05	0.15	503	4
Headdey Court	Woodville South	12	38.90	0.00	504	4
Barrpowell Road	Welland	7	42.46	3.56	505	4
Wye Street	Woodville West	6	41.33	2.43	506	4
Keesing Place	West Lakes Shore	14	38.10	-0.80	507	4
First Avenue	Seaton	20	39.73	0.83	508	4
Frobisher Avenue	Flinders Park	34	40.27	1.37	509	4
Campbell Avenue	Seaton	10	38.57	-0.33	510	4
Fourth Avenue	Seaton	22	40.45	1.55	511	4
Sunningdale Road	Fulham Gardens	26	37.87	-1.03	512	4
Selth Street	Albert Park	49	40.70	1.80	513	4
Yampi Place	West Lakes	6	38.93	0.03	514	4
Jarman Terrace	Flinders Park	21	39.33	0.43	515	4
Middleton Drive	Seaton	25	37.98	-0.92	516	4
Woodlands Crescent	Beverly	12	40.48	1.58	517	4
Hawaii Court	West Lakes	33	38.54	-0.36	518	4
Stevens Street	Seaton	20	40.44	1.54	519	4
Amberley Court	Findon	4	40.91	2.01	520	4
Webb Street	Fulham Gardens	10	39.30	0.40	521	4
Skid Kids Court	Findon	4	40.15	1.25	522	4
Cork Street	Kidman Park	5	37.64	-1.26	523	4
Rose Avenue	Fulham Gardens	13	39.41	0.51	524	4
West Lakes Boulevard	West Lakes	131	38.94	0.04	525	5
Market Corner	Fulham Gardens	13	39.66	0.76	526	5
Driver Court	West Lakes	18	38.85	-0.05	527	5
Kanbara Street	Flinders Park	41	39.13	0.23	528	5
Manitoba Way	West Lakes	12	40.26	1.36	529	5

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Lock Street	Kidman Park	8	38.93	0.03	530	5
Georgia Avenue	Grange	27	37.50	-1.40	531	5
Hoskin Avenue	Kidman Park	23	40.33	1.43	532	5
Angley Avenue	Findon	45	40.03	1.13	533	5
Parkhouse Avenue	Seaton	17	39.93	1.03	534	5
Mason Street	West Beach	31	37.67	-1.23	535	5
Regency Road	Kilkenny	32	40.53	1.63	536	5
Herbert Street	Cheltenham	26	39.53	0.63	537	5
Recreation Parade	Semaphore Park	74	37.51	-1.39	538	5
Pioneer Street	Seaton	18	41.67	2.77	539	5
Bathurst Street	Athol Park	12	40.02	1.12	540	5
Wirringga Street	Flinders Park	21	37.60	-1.30	541	5
Sweeney Terrace	Woodville West	9	40.27	1.37	542	5
Tabard Avenue	Brompton	6	42.41	3.51	543	5
Heysen Crescent	West Lakes Shore	44	38.51	-0.39	544	5
Berkshire Street	Athol Park	7	41.11	2.21	545	5
Childs Avenue	Seaton	19	37.10	-1.80	546	5
Minna Terrace	Semaphore Park	18	38.05	-0.85	547	5
Jane Street	West Croydon	10	39.39	0.49	548	5
Mitton Avenue	Henley Beach	84	37.56	-1.34	549	5
Bolingbroke Avenue	Fulham Gardens	26	38.32	-0.58	550	5
Margaret Street	Kidman Park	30	39.07	0.17	551	5
Queen Street	Pennington	13	40.04	1.14	552	5
Rondo Avenue	Findon	32	40.90	2.00	553	5
Princess Street	Pennington	21	39.42	0.52	554	5
Colin Street	Findon	24	39.09	0.19	555	5
Greenshields Place	Ridleyton	10	40.47	1.57	556	5
Alfred Avenue	Seaton	36	39.31	0.41	557	5
White Avenue	Athol Park	9	41.46	2.56	558	5
Lytham Place	West Lakes	11	38.21	-0.69	559	5
Cluse Street	Henley Beach	6	38.97	0.07	560	5
Classic Court	West Lakes	13	38.64	-0.26	561	5
Drake Avenue	Flinders Park	59	39.67	0.77	562	5
Sparrow Court	Seaton	10	38.67	-0.23	563	5
Oakley Street	Semaphore Park	13	36.85	-2.05	564	5
White Terrace	Fulham Gardens	33	38.09	-0.81	565	5
May Street	Albert Park	8	41.94	3.04	566	5
West Lakes Boulevard	Royal Park	54	39.05	0.15	567	5
Alma Terrace	Woodville West	27	40.87	1.97	568	5
York Avenue	Fulham Gardens	34	37.46	-1.44	569	5
Fortrose Avenue	Seaton	27	40.59	1.69	570	5
Kersley Court	Brompton	4	41.34	2.44	571	5
Hardy Street	Findon	20	38.96	0.06	572	5
Nesbit Street	Albert Park	22	40.69	1.79	573	5

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Fletcher Road	Henley Beach South	61	37.41	-1.49	574	5
Findon Road	Woodville West	56	41.34	2.44	575	5
Swan Street	Grange	45	38.16	-0.74	576	5
Egras Avenue	Fulham Gardens	12	40.22	1.32	577	5
Glen Lossie Street	Woodville South	45	38.87	-0.03	578	5
Eucalypt Avenue	Flinders Park	9	38.03	-0.87	579	5
Eildon Court	West Lakes	12	38.46	-0.44	580	5
Illawarra Court	West Lakes Shore	8	38.54	-0.36	581	5
Laver Crescent	West Lakes Shore	26	37.40	-1.50	582	5
Milton Avenue	Fulham Gardens	23	39.55	0.65	583	5
Burleigh Avenue	Woodville North	17	41.47	2.57	584	5
Stonehaven Street	Pennington	29	40.37	1.47	585	5
Spurs Avenue	Brompton	6	41.47	2.57	586	5
Flavel Place	Grange	8	40.00	1.10	587	5
Finke Avenue	West Lakes Shore	21	37.51	-1.39	588	5
Addison Road	Pennington	55	39.85	0.95	589	5
Cole Avenue	Findon	7	40.21	1.31	590	5
Eleventh Avenue	Woodville North	18	39.36	0.46	591	5
Gray Street	West Beach	38	36.98	-1.92	592	5
Clay Court	Pennington	3	41.05	2.15	593	5
Motley Avenue	Kidman Park	7	38.60	-0.30	594	5
Martin Court	West Lakes	61	39.01	0.11	595	5
Burns Avenue	Kidman Park	11	39.33	0.43	596	5
Marabou Street	Semaphore Park	18	38.35	-0.55	597	5
Alicia Street	Athol Park	19	40.12	1.22	598	5
Stroud Street South	Cheltenham	34	39.81	0.91	599	5
Cyprus Grove	Flinders Park	6	39.18	0.28	600	5
Levi Street	Woodville West	25	39.24	0.34	601	5
Lambros Avenue	Seaton	9	39.28	0.38	602	5
Yalpara Avenue	Seaton	14	40.27	1.37	603	5
Regina Court	Beverly	6	39.58	0.68	604	5
Grange Court	Findon	6	41.11	2.21	605	5
Blanford Street	West Croydon	25	39.65	0.75	606	5
Thiele Crescent	West Lakes Shore	30	37.29	-1.61	607	5
Bollen Street	Kilkenny	8	41.19	2.29	608	5
McLean Avenue	Grange	13	38.57	-0.33	609	5
Avalon Avenue	Flinders Park	8	39.18	0.28	610	5
HMAS Australia Road	Henley Beach South	118	37.15	-1.75	611	5
Chetwynd Street	West Beach	18	39.58	0.68	612	5
Dring Avenue	Findon	9	39.77	0.87	613	5
Machin Street	Woodville South	8	39.80	0.90	614	5
Morton Street	Kidman Park	10	40.63	1.73	615	5
Mountbatten Terrace	Flinders Park	43	39.32	0.42	616	5

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Gosport Street	Renown Park	12	41.85	2.95	617	5
Kooyonga Grove	West Lakes	10	36.93	-1.97	618	5
Maui Court	West Lakes	8	38.80	-0.10	619	5
Hindmarsh Avenue	West Hindmarsh	11	39.51	0.61	620	5
Teak Street	Flinders Park	13	37.94	-0.96	621	5
York Place	Woodville North	21	41.11	2.21	622	5
Scotia Street	West Croydon	10	41.06	2.16	623	5
Maramba Avenue	West Lakes	22	40.24	1.34	624	5
Rosalia Court	Kidman Park	15	38.91	0.01	625	5
Olive Street	Seaton	17	40.09	1.19	626	5
Royal Terrace	Royal Park	42	39.67	0.77	627	5
Barker Avenue	Flinders Park	21	39.20	0.30	628	5
Valetta Road	Fulham Gardens	35	39.88	0.98	629	5
Price Avenue	Pennington	23	40.66	1.76	630	5
Holles Street	Brompton	8	41.57	2.67	631	5
Whitmont Court	Fulham Gardens	6	38.95	0.05	632	5
Hawkins Avenue	Flinders Park	18	39.91	1.01	633	5
Shirley Avenue	Woodville West	35	38.01	-0.89	634	5
Bahamas Grove	West Lakes	14	37.81	-1.09	635	5
James Street	Woodville West	43	38.71	-0.19	636	5
Devonshire Avenue	Fulham Gardens	30	38.87	-0.03	637	5
Moorfield Terrace	Welland	5	39.76	0.86	638	5
Yvonne Street	Athol Park	8	39.93	1.03	639	5
Park Avenue	Athol Park	16	40.85	1.95	640	5
Michigan Court	West Lakes	11	39.78	0.88	641	5
Classic Lane	St Clair	5	40.54	1.64	642	5
Tonellato Place	Kidman Park	9	38.83	-0.07	643	5
East Street	Hindmarsh	3	42.79	3.89	644	5
Pennington Terrace	Pennington	18	40.94	2.04	645	5
Millicent Street	Athol Park	33	40.92	2.02	646	5
Jellicoe Street	Flinders Park	25	39.41	0.51	647	5
Marlborough Place	Fulham Gardens	8	38.68	-0.22	648	5
Joan Avenue	Fulham Gardens	8	40.34	1.44	649	5
Wright Street	Royal Park	10	39.90	1.00	650	5
Lucas Street	Woodville South	22	39.90	1.00	651	5
Bishop Street	Renown Park	18	41.24	2.34	652	5
Riverway	Fulham Gardens	42	38.73	-0.17	653	5
Dartmouth Street	West Croydon	9	41.28	2.38	654	5
Greenfield Crescent	West Lakes Shore	47	37.80	-1.10	655	5
Strathbogie Avenue	Findon	21	38.57	-0.33	656	5
Hamilton Street	Allenby Gardens	4	41.35	2.45	657	5
Hartley Road	Flinders Park	73	39.68	0.78	658	5
Glenroy Street	Pennington	28	41.97	3.07	659	5
Lonsdale Street	Woodville North	43	39.45	0.55	660	5
Reserve Parade	Findon	50	39.32	0.42	661	5

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Clarice Avenue	Seaton	11	39.31	0.41	662	5
Deakin Avenue	Royal Park	16	38.60	-0.30	663	5
Crafter Street	Grange	11	40.35	1.45	664	5
Minns Street West	Seaton	16	40.24	1.34	665	5
Phillips Street	Henley Beach South	21	36.54	-2.36	666	5
Merlin Court	Fulham Gardens	3	40.58	1.68	667	5
May Street	Woodville West	46	40.30	1.40	668	5
Ruby Avenue	Seaton	11	38.50	-0.40	669	5
Thompson Street	Grange	9	41.78	2.88	670	5
Carlton Crescent	Pennington	11	41.83	2.93	671	5
Dean Avenue	Kidman Park	7	40.43	1.53	672	5
Twelfth Avenue	Woodville North	14	39.87	0.97	673	5
The Avenue	Athol Park	33	40.44	1.54	674	5
Radstock Street	Woodville Park	24	39.06	0.16	675	5
Crampton Court	West Lakes	5	41.25	2.35	676	5
Blight Street	Renown Park	5	42.64	3.74	677	5
Bega Court	West Lakes	6	38.98	0.08	678	5
Arnold Street	Royal Park	11	39.61	0.71	679	5
Fourth Place	Brompton	3	40.21	1.31	680	5
Bond Court	Woodville North	7	39.69	0.79	681	5
Ian Street	Grange	9	37.57	-1.33	682	5
Fleetwood Crescent	Henley Beach	33	36.71	-2.19	683	5
Fergusson Avenue	Kidman Park	24	39.17	0.27	684	5
Palm Avenue	Royal Park	74	38.24	-0.66	685	6
Daly Crescent	West Lakes Shore	30	37.30	-1.60	686	6
Hallville Street	Seaton	23	40.50	1.60	687	6
Yorke Terrace	Royal Park	10	40.50	1.60	688	6
Gale Street	Henley Beach	6	38.84	-0.06	689	6
Gaskin Road	Flinders Park	15	39.62	0.72	690	6
First Avenue	Cheltenham	30	39.45	0.55	691	6
Pham Close	Pennington	3	40.93	2.03	692	6
Buckingham Avenue	Fulham Gardens	24	38.30	-0.60	693	6
Ohio Court	Fulham Gardens	4	39.63	0.73	694	6
Beatty Street	Flinders Park	23	39.63	0.73	695	6
Tatura Crescent	Fulham Gardens	11	39.34	0.44	696	6
Ranelagh Street	Brompton	7	41.30	2.40	697	6
Crane Place	Seaton	6	38.92	0.02	698	6
Lines Street	Grange	42	37.34	-1.56	699	6
Hill Street	Woodville South	26	38.39	-0.51	700	6
Frost Place	Brompton	1	43.42	4.52	701	6
Farr Street	Woodville North	29	38.58	-0.32	702	6
Butler Drive	Hendon	29	39.28	0.38	703	6
Leslie Street East	Woodville Park	19	39.29	0.39	704	6
Seventh Avenue	Cheltenham	33	39.64	0.74	705	6

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Everest Street	Henley Beach	21	39.69	0.79	706	6
Collingwood Avenue	Flinders Park	44	39.98	1.08	707	6
Ballestrin Court	Flinders Park	4	39.56	0.66	708	6
West Lakes Boulevard	Seaton	8	41.02	2.12	709	6
Michelle Street	Grange	6	38.19	-0.71	710	6
Sarah Court	Pennington	6	38.48	-0.42	711	6
Brand Avenue	Allenby Gardens	26	39.37	0.47	712	6
Leeds Crescent	Woodville North	5	40.87	1.97	713	6
Tomkinson Road	Semaphore Park	34	37.39	-1.51	714	6
St Albans Terrace	Semaphore Park	36	37.49	-1.41	715	6
Thistle Avenue	Flinders Park	26	38.85	-0.05	716	6
Anglers Court	West Lakes Shore	11	38.28	-0.62	717	6
Bower Road	West Lakes	17	37.63	-1.27	718	6
Lullworth Street	West Lakes	7	39.27	0.37	719	6
Flinders Parade	Flinders Park	70	39.45	0.55	720	6
Alison Street	Athol Park	8	39.15	0.25	721	6
Morley Road	Albert Park	5	41.45	2.55	722	6
Tapleys Hill Road	Fulham Gardens	97	40.25	1.35	723	6
George Street	Royal Park	31	39.75	0.85	724	6
Van Dieman Street	Flinders Park	15	37.54	-1.36	725	6
Pope Street	Beverly	37	40.02	1.12	726	6
Blackwood Court	Athol Park	2	42.44	3.54	727	6
Tenth Avenue	Woodville North	14	39.69	0.79	728	6
Gurner Terrace	Grange	20	37.81	-1.09	729	6
McDonald Grove	West Lakes	39	38.58	-0.32	730	6
Sheffield Street	Woodville North	13	39.61	0.71	731	6
Falkirk Avenue	Seaton	22	41.01	2.11	732	6
Varcoe Street	Henley Beach	12	38.80	-0.10	733	6
Harrison Road	Renown Park	16	42.23	3.33	734	6
Valetta Road	Kidman Park	55	40.31	1.41	735	6
Burnett Crescent	Semaphore Park	25	37.35	-1.55	736	6
Rosemont Street	Kidman Park	11	38.55	-0.35	737	6
Johnson Street	Royal Park	30	38.40	-0.50	738	6
Ingrid Avenue	Flinders Park	6	39.27	0.37	739	6
Sage Crescent	Woodville West	13	39.82	0.92	740	6
Golding Street	Beverly	39	39.36	0.46	741	6
Webb Street	Henley Beach	40	38.03	-0.87	742	6
Belfast Street	Fulham Gardens	8	39.64	0.74	743	6
McQuillan Avenue	Renown Park	21	40.98	2.08	744	6
Lilac Avenue	Flinders Park	22	38.89	-0.01	745	6
Charles Street	West Lakes	57	36.97	-1.93	746	6
Port Road	Albert Park	39	41.65	2.75	747	6
Franklin Avenue	Flinders Park	22	39.66	0.76	748	6
Ivor Court	Fulham Gardens	2	41.55	2.65	749	6
Cappers Drive	Brompton	5	42.56	3.66	750	6

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Alexander Street	Royal Park	14	39.78	0.88	751	6
Powell Court	West Lakes	8	40.43	1.53	752	6
Suffolk Avenue	Fulham Gardens	28	38.28	-0.62	753	6
Arthur Street	Pennington	46	40.30	1.40	754	6
Glenavon Street	Woodville South	43	39.25	0.35	755	6
Prion Place	Semaphore Park	11	37.31	-1.59	756	6
Birch Street	Woodville South	4	41.18	2.28	757	6
Lakeview Avenue	West Lakes	47	38.24	-0.66	758	6
Rainbow Street	Grange	8	38.08	-0.82	759	6
Malken Way	Findon	7	38.09	-0.81	760	6
Grange Road	Flinders Park	85	40.07	1.17	761	6
Firbank Avenue	Fulham Gardens	23	37.95	-0.95	762	6
Robert Forest Court	Ridleyton	2	41.95	3.05	763	6
John Ridley Place	Ridleyton	2	41.93	3.03	764	6
Moody Street	Woodville West	15	38.87	-0.03	765	6
Oakdale Avenue	Fulham Gardens	8	38.66	-0.24	766	6
Regent Street	Pennington	15	40.04	1.14	767	6
Banks Avenue	Flinders Park	14	38.79	-0.11	768	6
Newcombe Avenue	West Lakes Shore	67	37.86	-1.04	769	6
Hoover Road	Henley Beach South	18	37.25	-1.65	770	6
Minns Street East	Woodville West	4	41.96	3.06	771	6
Lochside Drive	West Lakes	142	38.49	-0.41	772	6
Beck Street	Henley Beach	33	36.96	-1.94	773	6
Ford Crescent	Fulham Gardens	5	37.19	-1.71	774	6
Miller Street	Kidman Park	6	40.76	1.86	775	6
Cannes Avenue	Grange	6	39.03	0.13	776	6
Lachlan Avenue	Woodville West	17	40.45	1.55	777	6
William Langman Circuit	Ridleyton	7	42.40	3.50	778	6
Malcolm Street	Flinders Park	19	39.02	0.12	779	6
Arlington Terrace	Welland	37	40.72	1.82	780	6
Hodgeman Road	Pennington	24	39.61	0.71	781	6
Heron Place	Seaton	5	39.67	0.77	782	6
Findon Road	Findon	68	40.28	1.38	783	6
Napier Street	Renown Park	8	41.62	2.72	784	6
Box Court	Woodville North	3	41.09	2.19	785	6
Sharpie Crescent	Grange	32	38.78	-0.12	786	6
Glen Rowan Road	Woodville South	45	38.28	-0.62	787	6
Osborne Street	Albert Park	19	40.46	1.56	788	6
Ranelagh Street	Woodville Park	27	38.75	-0.15	789	6
Adele Street	Athol Park	21	38.92	0.02	790	6
Catherine Avenue	Flinders Park	12	39.35	0.45	791	6
Ninth Avenue	Woodville North	31	40.96	2.06	792	6
Grady Way	Grange	17	39.12	0.22	793	6
Agnes Street	Seaton	8	40.98	2.08	794	6

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Dominion Avenue	Findon	9	40.76	1.86	795	6
Fischer Street	Welland	14	39.52	0.62	796	6
Kamber Grove	West Lakes Shore	8	38.06	-0.84	797	6
Weemala Street	Flinders Park	16	39.01	0.11	798	6
Copley Street	Kilkenny	18	39.83	0.93	799	6
Shannon Street	Fulham Gardens	8	39.51	0.61	800	6
Bartley Terrace	Semaphore Park	24	40.94	2.04	801	6
Jersey Terrace	Woodville	8	39.35	0.45	802	6
Hero Way	West Lakes	26	39.32	0.42	803	6
Maple Avenue	Royal Park	68	38.38	-0.52	804	6
Silver Crescent	Grange	22	36.97	-1.93	805	6
Croydon Avenue	West Croydon	56	38.99	0.09	806	6
Sinclair Street	Grange	10	38.53	-0.37	807	6
Ellen Street	West Croydon	13	42.70	3.80	808	6
Birdwood Avenue	Allenby Gardens	9	40.93	2.03	809	6
Little Avenue	Fulham Gardens	4	38.57	-0.33	810	6
Vivian Street	Henley Beach	20	37.73	-1.17	811	6
Trapp Avenue	Seaton	18	38.43	-0.47	812	6
Drysdale Court	West Lakes Shore	10	38.85	-0.05	813	6
Parukala Street	Flinders Park	16	39.74	0.84	814	6
George Street	Fulham Gardens	4	39.01	0.11	815	6
Tracey Avenue	Flinders Park	16	38.43	-0.47	816	6
Fairbanks Street	Beverly	12	38.81	-0.09	817	6
Geoffrey Street	Allenby Gardens	8	39.41	0.51	818	6
Westmoreland Road	Grange	27	38.71	-0.19	819	6
Clark Terrace	Albert Park	2	41.67	2.77	820	6
Sansom Street	Woodville North	14	39.80	0.90	821	6
Swann Avenue	Flinders Park	14	39.11	0.21	822	6
Ray Street	Findon	16	39.89	0.99	823	6
Hume Court	Flinders Park	4	40.07	1.17	824	6
McGrath Court	Allenby Gardens	4	37.59	-1.31	825	6
Connaught Street	Grange	10	39.34	0.44	826	6
Hobart Road	Henley Beach South	33	37.81	-1.09	827	6
Simmons Crescent	Flinders Park	15	39.26	0.36	828	6
Mill Street	Seaton	19	40.85	1.95	829	6
Dineen Place	West Beach	13	37.69	-1.21	830	6
Tudor Avenue	Fulham Gardens	8	38.19	-0.71	831	6
Fifth Avenue	Semaphore Park	24	38.32	-0.58	832	6
Henry Street	West Croydon	22	39.48	0.58	833	6
Bagshaw Street	West Beach	9	37.40	-1.50	834	6
Honolulu Grove	West Lakes	8	37.79	-1.11	835	6
Keele Place	Kidman Park	5	40.16	1.26	836	6
Wharfe Street	Woodville South	14	38.36	-0.54	837	6
Noora Place	Semaphore Park	5	38.82	-0.08	838	6

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Gibson Street	West Beach	38	37.90	-1.00	839	6
Enid Court	Fulham Gardens	4	39.00	0.10	840	6
Trimmer Parade	West Lakes	29	39.02	0.12	841	6
Arndale Street	Kilkenny	7	41.66	2.76	842	6
Wattle Avenue	Royal Park	64	38.58	-0.32	843	6
Mooloola Way	West Lakes Shore	31	38.05	-0.85	844	6
Oriole Place	Semaphore Park	8	37.49	-1.41	845	6
Wastell Court	Pennington	7	40.01	1.11	846	6
Prinse Street	West Beach	22	38.07	-0.83	847	6
Bulahdelah Court	West Lakes Shore	13	37.14	-1.76	848	6
Samoa Court	West Lakes	28	37.31	-1.59	849	6
Rockingham Street	West Beach	20	37.52	-1.38	850	6
Audley Street	Woodville North	40	40.56	1.66	851	7
Le Cornu Street	Allenby Gardens	5	40.29	1.39	852	7
Park Avenue	Woodville North	29	39.18	0.28	853	7
Andrew Street	Hendon	21	39.08	0.18	854	7
Gerard Road	Flinders Park	12	39.29	0.39	855	7
Henry Moss Court	Ridleyton	1	42.79	3.89	856	7
Ferris Street	Renown Park	8	40.14	1.24	857	7
Cheviot Street	Woodville South	6	39.10	0.20	858	7
Jasmine Grove	Fulham Gardens	19	38.60	-0.30	859	7
Plover Grove	Semaphore Park	16	37.70	-1.20	860	7
Cheltenham Parade	Cheltenham	34	41.60	2.70	861	7
Goodall Avenue	Kilkenny	19	40.78	1.88	862	7
Richardson Street	Woodville North	4	40.92	2.02	863	7
Ord Close	West Lakes Shore	5	39.02	0.12	864	7
Fisher Terrace	Fulham Gardens	42	37.43	-1.47	865	7
Carbone Terrace	St Clair	1	43.02	4.12	866	7
Norton Avenue	Fulham Gardens	6	36.40	-2.50	867	7
Antigua Grove	West Lakes	30	39.11	0.21	868	7
Gluyas Avenue	Grange	12	38.54	-0.36	869	7
Guineas Place	St Clair	3	41.70	2.80	870	7
Green View Drive	Grange	18	37.44	-1.46	871	7
Delta Court	Athol Park	2	39.83	0.93	872	7
Bolingbroke Avenue	Devon Park	2	42.26	3.36	873	7
Whitmont Court	Kidman Park	6	37.12	-1.78	874	7
Caskey Street	Woodville North	23	39.58	0.68	875	7
Gill Court	Semaphore Park	7	37.78	-1.12	876	7
Surrey Street	Grange	31	38.93	0.03	877	7
Kent Avenue	Fulham Gardens	24	38.21	-0.69	878	7
Sonia Street	Grange	1	43.04	4.14	879	7
Hindmarsh Avenue	Welland	9	40.91	2.01	880	7
Durham Terrace	Royal Park	13	40.03	1.13	881	7
Gray Street	Woodville West	8	40.01	1.11	882	7
Honey Street	Woodville North	7	40.02	1.12	883	7

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Belinda Court	Fulham Gardens	3	40.71	1.81	884	7
Kirkcaldy Avenue	Grange	25	36.09	-2.81	885	7
Frederick Road	West Lakes	114	39.55	0.65	886	7
Percy Street	Cheltenham	17	39.72	0.82	887	7
Ralph Avenue	West Croydon	11	40.30	1.40	888	7
Chambers Street	Henley Beach	51	37.97	-0.93	889	7
Park Drive	Kidman Park	15	37.06	-1.84	890	7
Ward Street	Pennington	21	39.86	0.96	891	7
Diane Place	Grange	8	38.30	-0.60	892	7
Fairford Terrace	Semaphore Park	44	37.56	-1.34	893	7
Fourteenth Avenue	Woodville North	12	39.01	0.11	894	7
Gum Street	Royal Park	5	39.56	0.66	895	7
Grey Avenue	West Hindmarsh	14	40.20	1.30	896	7
Gordon Street	Albert Park	29	41.71	2.81	897	7
High Street	Grange	60	37.45	-1.45	898	7
Douglas Street	Flinders Park	27	39.12	0.22	899	7
Russ Avenue	Seaton	39	39.45	0.55	900	7
Beeston Way	West Lakes	37	38.31	-0.59	901	7
Everard Court	West Lakes	6	38.16	-0.74	902	7
McMurray Avenue	Seaton	12	38.67	-0.23	903	7
Bedford Street	Croydon	7	40.84	1.94	904	7
McEwin Street	Renown Park	2	43.03	4.13	905	7
Pitcairn Grove	West Lakes	15	38.07	-0.83	906	7
Dutton Grove	West Lakes Shore	10	38.78	-0.12	907	7
Corcoran Drive	West Lakes	103	38.88	-0.02	908	7
Barry Street	Henley Beach	8	37.29	-1.61	909	7
Fraser Street	Woodville South	16	39.99	1.09	910	7
Winall Street	Findon	6	39.34	0.44	911	7
View Avenue	Seaton	18	38.55	-0.35	912	7
Nareeda Way	West Lakes	16	39.13	0.23	913	7
Marlborough Street	Fulham Gardens	35	39.21	0.31	914	7
Varram Way	West Lakes Shore	23	38.49	-0.41	915	7
Young Street	Findon	12	38.85	-0.05	916	7
Spence Street	Albert Park	8	41.68	2.78	917	7
Yamba Grove	West Lakes Shore	6	38.43	-0.47	918	7
Willow Court	Fulham Gardens	12	38.47	-0.43	919	7
Anne Street	Hindmarsh	1	43.11	4.21	920	7
Haddy Street	Cheltenham	6	40.12	1.22	921	7
Tasman Avenue	Flinders Park	21	39.53	0.63	922	7
Red Shed Lane	Bowden	3	41.43	2.53	923	7
Mara Place	West Lakes	7	38.32	-0.58	924	7
McMahon Place	Seaton	10	39.80	0.90	925	7
Baker Street	Grange	16	38.18	-0.72	926	7
Albert Street	Seaton	11	39.71	0.81	927	7
Herbert Street	Albert Park	8	40.81	1.91	928	7

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Crowle Grove	West Lakes Shore	12	38.33	-0.57	929	7
Liberman Court	West Lakes	27	38.93	0.03	930	7
Tahiti Place	West Lakes	8	37.33	-1.57	931	7
Wedge Court	Seaton	8	38.28	-0.62	932	7
Poole Avenue	Woodville South	16	39.99	1.09	933	7
Dawkins Avenue	Seaton	8	41.16	2.26	934	7
Ibis Court	Semaphore Park	12	37.75	-1.15	935	7
Simcock Street	West Beach	29	37.76	-1.14	936	7
Heading Street	West Croydon	12	39.69	0.79	937	7
Boronia Street	Flinders Park	12	39.21	0.31	938	7
Leo Street	Woodville North	3	40.88	1.98	939	7
Guild Place	Bowden	0	43.64	4.74	940	7
Dover Street	Royal Park	12	38.50	-0.40	941	7
Park Terrace	Bowden	6	42.73	3.83	942	7
Traphen Court	Seaton	4	38.61	-0.29	943	7
East Street	Brompton	24	41.88	2.98	944	7
Kentdale Street	Grange	25	36.14	-2.76	945	7
Alderman Avenue	Pennington	7	40.86	1.96	946	7
Dunk Crescent	Grange	2	40.78	1.88	947	7
Gate Street	St Clair	2	41.73	2.83	948	7
Motley Avenue	Fulham Gardens	8	40.06	1.16	949	7
Harold Street	Seaton	9	38.79	-0.11	950	7
Primrose Court	Grange	2	42.28	3.38	951	7
Trainer Street	St Clair	5	42.08	3.18	952	7
Tilly Court	Brompton	0	43.60	4.70	953	7
Edwin Street	West Lakes Shore	21	38.79	-0.11	954	7
Wylde Street	Kidman Park	5	38.18	-0.72	955	7
Keating Court	West Lakes Shore	11	38.30	-0.60	956	7
Ledger Road	Woodville South	26	41.93	3.03	957	7
Main Street	Henley Beach	15	38.11	-0.79	958	7
Oak Street	Royal Park	10	40.10	1.20	959	7
Philips Crescent	Hendon	6	41.33	2.43	960	7
Malin Street	Albert Park	11	41.44	2.54	961	7
Glen Eira Street	Woodville South	27	39.03	0.13	962	7
Dampier Avenue	Flinders Park	15	39.50	0.60	963	7
Trimmer Parade	Grange	84	38.43	-0.47	964	7
Boyd Street	Pennington	8	41.21	2.31	965	7
Carpa Street	Woodville	6	39.46	0.56	966	7
Willowie Street	Albert Park	9	40.00	1.10	967	7
Port Road	Hindmarsh	13	42.97	4.07	968	7
West Lakes Boulevard	Hendon	19	40.85	1.95	969	7
Kingsley Avenue	West Croydon	32	38.39	-0.51	970	7
West Lakes Boulevard	Albert Park	33	41.19	2.29	971	7
Fisher Street	Royal Park	9	38.83	-0.07	972	7
Franklin Street	Henley Beach	11	37.82	-1.08	973	7

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
De Haviland Avenue	Hendon	17	40.11	1.21	974	7
Porter Crescent	Fulham Gardens	8	37.40	-1.50	975	7
Balmoral Street	Woodville Park	21	38.21	-0.69	976	7
Todville Street	Seaton	9	41.40	2.50	977	7
Paul Court	Fulham Gardens	2	40.84	1.94	978	7
Way Terrace	Allenby Gardens	0	43.50	4.60	979	7
Edward Parade	Semaphore Park	5	38.73	-0.17	980	7
Uriah Place	West Lakes Shore	9	36.36	-2.54	981	7
Santiago Street	West Lakes Shore	22	37.93	-0.97	982	7
Mayfair Drive	West Beach	31	37.24	-1.66	983	7
Par Crescent	Grange	13	38.44	-0.46	984	7
Dixon Street	Royal Park	29	37.80	-1.10	985	7
Emma Court	Grange	3	39.57	0.67	986	7
Amy Street	West Croydon	15	40.23	1.33	987	7
Grant Place	Flinders Park	5	40.17	1.27	988	7
Military Road	Tennyson	180	36.67	-2.23	989	7
MacQuarrie Court	West Lakes Shore	10	37.64	-1.26	990	7
Sopwith Avenue	Hendon	14	40.13	1.23	991	7
Kristoff Avenue	Fulham Gardens	6	38.02	-0.88	992	7
Tapleys Hill Road	Seaton	102	40.34	1.44	993	7
Willochra Avenue	Grange	10	38.47	-0.43	994	7
Barwick Street	Flinders Park	9	38.87	-0.03	995	7
Peters Avenue	Fulham Gardens	11	38.54	-0.36	996	7
Lakeside Court	Tennyson	23	36.60	-2.30	997	7
Riverside Drive	Henley Beach	11	37.25	-1.65	998	7
Olveston Avenue	Beverly	14	40.13	1.23	999	7
Royal Close	Findon	5	39.09	0.19	1000	7
Stokes Crescent	Kidman Park	20	39.14	0.24	1001	7
St Albyns Street	Findon	16	39.33	0.43	1002	7
Dora Court	Renown Park	2	39.57	0.67	1003	7
Jean Street	Woodville West	15	39.14	0.24	1004	7
Sheridan Street	Woodville North	43	38.68	-0.22	1005	7
David Terrace	Woodville Park	38	39.93	1.03	1006	7
Colston Street	Cheltenham	15	41.10	2.20	1007	7
Thornton Street	Henley Beach South	14	36.78	-2.12	1008	7
Hill Smith Boulevard	St Clair	9	41.18	2.28	1009	7
Lily Avenue	Seaton	9	38.30	-0.60	1010	7
Ormonde Avenue	Pennington	9	38.35	-0.55	1011	7
Claire Street	Woodville West	23	38.90	0.00	1012	7
Mary Ann Street	West Lakes	5	39.57	0.67	1013	7
Jane Flaxman Court	West Lakes	4	40.49	1.59	1014	7
Clegowie Street	West Beach	13	38.37	-0.53	1015	7
Redman Court	Woodville	5	39.20	0.30	1016	7
Teal Grove	Semaphore Park	12	37.96	-0.94	1017	7

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Mirani Court	Semaphore Park	4	40.07	1.17	1018	7
Hurstfield Terrace	Findon	18	40.13	1.23	1019	7
Dee Street	Woodville South	16	39.12	0.22	1020	7
Winterlake Way	Kidman Park	3	41.62	2.72	1021	7
Wright Street	Renown Park	8	41.88	2.98	1022	7
Rowell Crescent	West Croydon	31	38.65	-0.25	1023	7
Cameo Street	St Clair	6	40.76	1.86	1024	7
Eighth Street	Bowden	5	41.61	2.71	1025	7
Parana Street	Flinders Park	10	40.01	1.11	1026	7
Bayly Street	Hendon	11	41.16	2.26	1027	7
Jillian Court	Fulham Gardens	4	39.55	0.65	1028	7
Reynell Street	West Croydon	27	39.75	0.85	1029	7
Aberdeen Crescent	Findon	10	39.10	0.20	1030	7
Rofe Court	Woodville Park	8	39.04	0.14	1031	7
Church Street	Bowden	0	43.27	4.37	1032	7
Fife Street	Woodville South	27	40.42	1.52	1033	7
Jessup Street	Kidman Park	6	39.38	0.48	1034	7
Kaye Street	Fulham Gardens	7	40.23	1.33	1035	7
Second Street	Bowden	3	42.60	3.70	1036	7
Koolunda Avenue	Woodville South	23	40.46	1.56	1037	7
Clay Court	Renown Park	1	42.50	3.60	1038	7
Grandstand Circuit	St Clair	6	40.41	1.51	1039	7
Sylvan Way	Grange	37	38.37	-0.53	1040	7
Burt Avenue	Findon	5	39.72	0.82	1041	7
First Avenue	Semaphore Park	30	37.48	-1.42	1042	7
Charles Sturt Avenue	Grange	66	37.81	-1.09	1043	7
St Clair Avenue	St Clair	53	40.08	1.18	1044	7
Willby Court	Fulham Gardens	2	40.95	2.05	1045	7
Meakin Terrace	Seaton	45	38.62	-0.28	1046	7
Plenty Place	Bowden	0	43.21	4.31	1047	7
Bode Street	Henley Beach South	16	36.93	-1.97	1048	7
Woodstock Street	Cheltenham	24	39.44	0.54	1049	7
Buller Terrace	Cheltenham	27	40.86	1.96	1050	7
Dartmouth Street	Croydon	5	40.47	1.57	1051	7
Rollands Street	Woodville South	7	39.89	0.99	1052	7
Angus Street	Woodville South	12	39.28	0.38	1053	7
Lavinia Street	Athol Park	22	40.63	1.73	1054	7
Third Street	Brompton	4	42.54	3.64	1055	7
Birdie Court	Grange	3	39.05	0.15	1056	7
Grampian Street	Woodville South	12	38.06	-0.84	1057	7
Grange Road	Findon	48	41.11	2.21	1058	7
Brentwood Road	Flinders Park	12	39.08	0.18	1059	7
Grange Road	Allenby Gardens	14	40.32	1.42	1060	8
Raleigh Avenue	Flinders Park	17	39.51	0.61	1061	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Kirra Avenue	West Lakes Shore	11	38.26	-0.64	1062	8
Humphries Terrace	Kilkenny	26	39.82	0.92	1063	8
Monaco Crescent	Grange	20	38.88	-0.02	1064	8
Bermuda Avenue	West Lakes Shore	23	38.23	-0.67	1065	8
Batty Place	Woodville South	3	39.77	0.87	1066	8
Riverway	Kidman Park	51	36.86	-2.04	1067	8
Watson Street	Beverly	6	40.53	1.63	1068	8
Audrey Street	Tennyson	5	39.51	0.61	1069	8
Cooba Way	West Lakes	18	37.69	-1.21	1070	8
Anderson Street	Fulham Gardens	13	38.36	-0.54	1071	8
Scotia Street	Croydon	3	40.72	1.82	1072	8
Frederick Road	Grange	95	39.92	1.02	1073	8
Madeline Crescent	Fulham Gardens	25	38.74	-0.16	1074	8
Miell Street	West Croydon	4	40.22	1.32	1075	8
Palmer Court	Devon Park	2	40.56	1.66	1076	8
Sutherland Avenue	Semaphore Park	29	37.04	-1.86	1077	8
Brand Avenue	Welland	3	41.97	3.07	1078	8
Seaview Road	West Beach	89	37.53	-1.37	1079	8
Furlong Drive	St Clair	16	40.16	1.26	1080	8
Kincaid Road	Henley Beach South	33	36.61	-2.29	1081	8
Baudin Avenue	Flinders Park	12	39.93	1.03	1082	8
Nolan Place	West Lakes Shore	6	39.11	0.21	1083	8
Fiji Place	West Lakes	10	37.27	-1.63	1084	8
Adam Street	Hindmarsh	12	42.09	3.19	1085	8
Poplar Street	Royal Park	16	39.49	0.59	1086	8
Stanford Crescent	Fulham Gardens	17	38.49	-0.41	1087	8
Hawke Street	Albert Park	6	41.49	2.59	1088	8
Kopcheff Avenue	Fulham Gardens	11	38.99	0.09	1089	8
Ariel Street	Pennington	7	40.43	1.53	1090	8
Blackburn Court	Kilkenny	0	43.02	4.12	1091	8
Glenroy Street	Athol Park	20	41.07	2.17	1092	8
Fourth Street	Bowden	2	42.53	3.63	1093	8
Ann Place	Renown Park	2	40.82	1.92	1094	8
Noble Street	Ovingham	6	41.51	2.61	1095	8
Curlew Court	Semaphore Park	5	37.44	-1.46	1096	8
Atkin Street	Henley Beach	25	37.65	-1.25	1097	8
Sansom Road	Semaphore Park	69	38.08	-0.82	1098	8
Lorraine Lee Court	Grange	2	41.58	2.68	1099	8
Spring Street	Beverly	10	40.73	1.83	1100	8
Kingston Avenue	Royal Park	14	38.94	0.04	1101	8
Morley Road	Hendon	1	42.18	3.28	1102	8
Alfreda Street	Athol Park	7	39.84	0.94	1103	8
Cricksdale Street	Cheltenham	3	42.15	3.25	1104	8
Bartlett Terrace	Semaphore Park	12	38.29	-0.61	1105	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Seabreeze Street	Grange	6	37.78	-1.12	1106	8
Fred Hollows Court	Pennington	2	41.45	2.55	1107	8
Elmwood Avenue	Fulham Gardens	15	37.32	-1.58	1108	8
Paruna Place	Semaphore Park	4	38.73	-0.17	1109	8
Blackburn Court	Woodville North	5	39.14	0.24	1110	8
Bourn Place	Beverly	2	40.77	1.87	1111	8
Gretel Grove	West Lakes	5	38.41	-0.49	1112	8
Finlayson Street	Grange	9	37.95	-0.95	1113	8
Bray Avenue	Semaphore Park	30	36.71	-2.19	1114	8
Rodney Street	Woodville	8	39.30	0.40	1115	8
Roper Court	West Lakes Shore	5	38.78	-0.12	1116	8
Vincent Street	Hendon	10	40.87	1.97	1117	8
McInnes Street	Ridleyton	1	42.39	3.49	1118	8
Barrpowell Road	West Hindmarsh	1	40.62	1.72	1119	8
Canberra Street	Henley Beach South	21	37.31	-1.59	1120	8
Anthea Court	West Lakes	9	39.21	0.31	1121	8
Brigitte Court	Kidman Park	3	39.72	0.82	1122	8
Military Road	Semaphore Park	86	37.99	-0.91	1123	8
Paruna Road	Fulham Gardens	7	38.27	-0.63	1124	8
Sierra Avenue	Grange	19	38.07	-0.83	1125	8
Veronica Street	Kidman Park	33	37.06	-1.84	1126	8
Exeter Terrace	Renown Park	21	41.19	2.29	1127	8
Third Street	Bowden	1	42.71	3.81	1128	8
Graydale Street	West Beach	14	38.68	-0.22	1129	8
Conrad Place	Fulham Gardens	3	38.31	-0.59	1130	8
Gibson Street	Hindmarsh	0	42.87	3.97	1131	8
Milvera Terrace	Seaton	9	38.58	-0.32	1132	8
Mary Street	Hindmarsh	1	42.52	3.62	1133	8
Charles Road	Beverly	38	39.86	0.96	1134	8
Elizabeth Lane	Findon	17	37.97	-0.93	1135	8
Stephen Terrace	Grange	15	37.42	-1.48	1136	8
Cirencester Street	Cheltenham	6	41.20	2.30	1137	8
Grand Junction Road	Pennington	8	41.63	2.73	1138	8
Harley Place	Findon	2	39.68	0.78	1139	8
Kiln Drive	Brompton	0	42.83	3.93	1140	8
Gawler Avenue	Welland	7	40.57	1.67	1141	8
Third Avenue	Cheltenham	18	38.65	-0.25	1142	8
Pyers Court	West Lakes	6	37.54	-1.36	1143	8
Bridges Street	Allenby Gardens	7	37.98	-0.92	1144	8
Drayton Street	Brompton	0	42.82	3.92	1145	8
Berkeley Street	Cheltenham	11	40.40	1.50	1146	8
Grange Road	Beverly	8	40.96	2.06	1147	8
Carnoustie Court	West Lakes	7	37.49	-1.41	1148	8
Opie Street	West Beach	11	38.61	-0.29	1149	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
McInnes Terrace	Semaphore Park	10	36.98	-1.92	1150	8
Reedie Street	Henley Beach	38	37.28	-1.62	1151	8
Foster Street	Allenby Gardens	9	39.66	0.76	1152	8
Thirteenth Street	Bowden	2	41.70	2.80	1153	8
Howard Street	Flinders Park	4	40.72	1.82	1154	8
Fourteenth Street	Bowden	2	41.72	2.82	1155	8
Florence Street	Pennington	7	40.75	1.85	1156	8
Coles Street	Kilkenny	3	40.20	1.30	1157	8
May Street	Henley Beach	8	36.90	-2.00	1158	8
Eyre Street	Findon	6	37.86	-1.04	1159	8
Woodville Road	Woodville North	8	40.28	1.38	1160	8
Wilpena Terrace	Kilkenny	33	39.40	0.50	1161	8
Second Avenue	Seaton	16	37.27	-1.63	1162	8
La Perouse Avenue	Flinders Park	37	38.73	-0.17	1163	8
Jack Johnson Court	Renown Park	6	40.31	1.41	1164	8
Trapman Lane	Brompton	0	42.74	3.84	1165	8
Zephyr Grove	Semaphore Park	17	36.06	-2.84	1166	8
Berwick Avenue	Devon Park	1	40.78	1.88	1167	8
Pacesetter Place	St Clair	2	41.24	2.34	1168	8
White Sands Drive	West Beach	27	37.32	-1.58	1169	8
Harvey Street East	Woodville Park	24	39.31	0.41	1170	8
River Street	Hindmarsh	5	41.75	2.85	1171	8
Leeds Street	Woodville North	4	41.50	2.60	1172	8
Whitney Street	Cheltenham	10	39.86	0.96	1173	8
Henley Avenue	Henley Beach	9	37.93	-0.97	1174	8
Military Road	West Lakes Shore	84	37.38	-1.52	1175	8
Adele Avenue	Grange	2	41.54	2.64	1176	8
Clayton Drive	Grange	10	39.69	0.79	1177	8
Malabu Drive	West Beach	14	37.38	-1.52	1178	8
Yorkshire Street	Grange	17	38.34	-0.56	1179	8
Esk Street	Findon	4	40.49	1.59	1180	8
Grace Crescent	St Clair	4	41.50	2.60	1181	8
Bolton Avenue	Devon Park	7	41.08	2.18	1182	8
Park Terrace	Hindmarsh	0	42.64	3.74	1183	8
Yallum Terrace	Kilkenny	22	39.04	0.14	1184	8
Yarinda Street	Woodville	10	38.17	-0.73	1185	8
Findon Road	Kidman Park	36	40.32	1.42	1186	8
The Annie Watt Circuit	West Lakes Shore	36	37.90	-1.00	1187	8
Stanley Street	Woodville	10	38.82	-0.08	1188	8
Phils Court	Fulham Gardens	3	38.14	-0.76	1189	8
Lawrence Avenue	Woodville South	7	39.07	0.17	1190	8
Tandanya Avenue	Grange	22	36.94	-1.96	1191	8
Bartley Terrace	West Lakes Shore	85	38.42	-0.48	1192	8
Rose Street	Hindmarsh	0	42.61	3.71	1193	8
Kenneth Street	Findon	2	39.65	0.75	1194	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Connor Avenue	Woodville South	16	39.68	0.78	1195	8
St James Boulevard	Brompton	10	41.02	2.12	1196	8
Captain Cook Avenue	Flinders Park	12	39.32	0.42	1197	8
Young Street	Woodville South	2	39.71	0.81	1198	8
Robertson Court	St Clair	3	41.51	2.61	1199	8
Diana Street	Woodville	4	39.95	1.05	1200	8
Westbourne Street	West Croydon	8	39.34	0.44	1201	8
Branwhite Street	Woodville South	15	39.20	0.30	1202	8
Derby Street	Albert Park	2	41.73	2.83	1203	8
Blake Street	Flinders Park	4	40.51	1.61	1204	8
Dorset Street	Semaphore Park	7	37.97	-0.93	1205	8
Wright Street	Henley Beach	66	36.64	-2.26	1206	8
Hull Street	Brompton	0	42.55	3.65	1207	8
Musgrave Avenue	Welland	6	40.09	1.19	1208	8
Athlone Street	Woodville South	7	40.37	1.47	1209	8
Lower Street	Semaphore Park	11	38.18	-0.72	1210	8
Myponga Terrace	Kilkenny	18	39.57	0.67	1211	8
Aberfeldy Avenue	Woodville	31	38.11	-0.79	1212	8
Lisa Place	Grange	9	38.26	-0.64	1213	8
Winston Crescent	West Beach	15	37.36	-1.54	1214	8
Church Street	Woodville South	4	40.80	1.90	1215	8
Prince Albert Street	Albert Park	5	40.36	1.46	1216	8
Thelma Avenue	Fulham Gardens	9	38.30	-0.60	1217	8
Hamilton Road	Athol Park	5	41.73	2.83	1218	8
Cooke Crescent	Royal Park	21	39.12	0.22	1219	8
Jelley Street	Woodville	3	40.44	1.54	1220	8
Price Weir Avenue	Allenby Gardens	11	39.17	0.27	1221	8
Wotton Street West	Cheltenham	8	40.43	1.53	1222	8
Torres Avenue	Flinders Park	35	39.25	0.35	1223	8
Falkirk Avenue	Findon	13	40.45	1.55	1224	8
Parkview Avenue	Grange	27	37.81	-1.09	1225	8
Avro Avenue	Hendon	8	41.63	2.73	1226	8
Palmer Drive	Grange	8	37.81	-1.09	1227	8
East Avenue	Beverly	32	40.39	1.49	1228	8
Scammell Lane	Hindmarsh	2	41.88	2.98	1229	8
Karumba Place	West Lakes Shore	4	38.90	0.00	1230	8
Todd Place	West Lakes Shore	10	36.67	-2.23	1231	8
Eringa Court	Kidman Park	5	39.73	0.83	1232	8
Tweed Avenue	Findon	4	40.23	1.33	1233	8
Marlee Court	West Lakes	10	37.35	-1.55	1234	8
Holthouse Road	Fulham Gardens	41	37.59	-1.31	1235	8
Fifth Avenue	Seaton	3	40.23	1.33	1236	8
Beyer Street	St Clair	2	41.92	3.02	1237	8
Almond Avenue	Woodville South	11	39.44	0.54	1238	8
Trimmer Parade	Woodville West	13	40.96	2.06	1239	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Stanhope Street	West Beach	11	38.43	-0.47	1240	8
Margaret Avenue	West Croydon	18	40.57	1.67	1241	8
Nikou Court	Fulham Gardens	4	37.06	-1.84	1242	8
Stroud Street North	Cheltenham	16	39.21	0.31	1243	8
Eastbourne Terrace	Pennington	3	40.58	1.68	1244	8
Richard Street	Findon	7	39.82	0.92	1245	8
Alton Street	Beverly	5	38.91	0.01	1246	8
Mill Street	Findon	22	38.80	-0.10	1247	8
Clark Terrace	Seaton	21	40.66	1.76	1248	8
Dillon Court	Brompton	2	41.05	2.15	1249	8
Evans Street	Woodville South	3	40.91	2.01	1250	8
Crittenden Road	Findon	43	40.06	1.16	1251	8
Cheltenham Parade	St Clair	21	39.59	0.69	1252	8
Cedar Avenue	Croydon	9	40.21	1.31	1253	8
Yeomans Avenue	Henley Beach South	11	37.30	-1.60	1254	8
Grand Junction Road	Athol Park	9	41.31	2.41	1255	8
Lawton Street	Albert Park	2	41.07	2.17	1256	8
Ladd Street	Seaton	6	38.31	-0.59	1257	8
Musgrave Avenue	West Hindmarsh	5	39.15	0.25	1258	8
Glen Elder Street	Findon	4	39.42	0.52	1259	8
Jack Johnson Court	Devon Park	0	42.35	3.45	1260	8
Day Street	Grange	7	36.88	-2.02	1261	8
Pens Close	Brompton	1	41.79	2.89	1262	8
Green Street	Brompton	1	42.17	3.27	1263	8
Charles Street	Henley Beach	5	38.92	0.02	1264	8
Jena Close	Semaphore Park	6	36.99	-1.91	1265	8
Nambour Crescent	West Lakes Shore	30	37.56	-1.34	1266	8
Emery Place	St Clair	0	42.34	3.44	1267	8
Burley Griffin Boulevard	Brompton	7	40.98	2.08	1268	8
Downer Street	Kilkenny	4	41.43	2.53	1269	8
Lawrence Street	Albert Park	2	41.54	2.64	1270	8
Willsmore Street	Beverly	7	40.71	1.81	1271	8
Finsbury Avenue	Athol Park	1	40.11	1.21	1272	8
Alfred Avenue	Beverly	6	41.44	2.54	1273	8
Grange Road	Kidman Park	28	40.06	1.16	1274	8
Charles Mathews Circle	St Clair	2	41.67	2.77	1275	8
McCole Circuit	Allenby Gardens	12	39.09	0.19	1276	8
Fairweather Avenue	Woodville South	8	38.21	-0.69	1277	8
Westminster Avenue	Fulham Gardens	18	38.00	-0.90	1278	8
Jeanes Street	Beverly	10	40.02	1.12	1279	8
St Johns Avenue South	Renown Park	1	41.60	2.70	1280	8
Presgrave Court	Grange	4	39.53	0.63	1281	8
Tapleys Hill Road	Royal Park	20	41.11	2.21	1282	8
St Johns Avenue	Renown Park	1	41.69	2.79	1283	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Allora Place	Semaphore Park	3	38.94	0.04	1284	8
Knight Street	Allenby Gardens	24	37.66	-1.24	1285	8
Oxford Street	Woodville Park	6	38.90	0.00	1286	8
Brocas Avenue	St Clair	7	41.52	2.62	1287	8
Hocking Lane South	Brompton	3	40.48	1.58	1288	8
Torrens Road	Ovingham	1	41.93	3.03	1289	8
Cassia Crescent	Kidman Park	13	38.32	-0.58	1290	8
Sunnyside Grove	Semaphore Park	14	36.76	-2.14	1291	8
Murray Street	Fulham Gardens	15	38.35	-0.55	1292	8
Dale Street	Woodville Park	10	38.96	0.06	1293	8
Dawe Court	West Lakes Shore	4	37.95	-0.95	1294	8
Elizabeth Street	Findon	6	40.32	1.42	1295	8
Sharon Place	Grange	5	38.32	-0.58	1296	8
Thompson Street	Henley Beach	15	36.42	-2.48	1297	8
Military Road	Grange	64	38.24	-0.66	1298	8
Alice Street	Findon	8	39.21	0.31	1299	8
Kemp Street	Woodville	8	40.24	1.34	1300	8
Shearing Lane	Brompton	1	41.48	2.58	1301	8
Snowdon Street	West Beach	12	36.85	-2.05	1302	8
Brook Street	Kidman Park	11	40.11	1.21	1303	8
Clipsal Lane	Bowden	0	42.23	3.33	1304	8
Grange Road	Welland	5	41.00	2.10	1305	8
Northey Court	Henley Beach	16	37.37	-1.53	1306	8
Branston Avenue	Devon Park	0	42.20	3.30	1307	8
Seventh Street	Bowden	0	42.20	3.30	1308	8
Hythe Street	Ridleyton	3	41.34	2.44	1309	8
Janette Place	Grange	5	38.35	-0.55	1310	8
Osborne Avenue	Woodville Park	23	38.59	-0.31	1311	8
Brice Street	Seaton	5	40.60	1.70	1312	8
Trimmer Parade	Findon	40	38.40	-0.50	1313	8
Delo Court	Grange	3	39.01	0.11	1314	8
Hamilton Road	Woodville North	23	38.53	-0.37	1315	8
Hanson Road	Athol Park	35	39.43	0.53	1316	8
Glengyle Street	Woodville North	10	39.30	0.40	1317	8
Harkness Court	Brompton	0	42.17	3.27	1318	8
Bryan Avenue	Kilkenny	6	39.26	0.36	1319	8
Vickers Avenue	Hendon	2	41.16	2.26	1320	8
Torrens Road	Kilkenny	18	40.60	1.70	1321	8
Newporter Terrace	West Lakes Shore	15	36.86	-2.04	1322	8
Surf Avenue	West Beach	11	37.82	-1.08	1323	8
Fort Street	Tennyson	4	39.62	0.72	1324	8
Terminus Street	Grange	45	38.96	0.06	1325	8
Manton Street	Hindmarsh	5	41.60	2.70	1326	8
Waldron Street	Henley Beach South	14	36.60	-2.30	1327	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Norman Street	Woodville	20	39.01	0.11	1328	8
Kelly Avenue	Seaton	2	40.33	1.43	1329	8
Grey Avenue	Welland	7	39.88	0.98	1330	8
Almond Avenue	Findon	13	38.38	-0.52	1331	8
Leane Avenue	Allenby Gardens	13	39.03	0.13	1332	8
Hansen Circuit	Renown Park	1	41.82	2.92	1333	8
Athol Street	Athol Park	13	40.61	1.71	1334	8
Calendar Place	Woodville West	5	39.66	0.76	1335	8
Tern Place	Semaphore Park	6	37.66	-1.24	1336	8
Bower Street	Woodville	29	39.51	0.61	1337	8
Link Street	Royal Park	3	39.48	0.58	1338	8
Newlands Drive	West Beach	34	37.30	-1.60	1339	8
Harris Court	Woodville West	6	38.35	-0.55	1340	8
Gallop Lane	St Clair	2	40.74	1.84	1341	8
Fletcher Street	Woodville North	16	39.15	0.25	1342	8
Castle Street	West Croydon	2	40.80	1.90	1343	8
Bacon Street	Hindmarsh	4	41.48	2.58	1344	8
Nikoloff Court	Fulham Gardens	4	39.07	0.17	1345	8
Nambucca Avenue	West Lakes Shore	7	38.43	-0.47	1346	8
Albert Street	Ovingham	0	42.07	3.17	1347	8
Kernick Way	Brompton	0	42.07	3.17	1348	8
Apprentice Street	St Clair	1	41.66	2.76	1349	8
Morias Place	Pennington	7	40.22	1.32	1350	8
Frederick Street	Welland	46	38.95	0.05	1351	8
Market Place	Bowden	0	42.06	3.16	1352	8
Jeanette Street	Woodville Park	6	39.98	1.08	1353	8
Porter Avenue	Renown Park	0	42.05	3.15	1354	8
Gibson Street	Bowden	1	41.95	3.05	1355	8
Di Biase Street	Grange	4	37.91	-0.99	1356	8
Aylwin Street	Henley Beach South	13	36.49	-2.41	1357	8
Countryman Court	Kidman Park	2	40.64	1.74	1358	8
Estcourt Road	Tennyson	9	36.92	-1.98	1359	8
Kestrel Grove	Semaphore Park	6	37.58	-1.32	1360	8
Miami Avenue	West Beach	4	36.98	-1.92	1361	8
Grange Road	Seaton	33	40.11	1.21	1362	8
Nevis Street	West Beach	12	37.65	-1.25	1363	8
Kupman Street	Kilkenny	5	40.44	1.54	1364	8
Murray Street	Henley Beach	5	38.25	-0.65	1365	8
Carnarvon Parade	West Croydon	12	37.30	-1.60	1366	8
Pioneer Street	Findon	12	39.53	0.63	1367	8
Torrens Road	West Croydon	23	40.30	1.40	1368	8
Elanora Street	Semaphore Park	17	39.03	0.13	1369	8
Park Terrace	Ovingham	3	41.75	2.85	1370	8
Sandpiper Place	West Lakes Shore	15	37.55	-1.35	1371	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Leighton Lane	Bowden	0	41.96	3.06	1372	8
Sixth Street	Bowden	0	41.96	3.06	1373	8
Herbert Road	West Croydon	12	40.00	1.10	1374	8
Pope Court	Beverly	0	41.95	3.05	1375	8
Corfu Court	West Lakes	9	38.14	-0.76	1376	8
Rosetta Street	West Croydon	34	39.49	0.59	1377	8
Main Street	Beverly	29	40.07	1.17	1378	8
Welland Avenue	Welland	15	40.12	1.22	1379	8
Reynolds Place	Grange	6	38.48	-0.42	1380	8
Sunlake Place	Tennyson	20	36.70	-2.20	1381	8
John Street	Semaphore Park	9	38.30	-0.60	1382	8
Ashburton Avenue	West Lakes Shore	24	37.87	-1.03	1383	8
Hobbs Street	Findon	13	38.25	-0.65	1384	8
Hazel Terrace	Henley Beach South	10	39.41	0.51	1385	8
Kerrison Street	Henley Beach	5	38.09	-0.81	1386	8
Victoria Street	Albert Park	3	40.62	1.72	1387	8
Exeter Terrace	Devon Park	3	40.74	1.84	1388	8
Holden Street	Hindmarsh	2	41.53	2.63	1389	8
Tewkesbury Street	Cheltenham	16	39.28	0.38	1390	8
Nile Street	Hindmarsh	1	41.19	2.29	1391	8
Coral Avenue	Semaphore Park	16	37.47	-1.43	1392	8
Moorfield Terrace	Allenby Gardens	10	38.11	-0.79	1393	8
Shirley Crescent	West Beach	10	37.63	-1.27	1394	8
Grange Road	West Hindmarsh	7	39.87	0.97	1395	8
Drayton Street	Hindmarsh	0	41.85	2.95	1396	8
Cedar Avenue	West Croydon	9	39.99	1.09	1397	8
Lister Crescent	Woodville South	3	39.32	0.42	1398	8
Edward Street	Woodville South	3	40.02	1.12	1399	8
Bedford Street	West Croydon	15	38.75	-0.15	1400	8
Torrens Road	Ridleyton	4	40.88	1.98	1401	8
West Street	Hindmarsh	1	41.27	2.37	1402	8
Hanson Road	Woodville North	15	40.91	2.01	1403	8
Stallion Drive	St Clair	10	40.49	1.59	1404	8
Esplanade	Henley Beach South	54	36.83	-2.07	1405	8
Orsmond Street	Hindmarsh	10	40.67	1.77	1406	8
Paqualin Street	Hendon	9	40.49	1.59	1407	8
Kenneth Lane	Findon	0	41.83	2.93	1408	8
King Street	Croydon	4	40.28	1.38	1409	8
Ulah Place	Semaphore Park	3	38.72	-0.18	1410	8
Ponsonby Street	West Hindmarsh	6	38.55	-0.35	1411	8
Fifth Street	Brompton	3	41.37	2.47	1412	8
Aroona Road	Kilkenny	2	41.63	2.73	1413	8
Hawker Street	Brompton	4	41.44	2.54	1414	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Margaret Street	Henley Beach	23	37.33	-1.57	1415	8
Kiama Avenue	West Lakes Shore	8	38.93	0.03	1416	8
Lexington Road	Henley Beach South	55	36.68	-2.22	1417	8
Florence Street	West Croydon	2	40.73	1.83	1418	8
Branwhite Street	Findon	7	38.87	-0.03	1419	8
White Sands Drive	Grange	17	37.53	-1.37	1420	8
George Street	Hindmarsh	0	41.78	2.88	1421	8
Crosby Avenue	Seaton	5	37.98	-0.92	1422	8
Bell Street	Pennington	7	39.03	0.13	1423	8
Burwood Avenue	Woodville North	8	39.95	1.05	1424	8
Marie Court	Pennington	2	39.82	0.92	1425	8
Burford Road	Henley Beach South	17	38.21	-0.69	1426	8
Jones Street	Woodville	4	39.11	0.21	1427	8
Seaway Avenue	Semaphore Park	10	37.69	-1.21	1428	8
Second Street	Brompton	1	41.65	2.75	1429	8
Port Road	West Hindmarsh	5	41.13	2.23	1430	8
Sims Street	Henley Beach South	13	36.55	-2.35	1431	8
Whibley Street	Henley Beach	16	37.23	-1.67	1432	8
Stakes Street	St Clair	2	40.90	2.00	1433	8
Harrison Road	Devon Park	2	41.36	2.46	1434	8
Mirani Court	West Lakes Shore	6	37.27	-1.63	1435	8
West Lakes Boulevard	Cheltenham	0	41.75	2.85	1436	8
Wendouree Court	West Lakes	2	38.19	-0.71	1437	8
Alfred Road	West Croydon	22	39.41	0.51	1438	8
Jervois Avenue	West Hindmarsh	21	39.19	0.29	1439	8
Milner Street	Hindmarsh	6	39.73	0.83	1440	8
Eleventh Street	Bowden	0	41.74	2.84	1441	8
Gordon Street	Semaphore Park	10	37.76	-1.14	1442	8
Hannam Avenue	Grange	13	37.56	-1.34	1443	8
Glenhuntley Street	Woodville South	20	38.35	-0.55	1444	8
Ashworth Avenue	St Clair	1	41.45	2.55	1445	8
Dyer Court	West Lakes	9	39.03	0.13	1446	8
Kooralla Grove	Kidman Park	21	38.34	-0.56	1447	8
Port Road	Welland	7	40.47	1.57	1448	8
William Street	West Croydon	14	38.81	-0.09	1449	8
William Street	Athol Park	4	39.44	0.54	1450	8
Port Road	Kilkenny	3	40.06	1.16	1451	8
McDonnell Avenue	West Hindmarsh	23	39.28	0.38	1452	8
Bromley Close	Brompton	2	39.39	0.49	1453	8
Torrens Road	St Clair	25	40.21	1.31	1454	8
Coglin Street	Hindmarsh	0	41.69	2.79	1455	8
Lane 16	Grange	4	39.32	0.42	1456	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Jessie Avenue	Seaton	6	37.64	-1.26	1457	8
Pampas Court	Grange	8	37.03	-1.87	1458	8
Delfin Drive	West Lakes	39	37.81	-1.09	1459	8
Leslie Street West	St Clair	14	37.62	-1.28	1460	8
Anna Court	West Lakes	3	39.18	0.28	1461	8
Jeanes Street	Henley Beach	12	36.62	-2.28	1462	8
Lincoln Avenue	Fulham Gardens	15	37.29	-1.61	1463	8
Cook Street	Athol Park	5	39.62	0.72	1464	8
William Blackler Drive	Kidman Park	4	40.05	1.15	1465	8
Hughes Street North	Woodville	21	38.73	-0.17	1466	8
Windsor Avenue	Woodville Park	24	37.89	-1.01	1467	8
Drayton Street	Bowden	6	41.23	2.33	1468	8
Beltana Street	Flinders Park	9	38.79	-0.11	1469	8
Port Road	Woodville West	0	41.64	2.74	1470	8
Tamlin Lane	Brompton	0	41.64	2.74	1471	8
Bali Court	West Lakes	11	38.21	-0.69	1472	8
Horsley Drive	Kidman Park	4	40.49	1.59	1473	8
Torrens Road	Brompton	3	41.35	2.45	1474	8
McCloud Street	St Clair	1	41.01	2.11	1475	8
Thornes Lane	Brompton	0	41.62	2.72	1476	8
Young Avenue	West Hindmarsh	10	39.95	1.05	1477	8
Little Street	Royal Park	2	38.06	-0.84	1478	8
Bond Street	West Hindmarsh	8	40.05	1.15	1479	8
St Lawrence Avenue	Croydon	4	40.26	1.36	1480	8
Reynell Street	Kilkenny	10	40.26	1.36	1481	8
Port Road	Allenby Gardens	10	40.28	1.38	1482	8
Anderson Street	Henley Beach South	6	37.10	-1.80	1483	8
Mancheff Street	Fulham Gardens	7	36.99	-1.91	1484	8
Lincoln Street	West Croydon	4	39.36	0.46	1485	8
Adit Street	Woodville North	0	41.59	2.69	1486	8
Keppel Grove	West Lakes	17	37.95	-0.95	1487	8
Richard Street	Hindmarsh	5	40.56	1.66	1488	8
First Street	Brompton	0	41.59	2.69	1489	8
Sandra Place	Grange	6	37.15	-1.75	1490	8
Island Drive	West Lakes	16	38.79	-0.11	1491	8
Jetty Street	Grange	63	37.52	-1.38	1492	8
Hawker Street	Ridleyton	2	40.83	1.93	1493	8
Cordelia Crescent	Findon	6	38.70	-0.20	1494	8
Medallion Drive	Grange	4	39.81	0.91	1495	8
Marsden Street	West Lakes	11	37.01	-1.89	1496	8
Torrens Road	Renown Park	7	41.16	2.26	1497	8
Field Court	Findon	7	36.51	-2.39	1498	8
Hubbard Street	Beverly	9	39.52	0.62	1499	8
Brown Street	West Croydon	28	39.00	0.10	1500	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Yacht Place	Grange	5	37.84	-1.06	1501	8
Hilda Street	West Croydon	1	41.03	2.13	1502	8
Curtis Street	Woodville South	4	39.51	0.61	1503	8
Lorne Street	Albert Park	2	40.65	1.75	1504	8
Harvey Street West	Woodville	12	39.50	0.60	1505	8
Woolgina Street	Beverly	2	40.78	1.88	1506	8
Military Road	Henley Beach South	49	37.07	-1.83	1507	8
Henderson Street	Henley Beach	15	36.12	-2.78	1508	8
Hawkesbury Way	West Lakes Shore	13	38.53	-0.37	1509	8
Hoy Crescent	Henley Beach	10	37.08	-1.82	1510	8
Crompton Drive	St Clair	5	40.03	1.13	1511	8
Victoria Street	Semaphore Park	10	37.53	-1.37	1512	8
Isola Court	Grange	4	37.16	-1.74	1513	8
Grange Road	Fulham Gardens	17	40.29	1.39	1514	8
Pickering Street	Brompton	0	41.49	2.59	1515	8
Cudmore Terrace	Henley Beach	87	37.52	-1.38	1516	8
	Bowden	0	41.48	2.58	1517	8
Brook Court	Kidman Park	1	39.98	1.08	1518	8
Gilbert Street	Ovingham	2	41.13	2.23	1519	8
Collins Street	Pennington	2	39.99	1.09	1520	8
Annells Court	Grange	3	39.11	0.21	1521	8
Florence Street	Hendon	2	40.45	1.55	1522	8
Birch Street	Findon	2	40.64	1.74	1523	8
Dotterel Drive	Semaphore Park	18	37.72	-1.18	1524	8
Helen Street	Pennington	8	39.75	0.85	1525	8
Harriet Street	West Croydon	13	38.78	-0.12	1526	8
Vee Drive	Woodville North	4	39.60	0.70	1527	8
Brocas Lane	St Clair	0	41.45	2.55	1528	8
John Letts Place	St Clair	1	40.79	1.89	1529	8
Torrens Road	Pennington	3	41.18	2.28	1530	8
Mann Drive	Brompton	1	40.92	2.02	1531	8
Minnie Street	West Croydon	1	41.07	2.17	1532	8
Stewards Lane	St Clair	0	41.44	2.54	1533	8
Cavendish Street	West Beach	10	37.97	-0.93	1534	8
Catalina Street	Henley Beach South	10	37.21	-1.69	1535	8
Justin Court	Kidman Park	3	38.70	-0.20	1536	8
Doon Street	Woodville South	3	40.18	1.28	1537	8
Gawler Avenue	West Hindmarsh	9	39.31	0.41	1538	8
Blue Gum Avenue	Woodville North	0	41.42	2.52	1539	8
Mais Street	Brompton	0	41.40	2.50	1540	8
Ryan Place	Ridleyton	2	40.47	1.57	1541	8
Dolphin Terrace	West Lakes Shore	6	38.34	-0.56	1542	8
Paget Street	Ridleyton	5	40.12	1.22	1543	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
McBurnie Close	Brompton	1	40.42	1.52	1544	8
Fort Street	Grange	28	38.28	-0.62	1545	8
Eden Street	St Clair	0	41.36	2.46	1546	8
Marion Street	West Croydon	8	37.63	-1.27	1547	8
Station Walk	Woodville	2	39.86	0.96	1548	8
Libby Court	Tennyson	5	37.56	-1.34	1549	8
Baker Street	Renown Park	1	40.85	1.95	1550	8
Harvest Court	Findon	2	40.23	1.33	1551	8
Trimmer Parade	Seaton	39	39.13	0.23	1552	8
Cardinal Street	St Clair	0	41.33	2.43	1553	8
Brougham Place	Cheltenham	4	38.63	-0.27	1554	8
Findon Road	Woodville South	30	39.72	0.82	1555	8
Radstock Street	Woodville	8	38.29	-0.61	1556	8
Derby Lane	St Clair	4	39.22	0.32	1557	8
Russell Street	Henley Beach South	7	37.80	-1.10	1558	8
Dorset Avenue	Fulham Gardens	11	38.12	-0.78	1559	8
Hawker Street	Ovingham	0	41.30	2.40	1560	8
Lakewood Court	West Lakes	3	38.89	-0.01	1561	8
Belfast Street	Henley Beach	22	37.79	-1.11	1562	8
Cottesloe Street	West Beach	7	39.08	0.18	1563	8
Victoria Parade	Semaphore Park	5	36.11	-2.79	1564	8
Ocean Avenue	West Beach	10	37.12	-1.78	1565	8
	Kilkenny	2	40.79	1.89	1566	8
West Street	Semaphore Park	22	37.63	-1.27	1567	8
Kilkenny Road	Woodville Park	2	40.81	1.91	1568	8
Picton Street	Brompton	0	41.27	2.37	1569	8
Rowley Terrace	Woodville	14	39.49	0.59	1570	8
Koolunda Lane	Woodville South	6	38.35	-0.55	1571	8
Garth Street	Woodville Park	4	40.24	1.34	1572	8
William Street	Findon	0	41.26	2.36	1573	8
Tenth Street	Bowden	1	41.01	2.11	1574	8
Flora Street	Henley Beach South	5	37.85	-1.05	1575	8
McLean Street	Beverly	6	39.18	0.28	1576	8
Boucatt Place	Brompton	0	41.25	2.35	1577	8
Boyd Crescent	West Lakes Shore	17	37.25	-1.65	1578	8
Hurtle Street	Croydon	3	40.12	1.22	1579	8
Mia Court	West Lakes	1	39.83	0.93	1580	8
Swan Court	Renown Park	1	39.85	0.95	1581	8
Eliza Jane Court	Fulham Gardens	7	38.01	-0.89	1582	8
Fifth Street	Bowden	1	41.03	2.13	1583	8
Collins Court	West Lakes	0	41.23	2.33	1584	8
Ashley Place	Ridleyton	0	41.23	2.33	1585	8
Coombe Road	Allenby Gardens	65	36.92	-1.98	1586	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Princess Street	Findon	0	41.23	2.33	1587	8
Trimmer Parade	Tennyson	2	38.55	-0.35	1588	8
Lane 1	Grange	8	37.85	-1.05	1589	8
Hayman Court	West Lakes	5	37.37	-1.53	1590	8
Wood Avenue	Ridleyton	6	40.42	1.52	1591	8
Mallard Court	Semaphore Park	3	38.00	-0.90	1592	8
Northgate Street	Woodville North	6	39.83	0.93	1593	8
Square Place	Brompton	0	41.18	2.28	1594	8
Albemarle Street	West Hindmarsh	7	39.91	1.01	1595	8
Adare Court	Grange	8	37.60	-1.30	1596	8
Young Street	Allenby Gardens	4	39.59	0.69	1597	8
Clarence Street	West Croydon	8	39.27	0.37	1598	8
Shannon Street	Henley Beach	2	39.67	0.77	1599	8
Myer Court	Beverly	1	40.81	1.91	1600	8
Ozone Street	Henley Beach South	6	37.48	-1.42	1601	8
Lucknow Close	Kidman Park	3	39.53	0.63	1602	8
Park Street North	Woodville	10	39.93	1.03	1603	8
Clifton Street	Cheltenham	2	40.35	1.45	1604	8
Pine Street	Flinders Park	9	36.27	-2.63	1605	8
McColl Street	Woodville	4	38.26	-0.64	1606	8
Denton Street	Hendon	9	39.27	0.37	1607	8
Chippenham Street	Cheltenham	6	39.64	0.74	1608	8
Phillip Street	West Croydon	4	40.22	1.32	1609	8
Port Road	Woodville South	10	40.33	1.43	1610	8
Forest Avenue	Royal Park	8	38.43	-0.47	1611	8
Donald Avenue	West Croydon	5	39.58	0.68	1612	8
Bay Kai Grove	West Lakes	3	39.30	0.40	1613	8
Pialba Grove	West Lakes Shore	6	36.80	-2.10	1614	8
Menkens Street	Henley Beach	7	37.52	-1.38	1615	8
Lawrie Street	Henley Beach	30	35.88	-3.02	1616	8
Renwick Street	West Beach	8	38.38	-0.52	1617	8
Caversham Lane	Woodville West	5	37.50	-1.40	1618	8
Blight Street	Ridleyton	4	40.53	1.63	1619	8
Griffiths Street	Henley Beach	25	37.09	-1.81	1620	8
Bourn Avenue	West Hindmarsh	3	39.47	0.57	1621	8
Sansom Road	West Lakes Shore	13	39.24	0.34	1622	8
Burnley Street	Henley Beach South	22	37.37	-1.53	1623	8
Mullen Lane	Brompton	0	41.00	2.10	1624	8
Shaftsbury Avenue	Fulham Gardens	11	37.79	-1.11	1625	8
Ellen Street	Croydon	11	39.78	0.88	1626	8
David Terrace	Kilkenny	25	38.76	-0.14	1627	8
Arthur Street	Findon	1	40.23	1.33	1628	8
Stacey Place	Renown Park	5	38.80	-0.10	1629	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Turner Drive	West Lakes	16	38.28	-0.62	1630	8
Stone Street	Woodville North	11	38.85	-0.05	1631	8
Ralph Lane	West Croydon	2	40.23	1.33	1632	8
Woodville Road	St Clair	1	40.85	1.95	1633	8
Percy Street	Seaton	4	39.43	0.53	1634	8
Stacy Street	Hendon	2	39.95	1.05	1635	8
Cormorant Court	West Lakes Shore	7	38.15	-0.75	1636	8
Malcolm Street	West Croydon	2	40.27	1.37	1637	8
Jervois Street	Woodville West	5	38.35	-0.55	1638	8
Dunstone Road	Semaphore Park	8	38.86	-0.04	1639	8
Monmouth Street	Ridleyton	3	39.95	1.05	1640	8
Torrens Road	Woodville Park	0	40.92	2.02	1641	8
Tonkin Court	Grange	4	37.14	-1.76	1642	8
Bardia Avenue	Findon	3	39.65	0.75	1643	8
Cator Street	West Hindmarsh	7	39.16	0.26	1644	8
Frederick Road	Royal Park	59	38.48	-0.42	1645	8
Hughes Avenue	Henley Beach	13	38.29	-0.61	1646	8
William Avenue	Henley Beach South	9	36.73	-2.17	1647	8
Grenada Street	West Lakes Shore	3	38.15	-0.75	1648	8
Elgin Street	Woodville Park	3	39.59	0.69	1649	8
Torrens Road	Woodville North	9	40.38	1.48	1650	8
Arkaba Road	Kilkenny	4	39.72	0.82	1651	8
Ridley Street	Hindmarsh	0	40.87	1.97	1652	8
Carlyle Avenue	West Croydon	8	38.33	-0.57	1653	8
Pelican Place	Semaphore Park	15	36.78	-2.12	1654	8
Hayman Street	Brompton	3	39.66	0.76	1655	8
Thomas Street	Croydon	17	38.49	-0.41	1656	8
South Parade	Seaton	19	37.99	-0.91	1657	8
Cavan Avenue	Renown Park	2	39.51	0.61	1658	8
Winona Street	Findon	2	40.09	1.19	1659	8
Henley Place	Fulham Gardens	4	38.24	-0.66	1660	8
Hocking Lane North	Brompton	0	40.83	1.93	1661	8
Grayson Street	Kilkenny	6	39.28	0.38	1662	8
Gailbraith Court	Renown Park	0	40.83	1.93	1663	8
Port Road	Croydon	11	39.48	0.58	1664	8
Wodonga Street	Beverly	5	39.94	1.04	1665	8
West Street	Brompton	3	40.58	1.68	1666	8
Marden Lane	St Clair	0	40.81	1.91	1667	8
Crawford Lane	Hindmarsh	1	40.49	1.59	1668	8
Borthwick Street	Henley Beach	7	38.24	-0.66	1669	8
Narooma Place	West Lakes Shore	3	38.27	-0.63	1670	8
Hanson Road	Kilkenny	0	40.80	1.90	1671	8
Chief Street	Brompton	13	39.85	0.95	1672	8
Jenny Place	Grange	2	39.27	0.37	1673	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Actil Avenue	St Clair	7	38.87	-0.03	1674	8
Tyler Street	Henley Beach South	6	37.47	-1.43	1675	8
Gilligan Street	Pennington	7	39.07	0.17	1676	8
Goyder Place	Brompton	0	40.77	1.87	1677	8
Plane Way	Brompton	0	40.74	1.84	1678	8
Susan Street	Hindmarsh	2	40.02	1.12	1679	8
Cedar Avenue	Woodville South	7	39.15	0.25	1680	8
Eagle Court	Semaphore Park	6	36.92	-1.98	1681	8
Angus Court	Henley Beach	6	37.41	-1.49	1682	8
Malin Street	Semaphore Park	10	37.78	-1.12	1683	8
Michael Street	Grange	5	37.55	-1.35	1684	8
Wentworth Place	Brompton	0	40.72	1.82	1685	8
Brooker Court	Woodville Park	6	38.10	-0.80	1686	8
Findon Road	Flinders Park	23	39.23	0.33	1687	8
Chapel Street	Hindmarsh	0	40.70	1.80	1688	8
Peters Way	Seaton	5	38.00	-0.90	1689	8
Guthrie Street	Ovingham	1	40.43	1.53	1690	8
George Street	Beverly	4	39.86	0.96	1691	8
Karney Court	Brompton	0	40.69	1.79	1692	8
Beaufort Street	Woodville Park	10	38.15	-0.75	1693	8
Marion Terrace	Royal Park	4	37.83	-1.07	1694	8
Jury Street	Royal Park	4	37.63	-1.27	1695	8
Buckingham Avenue	Henley Beach	4	37.68	-1.22	1696	8
Searange Court	Grange	14	36.52	-2.38	1697	8
Henry Street	Croydon	10	38.70	-0.20	1698	8
Masterdale Court	St Clair	0	40.65	1.75	1699	8
Laidlaw Street	Henley Beach	16	36.22	-2.68	1700	8
Hawker Street	Bowden	1	40.35	1.45	1701	8
Green Road	Woodville West	9	37.86	-1.04	1702	8
Stanley Street	Woodville Park	8	38.73	-0.17	1703	8
Water Witch Court	West Lakes	4	37.89	-1.01	1704	8
Roan Lane	St Clair	0	40.63	1.73	1705	8
Kimberley Close	Kidman Park	3	38.29	-0.61	1706	8
Shearer Street	Kilkenny	3	38.89	-0.01	1707	8
Crewe Street	Henley Beach	6	38.58	-0.32	1708	8
Napier Drive	Grange	5	37.91	-0.99	1709	8
Sheppard Street	Hendon	1	39.71	0.81	1710	8
Bluelake Court	Tennyson	11	36.58	-2.32	1711	8
Cavendish Street	West Croydon	2	39.83	0.93	1712	8
Wood Avenue	Brompton	7	39.65	0.75	1713	8
Filly Street	St Clair	0	40.55	1.65	1714	8
West Street	Beverly	2	39.71	0.81	1715	8
Hollard Avenue	Grange	9	36.96	-1.94	1716	8
Leslie Street East	Woodville	10	38.33	-0.57	1717	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Pyers Street	St Clair	1	40.23	1.33	1718	8
Byrness Avenue	Devon Park	0	40.52	1.62	1719	8
Balfort Street	Findon	0	40.52	1.62	1720	8
Quin Street	Bowden	0	40.51	1.61	1721	8
Sea Lake Court	West Lakes	3	38.54	-0.36	1722	8
Warnecke Walk	Seaton	5	36.59	-2.31	1723	8
Davidson Avenue	Hendon	2	40.03	1.13	1724	8
Linden Court	Beverly	1	39.46	0.56	1725	8
Port Road	Beverly	12	39.65	0.75	1726	8
Coglin Street	Brompton	4	40.17	1.27	1727	8
Gordon Street	Hendon	2	40.14	1.24	1728	8
Leslie Street West	Woodville	2	39.41	0.51	1729	8
Harriet Street	Croydon	3	39.64	0.74	1730	8
Princess Street	Beverly	2	39.74	0.84	1731	8
Sackville Street	West Croydon	2	39.90	1.00	1732	8
Actil Avenue South	St Clair	3	38.74	-0.16	1733	8
Forster Street	Ridleyton	0	40.43	1.53	1734	8
Hallam Terrace	Tennyson	6	36.56	-2.34	1735	8
Briar Court	Fulham Gardens	1	38.96	0.06	1736	8
Kellett Street	Semaphore Park	6	38.04	-0.86	1737	8
Elizabeth Street	Croydon	4	39.50	0.60	1738	8
William Street	Beverly	21	39.31	0.41	1739	8
Fisher Street	Grange	4	38.34	-0.56	1740	8
Gething Crescent	Bowden	3	39.53	0.63	1741	8
Tulloch Drive	St Clair	3	39.68	0.78	1742	8
Assyrian Court	Kidman Park	1	39.72	0.82	1743	8
Kevin Taylor Lane	Bowden	0	40.37	1.47	1744	8
Cudmore Terrace	Henley Beach South	21	36.21	-2.69	1745	8
Blight Street	Brompton	8	38.56	-0.34	1746	8
Gelland Place	West Croydon	2	39.27	0.37	1747	8
Torrens Road	Cheltenham	16	38.07	-0.83	1748	8
Park Lane	Henley Beach	9	35.89	-3.01	1749	8
East Avenue	Allenby Gardens	26	38.59	-0.31	1750	8
Steeplechase Avenue	St Clair	0	40.29	1.39	1751	8
Hurcombe Street	West Beach	7	37.00	-1.90	1752	8
Brown Lane	West Croydon	1	38.90	0.00	1753	8
Tarcowie Street	Kilkenny	3	39.66	0.76	1754	8
Barham Street	Allenby Gardens	18	37.79	-1.11	1755	8
Charles Street	Allenby Gardens	8	37.99	-0.91	1756	8
Plane Way	Bowden	0	40.26	1.36	1757	8
Capri Close	West Lakes	4	38.57	-0.33	1758	8
Joyner Street	Semaphore Park	3	37.56	-1.34	1759	8
Avro Avenue	Albert Park	4	39.81	0.91	1760	8
Exeter Crescent	Fulham Gardens	3	37.62	-1.28	1761	8

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Bolingbroke Avenue	Henley Beach	3	37.96	-0.94	1762	8
Lane 23	Grange	3	38.97	0.07	1763	8
Romford Street	West Hindmarsh	0	40.21	1.31	1764	8
Lane 24	Grange	2	38.99	0.09	1765	8
Dune Court	West Lakes Shore	7	37.68	-1.22	1766	8
Bernard Street	Findon	2	39.39	0.49	1767	8
Chestnut Lane	St Clair	0	40.20	1.30	1768	8
Beryl Street	Woodville West	4	39.46	0.56	1769	8
Gilmore Road	Henley Beach South	8	38.69	-0.21	1770	8
Brogan Court	Grange	9	35.84	-3.06	1771	8
Boston Street	West Croydon	3	39.37	0.47	1772	8
Gemmell Street	Beverly	1	39.76	0.86	1773	8
Telford Street	Ovingham	5	39.40	0.50	1774	8
Hewitt Crescent	Woodville South	2	38.58	-0.32	1775	8
Willis Street	Beverly	2	39.08	0.18	1776	8
Leisure Court	Fulham Gardens	4	38.32	-0.58	1777	8
Lane 19	Grange	4	37.87	-1.03	1778	8
Cheadle Street	Henley Beach	2	39.03	0.13	1779	8
Chester Court	Grange	6	36.60	-2.30	1780	8
Andrew Street	Allenby Gardens	5	37.98	-0.92	1781	8
Valma Avenue	Fulham Gardens	5	37.54	-1.36	1782	8
The Circuit	Findon	4	39.09	0.19	1783	8
Sunrise Court	West Lakes	2	39.26	0.36	1784	8
Bower Road	Semaphore Park	43	38.06	-0.84	1785	8
Turnbull Place	Brompton	0	40.11	1.21	1786	8
Tea Tree Lane	West Lakes	8	36.03	-2.87	1787	8
Derby Street	Grange	7	36.93	-1.97	1788	8
Morse Court	Fulham Gardens	3	38.60	-0.30	1789	8
North Street	Henley Beach	63	36.92	-1.98	1790	9
Morcon Lane	West Lakes	3	38.16	-0.74	1791	9
Pierce Street	Grange	6	37.96	-0.94	1792	9
Oaks Drive	St Clair	0	40.06	1.16	1793	9
Burke Street	West Croydon	1	39.26	0.36	1794	9
Slipper Court	Fulham Gardens	4	37.25	-1.65	1795	9
Caroline Drive	Allenby Gardens	3	39.32	0.42	1796	9
Timms Street	Findon	0	40.03	1.13	1797	9
White Street	Henley Beach	34	35.94	-2.96	1798	9
Minnie Street	Croydon	4	38.46	-0.44	1799	9
First Street	Hindmarsh	0	40.02	1.12	1800	9
Holland Street	Findon	2	38.56	-0.34	1801	9
Hindmarsh Place	Hindmarsh	0	40.01	1.11	1802	9
White Street	Allenby Gardens	3	37.94	-0.96	1803	9
Taylor Street	Brompton	0	40.00	1.10	1804	9
Coombe Street	Ovingham	0	40.00	1.10	1805	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Aroona Road	West Croydon	16	38.60	-0.30	1806	9
Tingira Place	Semaphore Park	1	38.97	0.07	1807	9
Beaufort Street	Woodville	10	38.39	-0.51	1808	9
Miller Street	Brompton	1	38.90	0.00	1809	9
Grange Road	Grange	28	38.11	-0.79	1810	9
Marlborough Street	Henley Beach	46	36.52	-2.38	1811	9
Beaufort Lane	Woodville Park	0	39.97	1.07	1812	9
Warn Lane	Findon	0	39.96	1.06	1813	9
Iluka Place	Semaphore Park	2	37.88	-1.02	1814	9
Howards Road	Beverly	3	39.59	0.69	1815	9
Duke Lane	Semaphore Park	1	38.44	-0.46	1816	9
Seaview Road	Henley Beach South	40	36.55	-2.35	1817	9
Lane 31	Henley Beach	2	38.56	-0.34	1818	9
William Street	Croydon	6	38.56	-0.34	1819	9
North Parade	Royal Park	15	38.12	-0.78	1820	9
Beach Street	Grange	44	37.92	-0.98	1821	9
Robert Street	Allenby Gardens	4	37.40	-1.50	1822	9
Grangeville Lane	Woodville West	2	38.73	-0.17	1823	9
Manor Court	Grange	0	39.87	0.97	1824	9
Doughty Street	Brompton	0	39.87	0.97	1825	9
Chester Street	Henley Beach	3	38.74	-0.16	1826	9
Swanwick Street	Henley Beach	9	37.70	-1.20	1827	9
Raymond Street	Henley Beach	3	38.24	-0.66	1828	9
Kilkenny Road	Kilkenny	5	38.77	-0.13	1829	9
Lane 2	Grange	2	38.71	-0.19	1830	9
Lawton Lane	Woodville West	0	39.84	0.94	1831	9
Woodville Road	Woodville	9	39.16	0.26	1832	9
Elizabeth Mews	Brompton	0	39.83	0.93	1833	9
Seaview Road	Tennyson	53	36.72	-2.18	1834	9
Durham Street	Henley Beach	3	38.48	-0.42	1835	9
Hallett Boulevard	Allenby Gardens	15	37.62	-1.28	1836	9
Sturdee Street	Flinders Park	3	38.26	-0.64	1837	9
Lane 3	Grange	2	38.54	-0.36	1838	9
Grange Road	Henley Beach	23	38.19	-0.71	1839	9
Gaetjens Street	Henley Beach	3	37.36	-1.54	1840	9
Tapleys Hill Road	Hendon	17	38.66	-0.24	1841	9
Birch Avenue	Flinders Park	2	38.25	-0.65	1842	9
Lane 59	Semaphore Park	1	38.99	0.09	1843	9
Rushall Lane	Woodville South	1	38.47	-0.43	1844	9
Swans Place	St Clair	1	39.13	0.23	1845	9
Wotton Street East	Cheltenham	0	39.72	0.82	1846	9
Picton Street	Bowden	0	39.71	0.81	1847	9
Mercurio Drive	Flinders Park	2	38.92	0.02	1848	9
Siesta Avenue	West Beach	7	36.54	-2.36	1849	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Waller Court	West Lakes	0	39.68	0.78	1850	9
Cross Street	West Hindmarsh	0	39.67	0.77	1851	9
Military Road	West Beach	45	37.39	-1.51	1852	9
Lane 14	Grange	2	38.50	-0.40	1853	9
Noble Street Laneway	Ovingham	0	39.66	0.76	1854	9
Sea Avenue	Henley Beach	4	36.78	-2.12	1855	9
Belfast Street	Athol Park	3	38.00	-0.90	1856	9
Ross Avenue	Flinders Park	13	36.05	-2.85	1857	9
Penola Street	Kilkenny	1	39.29	0.39	1858	9
Military Road	Henley Beach	61	36.47	-2.43	1859	9
Griffin Lane	Brompton	0	39.58	0.68	1860	9
Mawson Close	Tennyson	8	34.69	-4.21	1861	9
John Hindmarsh Frontage	Brompton	0	39.57	0.67	1862	9
Nimitz Street	Henley Beach South	4	37.33	-1.57	1863	9
Noble Terrace	Allenby Gardens	5	38.08	-0.82	1864	9
Courtoy Street	Beverly	1	38.83	-0.07	1865	9
Para Street	West Croydon	0	39.52	0.62	1866	9
	Woodville West	0	39.52	0.62	1867	9
South Street	Henley Beach	9	37.26	-1.64	1868	9
Lane 17	Grange	2	38.34	-0.56	1869	9
MacLagan Avenue	Allenby Gardens	10	37.55	-1.35	1870	9
Scott Avenue	Flinders Park	10	36.66	-2.24	1871	9
Park Street North	Woodville Park	18	37.33	-1.57	1872	9
Job Court	Allenby Gardens	1	38.37	-0.53	1873	9
Woodley Road	Fulham Gardens	7	37.35	-1.55	1874	9
Hughes Street South	Woodville	12	36.72	-2.18	1875	9
Borroughs Street	Ridleyton	2	38.41	-0.49	1876	9
Lane 10	Grange	2	37.79	-1.11	1877	9
Chief Street	Hindmarsh	0	39.41	0.51	1878	9
Glanton Street	West Hindmarsh	3	38.28	-0.62	1879	9
Sellars Place	Allenby Gardens	1	37.85	-1.05	1880	9
Henley Beach Road	Henley Beach South	27	37.29	-1.61	1881	9
Phillipou Place	Fulham Gardens	3	37.85	-1.05	1882	9
Manuel Street	Hendon	3	38.40	-0.50	1883	9
Brown Street	Brompton	0	39.37	0.47	1884	9
Hardy Street	Royal Park	3	38.04	-0.86	1885	9
The Pinery	West Lakes	7	35.84	-3.06	1886	9
Bristol Lane	Woodville West	1	38.53	-0.37	1887	9
Lane 53	Henley Beach	1	38.37	-0.53	1888	9
Colony Court	West Lakes	3	36.20	-2.70	1889	9
Florence Crescent	Brompton	5	37.53	-1.37	1890	9
Rawson Drive	Allenby Gardens	3	38.04	-0.86	1891	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Annes Court	West Beach	4	37.09	-1.81	1892	9
Lane 42	Henley Beach	5	37.62	-1.28	1893	9
Coronado Court	West Lakes Shore	5	36.71	-2.19	1894	9
Fourth Place	Bowden	0	39.26	0.36	1895	9
Noosa Place	West Lakes Shore	2	37.26	-1.64	1896	9
Troubridge Drive	West Lakes	17	37.90	-1.00	1897	9
Woodville Road	Woodville South	2	38.95	0.05	1898	9
Fiveash Place	Brompton	1	38.50	-0.40	1899	9
Leith-Price Court	West Lakes	2	37.39	-1.51	1900	9
Carlton Crescent	Woodville North	6	37.69	-1.21	1901	9
Bertie Street	West Hindmarsh	1	38.98	0.08	1902	9
Ashman Avenue	Renown Park	3	37.78	-1.12	1903	9
Pistachio Avenue	Athol Park	0	39.17	0.27	1904	9
Colton Street	West Lakes	7	36.80	-2.10	1905	9
Burwood Lane	Woodville North	1	38.64	-0.26	1906	9
Belmore Terrace	Woodville Park	5	38.50	-0.40	1907	9
Eve Street	Cheltenham	0	39.11	0.21	1908	9
Torrens Road	Woodville	3	38.62	-0.28	1909	9
Alice Street	Tennyson	1	37.20	-1.70	1910	9
Hocking Street	Brompton	0	39.07	0.17	1911	9
Oval Avenue	Woodville South	26	36.71	-2.19	1912	9
Beaufort Lane	Woodville	3	38.27	-0.63	1913	9
Shore Court	West Lakes Shore	7	36.19	-2.71	1914	9
Torrens Avenue	West Hindmarsh	3	38.11	-0.79	1915	9
West Lakes Boulevard	Woodville	0	39.01	0.11	1916	9
Tenterden Street	Woodville South	1	38.62	-0.28	1917	9
Princes Street	Croydon	4	38.47	-0.43	1918	9
East Terrace	Henley Beach	52	36.62	-2.28	1919	9
Mellor Street	West Beach	4	36.93	-1.97	1920	9
Bernard Lane	Findon	0	38.96	0.06	1921	9
Ledger Road	Beverly	21	37.61	-1.29	1922	9
Harbour Court	West Lakes	5	36.72	-2.18	1923	9
Esplanade	Grange	26	36.05	-2.85	1924	9
Besir Place	Semaphore Park	0	38.90	0.00	1925	9
Bournemouth Street	Tennyson	8	35.39	-3.51	1926	9
Kennington Avenue	Brompton	0	38.88	-0.02	1927	9
Ninth Street	Bowden	0	38.88	-0.02	1928	9
Pyatt Place	Renown Park	0	38.87	-0.03	1929	9
Slater Street	Athol Park	0	38.86	-0.04	1930	9
Nubeena Lane	Woodville West	2	37.70	-1.20	1931	9
Fraser Street	Henley Beach South	2	37.34	-1.56	1932	9
Banksia Street	West Lakes	3	37.54	-1.36	1933	9
Frederick Road	Seaton	45	37.38	-1.52	1934	9
Lane 20	Grange	1	38.23	-0.67	1935	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Trembath Street	Bowden	0	38.80	-0.10	1936	9
Mundulla Street	Kilkenny	3	38.09	-0.81	1937	9
Day Terrace	Croydon	3	38.32	-0.58	1938	9
Moredun Street	Tennyson	6	35.73	-3.17	1939	9
Henley Beach Road	Henley Beach	16	37.29	-1.61	1940	9
Panmure Lane	Woodville North	2	37.73	-1.17	1941	9
Hidson Street	Ridleyton	0	38.72	-0.18	1942	9
George Avenue	Allenby Gardens	3	36.90	-2.00	1943	9
Seaview Road	Henley Beach	31	37.30	-1.60	1944	9
Gulf Court	Semaphore Park	2	37.38	-1.52	1945	9
Ayr Street	Semaphore Park	2	37.83	-1.07	1946	9
Warner Avenue	Findon	1	38.25	-0.65	1947	9
Linden Street	West Hindmarsh	2	37.65	-1.25	1948	9
Amarina Court	Semaphore Park	0	38.64	-0.26	1949	9
Kauper Street	Royal Park	2	37.86	-1.04	1950	9
Torres Avenue	Allenby Gardens	5	35.77	-3.13	1951	9
Lane 36	Henley Beach	0	38.61	-0.29	1952	9
Hillview Avenue	Tennyson	9	35.76	-3.14	1953	9
Lane 33	Henley Beach	2	37.19	-1.71	1954	9
Lane 9	Grange	2	37.67	-1.23	1955	9
Old Post Office Place	Grange	0	38.57	-0.33	1956	9
Kent Street	Henley Beach	0	38.57	-0.33	1957	9
Benham Place	Henley Beach South	3	34.75	-4.15	1958	9
Edwin Street	Semaphore Park	0	38.56	-0.34	1959	9
Arlington Terrace	West Hindmarsh	2	38.36	-0.54	1960	9
Samary Street	Allenby Gardens	1	37.81	-1.09	1961	9
Lane 22	Grange	3	36.30	-2.60	1962	9
Lane 8	Grange	1	37.90	-1.00	1963	9
James Street	Albert Park	0	38.44	-0.46	1964	9
Belmore Terrace	Woodville	4	37.77	-1.13	1965	9
Moorland Avenue	Beverly	1	37.71	-1.19	1966	9
Lane 41	Henley Beach	3	37.36	-1.54	1967	9
Hoffman Lane	Brompton	0	38.36	-0.54	1968	9
Queen Street	Croydon	0	38.36	-0.54	1969	9
Lancelot Street	Beverly	2	37.41	-1.49	1970	9
Gannett Grove	Semaphore Park	3	36.98	-1.92	1971	9
Sussex Street	Henley Beach	1	37.92	-0.98	1972	9
Russell Terrace	Woodville	8	37.05	-1.85	1973	9
Laurie Street	Kidman Park	0	38.25	-0.65	1974	9
Morgan Street	West Hindmarsh	3	37.14	-1.76	1975	9
Lane 46	Henley Beach	0	38.24	-0.66	1976	9
York Street	Henley Beach	2	37.30	-1.60	1977	9
Bucknall Court	Tennyson	3	35.44	-3.46	1978	9
Wadham Street	Brompton	0	38.20	-0.70	1979	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Ranelagh Street	Woodville	4	36.66	-2.24	1980	9
Lane 49	Henley Beach	0	38.12	-0.78	1981	9
Riverside Estate	Allenby Gardens	7	37.06	-1.84	1982	9
Cheltenham Parade	Woodville	2	37.82	-1.08	1983	9
Lane 11	Grange	2	36.09	-2.81	1984	9
Esplanade	Semaphore Park	6	36.59	-2.31	1985	9
Lane 5	Grange	9	36.24	-2.66	1986	9
Charlotte Court	Grange	6	36.35	-2.55	1987	9
Russell Terrace	Woodville Park	14	36.32	-2.58	1988	9
Robert Street	Croydon	2	37.66	-1.24	1989	9
Tennyson Heights Court	Tennyson	11	35.63	-3.27	1990	9
Lane 6	Grange	1	37.30	-1.60	1991	9
Lane 34	Henley Beach	0	37.93	-0.97	1992	9
Lane 39	Henley Beach	1	37.66	-1.24	1993	9
Wattle Street	Brompton	0	37.92	-0.98	1994	9
Seaview Road	Grange	17	36.49	-2.41	1995	9
Stewart Street	Henley Beach	3	37.14	-1.76	1996	9
Gaetjens Court	Fulham Gardens	1	35.51	-3.39	1997	9
Post Parade	St Clair	0	37.84	-1.06	1998	9
Lane 57	Henley Beach	0	37.82	-1.08	1999	9
Lane 18	Grange	1	37.37	-1.53	2000	9
Lane 44	Henley Beach	0	37.81	-1.09	2001	9
Lewanick Street	Allenby Gardens	8	36.29	-2.61	2002	9
Halsey Road	Henley Beach South	28	34.88	-4.02	2003	9
Day Terrace	West Croydon	13	36.79	-2.11	2004	9
Lane 52	Henley Beach	0	37.77	-1.13	2005	9
Vasileff Road	Fulham Gardens	0	37.76	-1.14	2006	9
Lane 43	Henley Beach	1	37.40	-1.50	2007	9
Lane 58	Henley Beach	0	37.68	-1.22	2008	9
John Street Lane South	Flinders Park	0	37.68	-1.22	2009	9
Robert Street	West Croydon	3	37.04	-1.86	2010	9
Carrondown Walk	Brompton	0	37.67	-1.23	2011	9
Lane 48	Henley Beach	0	37.65	-1.25	2012	9
Anthony Street	Henley Beach	5	36.45	-2.45	2013	9
Brebner Drive	West Lakes	6	37.21	-1.69	2014	9
Victoria and Beck Lane	Henley Beach	6	35.78	-3.12	2015	9
Lane 13	Grange	0	37.55	-1.35	2016	9
Siesta Court	West Lakes	1	36.99	-1.91	2017	9
Harrison Street	Henley Beach	0	37.49	-1.41	2018	9
Lane 37	Henley Beach	1	36.83	-2.07	2019	9
Lane 60	Grange	8	31.82	-7.08	2020	9
Scan Court	Royal Park	1	36.79	-2.11	2021	9
Simpson Street	Woodville South	1	37.06	-1.84	2022	9
Esplanade	Tennyson	5	34.35	-4.55	2023	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Park Street South	Woodville	0	37.39	-1.51	2024	9
Sturt Close	Grange	3	35.37	-3.53	2025	9
Lane 29	Grange	1	36.89	-2.01	2026	9
Victoria Street	Henley Beach	14	34.58	-4.32	2027	9
Lane 38	Henley Beach	1	37.04	-1.86	2028	9
Lane 30	Henley Beach	4	36.27	-2.63	2029	9
Lane 15	Grange	2	36.38	-2.52	2030	9
Clarence Street	Henley Beach	0	37.26	-1.64	2031	9
Euston Terrace	Croydon	3	36.79	-2.11	2032	9
Norman Gibson Court	West Lakes	0	37.23	-1.67	2033	9
Maude Street	Allenby Gardens	1	36.65	-2.25	2034	9
Hill Street	Henley Beach	0	37.18	-1.72	2035	9
South Parade	Royal Park	4	36.52	-2.38	2036	9
Johns Lane	Henley Beach	1	36.86	-2.04	2037	9
Rapid Court	West Lakes	3	33.92	-4.98	2038	9
Lane 54	Henley Beach	0	37.06	-1.84	2039	9
Lane 25	Grange	7	36.04	-2.86	2040	9
Way Terrace	Welland	0	37.01	-1.89	2041	9
Newcombe Lane	Henley Beach	0	36.98	-1.92	2042	9
Neighbor Lane	West Lakes	4	35.91	-2.99	2043	9
Muriel Matters Walk	Bowden	0	36.93	-1.97	2044	9
Northcote Lane	Tennyson	0	36.76	-2.14	2045	9
The Grove	Woodville	7	34.91	-3.99	2046	9
Tennyson Lane	Tennyson	0	36.74	-2.16	2047	9
Chadwick Court	Findon	2	35.32	-3.58	2048	9
Rodgers Avenue	Henley Beach South	4	34.70	-4.20	2049	9
Symon Lane	West Lakes	1	35.94	-2.96	2050	9
Francis Ridley Circuit	Brompton	0	36.45	-2.45	2051	9
Lane 40	Henley Beach	0	36.44	-2.46	2052	9
Lane 28	Grange	3	34.52	-4.38	2053	9
Wilson Court	Grange	6	34.43	-4.47	2054	9
Brebner Drive	Grange	9	35.50	-3.40	2055	9
Esplanade	Henley Beach	7	35.75	-3.15	2056	9
Park Street South	Woodville Park	8	34.36	-4.54	2057	9
Viaduct Avenue	Henley Beach South	2	35.11	-3.79	2058	9
Lane 35	Henley Beach	0	36.09	-2.81	2059	9
Lane 50	Henley Beach	0	36.01	-2.89	2060	9
Walter Lane	West Lakes	0	35.96	-2.94	2061	9
Euston Terrace	West Croydon	12	34.68	-4.22	2062	9
Lane 12	Grange	0	35.70	-3.20	2063	9
Lane 32	Henley Beach	0	35.61	-3.29	2064	9
Lane 21	Grange	0	35.57	-3.33	2065	9

Road Name	Suburb	Plantable Opportunities	Surface Temperature	Daytime UHI (deg C)	IPA Priority Rank	Planting Priority Rank
Lane 56	Henley Beach South	0	35.55	-3.35	2066	9
Pandil Court	Fulham Gardens	0	35.48	-3.42	2067	9
Chimney Place	Allenby Gardens	0	35.32	-3.58	2068	9
Hurtle Street	West Croydon	5	34.11	-4.79	2069	9
Rowley Lane	Brompton	0	35.10	-3.80	2070	9
Station Place	Hindmarsh	0	34.96	-3.94	2071	9
Share Street	Kilkenny	0	33.48	-5.42	2072	9
Foord Avenue	Henley Beach	0	33.06	-5.84	2073	9

6.102 FOOTBALL PARK - PROPOSED COMMUNITY LAND MANAGEMENT PLAN & SANFL LICENCE REQUEST

TO	Council
FROM:	Manager Open Space Recreation and Property - Sam Higgins
DATE:	23 October 2023

Brief

It is anticipated that Football Park will be vested to Council as early as 2026, which will coincide with the completion of the West development. In readiness for this date, it is proposed that public consultation is undertaken on a draft Community Land Management Plan for Football Park. Further, Council has recently received a formal request from the South Australian Football League (SANFL) to licence a portion of Football Park through a non-exclusive licence for a period of 21 +21 years. This report seeks Council approval to commence formal community consultation for both processes.

Recommendation

1. **That Council endorses the Community Engagement Approach (Appendix 1) for the purposes of engaging the community on the draft Community Land Management Plan (Appendix 2) that will come into effect upon the vesting to Council of Football Park, West Lakes.**

2. **That Council endorses the Community Engagement Approach (Appendix 3) for the purposes of engaging the community on a proposal to grant the South Australian National Football League (SANFL) a 21 + 21 year non-exclusive licence for the use of Football Park, West Lakes.**

3. **That at the conclusion of the consultation, a further report be presented to Council on the proposed Community Land Management Plan and community feedback on the proposal from the SANFL for a non-exclusive licence for Football Park, West Lakes.**

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Community - A strong and connected community

People embrace healthy living, physical activity and ageing well.

Our Liveability - A liveable City of great places

Enhance the diversity of open spaces to create innovative, accessible and flexible community spaces.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.

Relevant Council policies are:

- Public Consultation Policy
- Sporting and Community Club Fees Policy

Relevant statutory provisions are:

- Local Government Act 1999
- Planning, Development and Infrastructure Act 2016

Background

At the Council meeting on 25 May 2015, Council received a report on the Football Park Redevelopment Master Plan (refer CL 25/05/15, Item 6.85). This report enabled consideration of a number of matters including the closure of Brebner Drive and the future vesting of the Football Park oval to council as public open space. Whilst the Development Act required 12.5%, the policy that was eventually endorsed by the Minister required 15% open space to be mandated in the Development Plan. At approximately 2.4 hectares in size, Football Park presently represents approximately 7.19% of the total development site, and so the development will have in the order of 19% open space when completed. In short, this oval plays an important part in contributing toward the required open space required within the development.

From this earlier report Council was supportive of the oval vesting as public open space provided there was a balance between the formal use of the oval for football purposes (the Adelaide Football Club "AFC") and informal use by the general community. The AFC has a long term lease over the land until 2048. It was intended that a shared use agreement was to be developed that could best articulate this balance when the land was finally vested.

Since that time, there has been several attempts to achieve a shared use agreement with the AFC, but no formal agreement has been finalised. This is in part due to the fact that AFC indicated a desire to relocate elsewhere and, since that declaration, several sites have been explored (North Adelaide Parklands, Bowden/Brompton and most recently their finalised plans for Thebarton Oval). Also AFC haven't seen the need for a shared use agreement as they already enjoyed the access they required due to a pre-existing long term lease. Further to this, Commercial and General (the developer) have not sought to vest the oval in Council, as the vesting of the oval to Council triggers a final 'balloon' payment from Commercial and General to the SANFL for the land. At that time, the current agreement as it relates to the AFC would be null and void. This would likely create a number of complex scenarios, these generally now seen as unnecessary in light of the AFC's clear ambition to leave West Lakes with the support of State Government. To that end, whilst there has been an objective to find balance between formal and informal use at Football Park, which has always been envisaged, the urgency to establish a shared use agreement between the parties has not been something the AFC have seen as important to finalise. However in more recent times, the need to formalise an arrangement has re-emerged, now driven by SANFL, as their co-existence at the Thebarton site between the AFC and SANFL is not possible (the ground space is inadequate) and the SANFL's vacation of Thebarton is necessary, hence it is one of a number of 'conditions precedent' associated with the location of the AFC to Thebarton.

To this end, an agreed Master Plan and an anticipated vesting date linked to the exodus of the AFC (anticipated to be early 2026), has been a significant milestone in recent months.

As the West Development nears its conclusion, vesting of the open space needs to occur. Given the vesting is likely to result in the extinction of the existing AFC agreement, this vesting will be problematic unless the AFC readily agree and it aligns to their relocation to Thebarton. All parties agree that should Council support the long term use of the oval by the SANFL, a smooth and seamless transition is desired and achievable.

Importantly, Council negotiated an Oval Master Plan **(Appendix 4)**, this details what the final footprint and curtilage will be. Administration are accepting of this design, given it

will delver 19% of the total development area as public open space, 50% more than the statutory requirement of 12.5% and 25% more than what the Development Plan requires. This curtilage includes a running track and buffer of a total of 6 metres in width in anticipation of both passive and organised sport co-existing into the future. Council now has a clear picture of the long term use of the oval courtesy of the SANFL's desire to occupy Football Park via a non-exclusive arrangement.

The hours of use are consistent with other suburban ovals and also what would have been anticipated should the AFC had remained. But with the proposed SANFL arrangements (see SANFL letter **Appendix 5**), there will be more community access during day light hours given the SANFL use will be after 4.30pm.

Report

The City of Charles Sturt has been approached by the South Australian National Football League ("SANFL"), to relocate from Thebarton Oval to West Lakes enabling the AFC to establish their long term headquarters at Thebarton. This relocation has been strongly supported by the State Government. Councils first consideration as to whether the AFC remain or the SANFL relocate, has always been to ensure there has been adequate community access to the open space and the oval. This access and how the overall site is envisaged to function has now become clearer with the in-principle agreement of an Oval Master Plan.

The Oval Master Plan

The Oval Master Plan (refer **Appendix 4**), forms part of Commercial and General's requirement to vest 15% of their developable area to Council as public open space. This is guided by the Planning, Development and Infrastructure Act 2016. However there is no requirement for this land to vest in Council in any particular condition, shape or form, beyond that which is suitable for public access (free of high levels of unsafe contamination). In the case of West Lakes, the Council has negotiated a total of 19% open space across the whole of the site, all of which is suitable for public access.

In negotiating this, Council staff have managed to protect the size of the main oval so that it meets recognised standards for AFL, whilst securing a curtilage beyond the fence of a minimum of 6 metres. Council can, at its discretion, develop this as a combined running track, shared use path and planted buffer etc. as per the draft masterplan. This space will serve as useful space (walkers, joggers, dog exercise etc.), when formal activity is occurring on the oval, and an important buffer between oval activity and nearby adjacent residential and commercial uses.

As detailed within the financial section of this report, the SANFL propose to meet all of their relocation and set up costs if they were granted a non-exclusive licence over Football Park on the terms as outlined. As the land will still have wider community access at all other times, it will be a requirement for Council to ensure that the bore and irrigation is at a suitable standard to enable the oval to be irrigated appropriately. It is proposed that any future irrigation and bore renewal works and on-going maintenance of these assets will be borne by Council as occurs with other Council lands and sportsgrounds.

This is considered by staff as being a reasonable obligation, as without the SANFL being present, there are no legal obligations from the developer to renew both of these working assets. Further, Council is presently responsible for all other bore and irrigation maintenance and renewals at all other Council-owned sportsgrounds. The timing of the maintenance or future renewal works will be determined upon vesting of the land to Council and the assets integration in to our relevant Asset Management Plans. At this time, a full asset assessment will be made but an allocation of approximately $400k in today's terms could be expected.

To secure certainty, Council is in the process of negotiating a development agreement that will guide the vesting of the open space, consistent with the above and the design as per the Oval Master Plan and aid the consultation processes.

The Adelaide Football Club (AFC)

The AFC as tenant presently has a lease with the SANFL for the on-going use of Football Park until 2048. However, this agreement becomes null and void when the land is vested to Council, which could be as early as 2026. If the AFC resolve to stay at Football Park (for example if the SANFL have no alternative ground to relocate to), Council will need to negotiate a licence that takes into consideration community access, along with both day training sessions (AFL Men) and evening times of use for both the AFC AFLW and AFC SANFL teams.

It has been widely reported within the media **(Appendix 6),** that the AFC are well advanced with the quest to relocate their existing football operations to Thebarton Oval, within the City of West Torrens and this has significant State Government financial support.

The AFC's plans to build a new training, administration and community facility at Thebarton Oval recently received a further financial boost from the State Government, with an additional $15m funding announcement in early October 2023. Whilst this financial support is another milestone for the AFC, the Club is still required to undertake a final phase of community consultation and then an approval process, working closely with the City of West Torrens who support this move and its Masterplan Advisory Group.

The SANFL presently hold an exclusive lease over the facilities at Thebarton Oval. Council staff understand that the SANFL are prepared to surrender this existing lease back to the City of West Torrens so that these facilities can be licensed to the AFC.

However, this action is conditional on the SANFL gaining a further long term licence over another facility (a 'condition precedent' to the above moves), with similar ground dimensions and lighting for their existing football programs (i.e. Football Park). In essence, if the SANFL were not able to secure a future suitable tenure at another location, then they will remain at their existing Thebarton Oval location until the expiration of their existing lease in 2031, if this were to occur it would also 'grid lock' any move by the AFC (unless yet another site could be found).

The SANFL Proposal

The SANFL are seeking to relocate back to West Lakes where they were the owner of the site from the mid 1970's until 2013. The SANFL plan to purchase a portion of privately owned land from the developer to invest approximately $27m in acquiring land to build a new administration and high performance training facility. **Appendix 5** details the SANFL's history and vision for the site and the essential elements of their request. Their proposed facility would be adjoining their commercial venue "the Mosaic Hotel" on the site. The SANFL's proposed capital contribution, asset replacement and maintenance commitments to the site includes the following elements:

SANFL Capital Investment	Estimated Cost
SANFL high performance and community football facility	$22.6m
Carpark development	$3.3m
Precinct & Oval development (oval fencing $150k, interchange area $50k, Sportsground lighting $600k, relocation of goalposts $50k).	$1.0m
TOTAL	**$26.9m**
SANFL Capital Renewal	
Lighting	100%
Scoreboard	100%
SANFL Ongoing Maintenance	
Playing Surface	100%
Lighting	100%
Scoreboard	100%
Goal posts and backstop netting	100%

Who will use the oval?

The SANFL are proposing to use Football Park for their Talent Programs for over 300 young players over the duration of a year, including junior male and female teams, first nations and the multicultural team, as well as participants with an intellectual disability. These players are drawn from the various football competitions and provides a pathway to the next level for players in each category. Whilst not included in the hours of use, the SANFL are also happy to include other local clubs activities (subject to Council's discretion and approval), on the oval on a weekend. This could be particularly useful for local junior clubs, in situations where their oval needs some respite given their heavy use during the winter months. Such access will require Council consent.

When will the oval be used?

As per the below table which was attached to their proposal within **Appendix 5,** the SANFL are seeking a monthly average usage of 60 hours per month averaged out over a 12 month period.

The SANFL have advised that their licence requirements will vary throughout the year. This is evident from their proposal, with October having no usage, however from February through to June, usage could peak at approximately 80 hours per month.

Month	Training Weekly Average Use (hrs) Mon-Fri	Training Monthly Average Use (hrs) Mon-Fri	Matches Average Weekly Use (hrs) Sat - Sun	Matches Average Monthly Use (hrs) Sat-Sun
November	13	60	0	0
December	13	60	0	0
January	13	60	5	20
February	17	80	5	20
March	17	80	5	20
April	17	80	5	20
May	17	80	5	20
June	17	80	5	20
July	13	60	5	20
August	9	40	2.5	10
September	9	40	0	0
October	0	0	0	0
AVERAGE	**14 hrs**	**60 hrs**	**3 hrs**	**13 hrs**

In summary, the SANFL are proposing to use Football Park on an average 14 hours during the week between the times of 4.30pm- 9.00pm and an average of 3 hours on weekends, either in the morning or afternoon (depending on scheduling).

It is recommended that the consultation on a draft non-exclusive licence based around these requested hours, now be undertaken.

Is the proposed use of Football Park considered excessive?

Council presently manages 33 sportsground throughout the City. All of these grounds have a structured activities program, with sporting clubs and associations throughout a typical week. In the situations where Clubs hold a licence for the use of a ground, Council would not normally place time constraints over the usage of the grounds, with the only enforceable time conditions being focussed around times of use for lighting and the sale of alcohol. The majority of Council's sportsgrounds are heavily utilised, especially during the winter months. **Appendix 7** provides a more detailed overview of three grounds typical winter usage, however the below snapshot summarises these activities:

- West Lakes Shore Oval (AFL): 37.5hrs/week,150hr/mth
- Sam Johnson Reserve (AFL): 29hrs/week, 116hr/mth
- Carnegie North & South Reserves (Soccer): 25hrs/week, 100/mth (on each reserve).

- Football Park (SANFL proposal): 17 hrs/week, 68hrs/mth (i.e 14hrs weeknights, 3hrs weekends).

As with any oval under a non exclusive licence, usage varies from month to month. However, when taking into consideration the SANFL's request for ground usage at Football Park, it can be shown that their proposed weekly usage is significantly less than a typical sportsground within the City of Charles Sturt would receive. In essence, enabling the ground to be available for wider community use more often than other typical grounds.

How long is SANFL seeking a Licence for?

The SANFL are seeking a 21 year plus 21 year non exclusive licence to occupy. Given their considerable long term capital investment in land, change rooms, oval lights and associated infrastructure to the value of approximately $27mil.

What will it cost Council?

The SANFL relocating to West Lakes will save Council money compared to the situation where no tenant occupies the oval. This is due to the SANFL agreeing to 100% of oval surface maintenance.

How will the Community have their say?

The proposed Community Engagement Approaches for both the Community Land Management Plan **(Appendix 3)** and the proposed Alienation of Community Land through a Non-Exclusive Licence **(Appendix 4)**, outline the process and the methods by which our community will be consulted and provide feedback on the proposals. The feedback from the community will inform the proposed Community Land Management Plan that will come into effect upon the vesting of the land to Council. The feedback will also inform a draft non exclusive licence. The date for vesting is likely to be determined through the AFC's departure from West Lakes. The Community Land Management Plan, coupled with the licence to the SANFL, are the legal instruments that govern Council's relationship with the tenant, but wont come into effect until the oval is under Council's care and control. The need to gain clarity and certainty on these matters now is as a direct result of the proposed relocation of the AFC.

Financial and Resource Implications

In the wider context, the City of Charles Sturt presently maintains sportsgrounds and then on-charges our sporting and community clubs a ground licence fee, based on the formula identified within our 'Community & Sporting Facilities Fees & Charges Policy'. The Policy clearly defines the level of service provided by Council to maintain a sportsground surface. The formula for charging is based on the average size of a playing surface per code x square metre 'differential cost' to maintain that surface (Note: The differential cost is the difference between the cost of maintenance on a recreation surface and a sportsground surface of varying standards). Using Football Park as an example, the ground licence fee applicable to a sporting club would normally be as follows:

Type of Playing Surface: Football: Australian Rules 20,800sqm
Ground Maintenance costs: $1.04/sqm AAA Standard pa
Open Space costs: $0.28/sqm Open Space rate
Differential rate: $20,800sqm x $0.76sqm
Annual Ground Maint. Fee: $15,808 pa

This annual licence fee applicable to a Club does subsidise Council's ground maintenance actual costs, with the actual costs being higher, but offset by the clubs contribution. This is in recognition that there is wider community benefit, as the general public are able to have access to our sportsgrounds when not required for structured sporting activities.

Within their submission to Council, the SANFL are proposing to fund the on-going maintenance costs of Football Park for the duration of the licence agreement. The SANFL presently absorb the maintenance costs associated with Football Park on behalf of the AFC (a historic arrangement as part of the AFC lease). As would be expected, this maintenance program is at a significantly higher service level than a typical community-based sportsground, with the cost to maintain presently costing the SANFL $120k per annum. Further to this, the SANFL are also proposing to inject approximately $26.9m **(Appendix 5),** into the West Lakes development, which includes the following elements:

- SANFL High Performance & Community Football Facility (proposed to be constructed on privately-owned land West of Phillips Street) - $22.6m;
- Car park development (privately owned land west of Phillips Street) - $3.3m
- Ancillary facilities associated with Football park (i.e. interchange benches, lighting, fencing, scoreboard) - $1.0m

Customer Service and Community Implications

Community access will be possible from sunrise through to 4.00pm Monday to Friday, with likely weekend activity mostly available for 3/4 quarters of the day light hours. It is anticipated between the times of 7.00am to 7.00pm averages over the 12 month period, the community will have access to the oval in the order of 80% of the time.

Broader benefits to the community include a minimum 6 metre setback from fence to private property, plus important break out points for passive recreation and space for a running/walking track. The oval maintenance will be borne 100% by the SANFL, with water costs borne by Council. By having the oval lit to approximately 8.30pm, community safety is enhanced and as the oval will be active for those seeking exercise, could avail themselves of a running track with excellent passive surveillance.

The SANFL also propose to build change rooms that will be available to other casual hiring clubs (subject to Council consent). Without these change rooms the oval could not readily assist other ovals across our city when their ovals require some respite.

Environmental Implications

The are no environmental implications associated with this report.

Community Engagement/Consultation (including with community, Council members and staff)

Two Community Engagement Approaches (**Appendices 2 & 3**), have been prepared in accordance with the requirements of Council's Public Consultation Policy. The Community Engagement Approaches outline the steps that will be undertaken to ensure the community has access to and understands the new Community Land Management Plan (CLMP) and conditions of the proposed ground licence, along with how information will be provided to assist the community in making comment on these proposals.

Risk Management/Legislative Implications

Community Land is classified as land owned by, or in the care control and management of Council, that is not a road, and which has not previously been excluded from community land classification by earlier Council endorsement and approval by The Minister.

In anticipation of taking ownership of Football Park in 2026, Council is now required by the Local Government Act 1999 to prepare and consult on a new draft community land management plan for this land.

Conclusion

It is anticipated that Football Park will soon be vested to Council in early 2026 as the West Development nears its completion. As the future owner of Football Park, it is recommended that Council now undertakes consultation on a draft Community Land Management Plan for this open space.

Further to this, Council has recently been approached by the SANFL requesting a non-exclusive licence to use Football Park for their structured pathway programs, with the understanding that the AFC are looking to relocate their existing football and administration operations to Thebarton Oval, therefore displacing the SANFL from their existing location.

It is also recommended that Council engages with the community to seek their feedback on a proposal from the SANFL for a 21 + 21 year licence for the use of Football Park. It is also recommended that community engagement is undertaken in accordance with both attached Community Engagement Approach (**Appendices 1 & 3**), with a further report tabled for Council consideration upon the completion of the consultation processes.

Appendices

#	Attachment
1	Appendix 1 - Community Engagement Approach for Community Land Management Plan Football Park, West Lakes
2	Appendix 2 - CLMP - Draft - Football Park
3	Appendix 3 - Community Engagement Approach - Proposal for New Licence on Football Park SANFL
4	Appendix 4 - Open Space Master Plan
5	Appendix 5 - Football Park - Letter - SANFL Proposal
6	Appendix 6 - Media Reports - Adelaide Football Club Moving to Thebarton Oval
7	Appendix 7 - CCS Weekly Sportsground Usage

APPENDIX 1

Community Engagement Approach for Community Land Management Plan Football Park, West Lakes

October 2023

Project Contact: Dianne Clayton
Senior Commercial Management Property Officer
Property Services
PH
dclayton@charlessturt.sa.gov.au

Caitlin Tierney
Community Engagement Officer
Open Space, Recreation & Property
PH: 8408 1132
ctierney@charlessturt.sa.gov.au

Community Engagement Approach for Community Land Management Plan for Football Park, West Lakes

1. Purpose and Objectives

The purpose of this Community Engagement Approach is to articulate the process and measures that will be undertaken to ensure identified Communities of Interest and the Mayor and Elected Ward Members are appropriately informed and engaged regarding the proposed development of a Community Land Management Plan (CLMP) for Lot 5066, Turner Drive, West Lakes, known as "Football Park". The development of a CLMP for this land intends to designate this site as community land and include the site on Council's Community Land Register.

This project is a matter set out in Part 2 of Council's Public Consultation Policy (PCP) as required under Section 197 of the *Local Government Act 1999* (the Act*)*. The engagement techniques referenced in this Community Engagement Approach have been determined by council in accordance with the legislative requirements and directions set out in the PCP, in addition to any additional, discretionary activities.

The objectives of this Community Engagement Approach are to ensure that:

- Information is provided to the Charles Sturt community regarding the development of a CLMP over the land known as "Football Park" to designate it as community land, and to inform them about the general purpose of a CLMP.
- The community is afforded opportunity to review the proposed plans and provide their feedback.
- Our Charles Sturt community has easy access to the appropriate project information.
- That the process builds positive relationships between Council and the community, and positions Charles Sturt as an organisation that is providing sound management decisions.
- That information is provided to the Charles Sturt community on any decisions and the reasoning for those decisions.

2. Project Background

South Australian National Football League Inc (SANFL) are presently the owners of the land at West Lakes on the former site of Football Park which has been progressively subdivided and developed by a Developer.

Football Park is a prominent outdoor sporting and recreational facility that can provide a variety of structured, formal, and informal recreational and sporting activity opportunities for use and enjoyment by the community, sporting clubs and community groups.

The Developer has committed to contribute the required land to Charles Sturt, including Football Park, as a community land parcel to satisfy their open space obligations under the development. The land is expected to be vested to Council in early 2026.

When the site is vested, it is proposed that Football Park is designated as 'community land' within the Local Government Act 1999, requiring the development of a new Community Land Management Plan (CLMP) for the land, which determines how the land can be used and managed. To develop the CLMP, community engagement is required in accordance with section 193 of the Local Government Act 1999.

3. Consultation Scope

This consultation will be carried out in accordance with the requirements of the Act, Council's PCP, Part 2 requirements and any additional, discretionary activities. The engagement level for this project is 'consult' and public feedback will be open for a 21-day consultation period.

The scope of the consultation relates specifically to whether the community support the development of a Community Land Management Plan for Football Park or not. They will have the opportunity to provide any other comment on the proposed CLMP which will comprise the following:

- A description of the land.
- The name by which the land will be known as (for the purposes of consultation we will use "Football Park").
- Purpose for which the land is held.
- Arrangements for issuing leases, licences, and permits over the land.
- Management objectives for the land.
- Proposal for managing the land.
- Performance targets and measures for the land.
- Relevant site maps or plans.

All property owners/landowners and residents within the defined consultation catchment area will receive a consultation pack to their listed property address, while absent property owners will receive materials to their listed postal address. The wider public will be informed of the consultation and invited to share their feedback via the public promotional material. Feedback will be sought online on the Your Say Charles Sturt project page, though alternative methods will be available and promoted to accommodate individual preferences (refer Section 5 for proposed activities).

While staff will not respond directly to all comments made following conclusion of the consultation period, any concerns, requests, or queries raised in the feedback will be addressed in the community engagement report, which will be made available on the Your Say Charles Sturt project page and in the Council report.

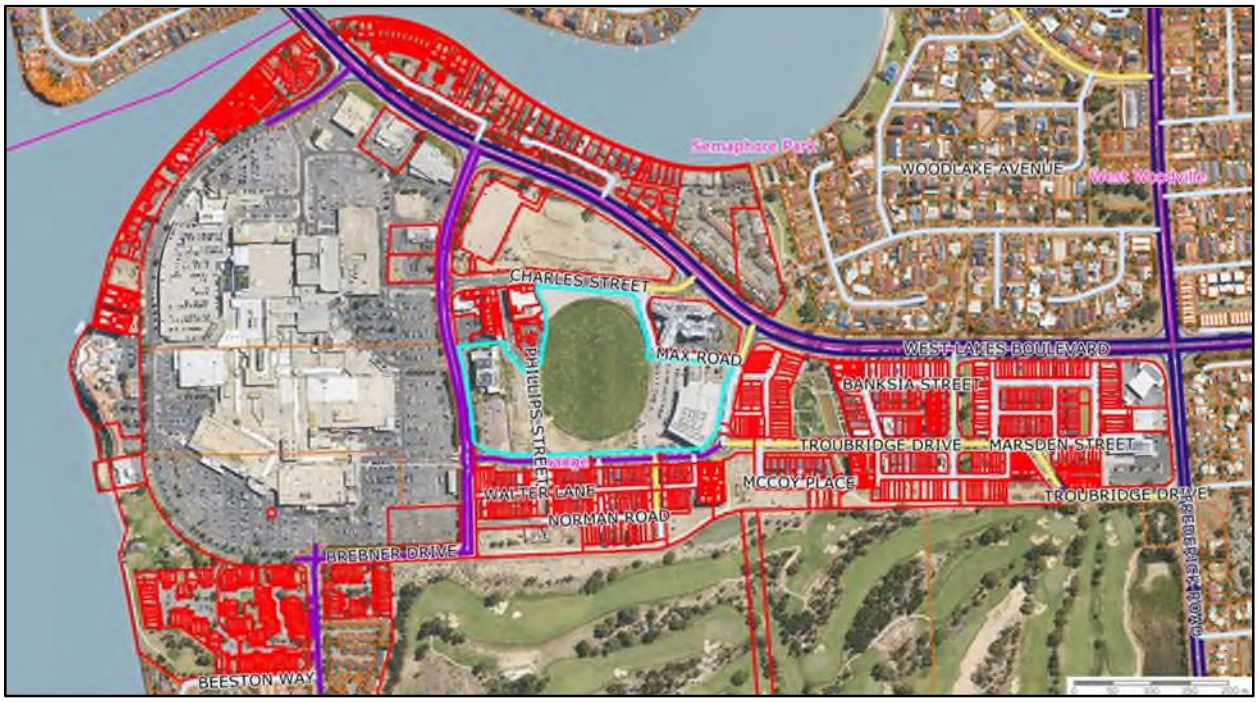
4. Communities of Interest

Key stakeholders and communities of interest for this project include:

- Mayor and Elected Members
- Relevant City of Charles Sturt officers.
- Property owners, landowners, residents, and community, sporting, or commercial centres within the consultation catchment area (refer **Figure 1** over the page).
- The broader Charles Sturt community.

Figure 1 – Defined Consultation Catchment Area

All properties highlighted in red are included in the catchment area, in addition to the Grange Golf Club and Westfield Shopping Centre Management and property owners (excl. individual shop tenants).



5. Planning Community Engagement and Timeframe

The scope for community engagement is consistent with the community engagement for the design and naming of the new reserve, and includes the following steps and timings:

Step	Title	Description	Timeframe
1.	Prepare Approach	Prepare a community engagement approach in relation to the matter.	October 2023
2.	Authorise Approach	Obtain authorisation of the community engagement approach from Council.	October 2023
3.	Undertake Community Engagement	The engagement activities include the minimum statutory requirements under the Council's PCP, as directed by the *Local Government Act 1999* (Section 197), and any additional, discretionary, engagement activities as detailed in this section.	November 2023
4.	Consider Submissions	Collate the submissions and feedback received during consultation and provide to staff for response/comment.	November 2023

Step	Title	Description	Timeframe
5.	Prepare & Present Decision Report	Prepare and present a report to Committee and/or Council which: • Presents information in the broader context of the matter; • Summarises the community engagement process and outcomes; and • Makes recommendations for Committee and/or Council to consider when deciding on the matter.	December 2023
6.	Council Decision	Council members will consider the decision report and recommendation(s) and decide on the matter. The right of a member of the community to address Council by way of deputation in support of any written submission may be granted at the discretion of the Council/Committee Chair.	December 2023
7.	Communicate Decision	Following the decision of Council, communicate the decision to all consultation participants and Your Say Charles Sturt project page followers via: • Your Say Charles Sturt email campaign; • Update to the Your Say Charles Sturt project page; • Postal notification, where no email address has been provided; and • Where the CLMP is endorsed for adoption, publication of a Public Notice in the Advertiser newspaper to notify the public of the decision.	December 2023

Levels of Engagement
The level of engagement for this project is "**consult"** given the:

- Multiple issues within a localised community.
- Moderate degree of complexity across a broad community of interest.
- Moderate degree of impact on the community.
- Clear process forward or clear options for the way forward.

Communication and Engagement Activities and Promotions
The following communication and engagement activities and promotions are proposed:

- Consultation package to all businesses, residents, and property owners/landowners, including absent property/landowners, within the defined catchment area.
- Public Notice in the Advertiser Newspaper (including online), to promote the consultation and the proposal with the community, and to notify of the adoption of the Plan subject to a decision of Council.
- The proposed CLMP will be available to view online or at relevant council offices and council sites within the city.
- Your Say Charles Sturt consultation project page and email campaign.
- Your Say Charles Sturt news updates, including notification emails to project followers and consultation participants.
- Your Say Charles Sturt online feedback form with alternative feedback methods, including by phone, in-person, electronic (eg email) or hardcopy (eg postal) available and promoted.

- Onsite signage at Football Park promoting awareness of the project and the opportunity to be involved and provide feedback.
- Information available at Ngutungka West Lakes to promote the consultation, share information on the CLMP, and details on how to provide feedback.
- Community "Drop-In" sessions at Ngutungka West Lakes offered for access to relevant council staff, to share feedback, collect hard copy feedback forms and/or to view information on the proposal.
- City of Charles Sturt public website and relevant Charles Sturt Social Media Platforms, if deemed appropriate noting the highly localised area of interest.

6. Reporting on Community Engagement

All feedback received during the consultation period will be collated and reviewed by staff. A community engagement report will be prepared and attached to a report to the Council presenting the results of engagement, staff response to comments made, and which makes recommendation/s on the adoption or otherwise of the proposed CLMP.

Consultation participants and Your Say Charles Sturt project followers will be notified by their registered Your Say email address or postal address when the report is made public via the Council meeting agenda on the City of Charles Sturt public website. Information on the how to make a deputation will be provided at this time. We will also provide a further update on the outcome following a decision of Council.

Direct notification or update will not be provided to those individuals within the catchment area who did not participate in the consultation or who are not following the project page.

7. Budget

The resources required to plan, deliver, and report on the public consultation of the proposed CLMP for Football Park include the following:

Resource Requirement	**Budget Estimate**
Internal administration costs associated with the project and preparation of key messages and engagement/marketing collateral, including development of the Your Say page, project updates on required platforms and delivery of the consultation, including drop-in sessions.	Covered by recurrent operational budget. $1,500
Public Notice in the Advertiser x 2	$2,800
Signage & other marketing collateral	$200
Use of City of Charles Sturt online platforms (website, Your Say Charles Sturt, and social media).	Covered by recurrent operational budget
Consultation Mailout Preparation, printing & packaging of catchment area collateral (approx. 1560 Mailout x 360 Maildrop x approx. 1,200	 $400 $220 $380
Total	**$5,500**

8. Risk Management

The key issues and risks for Council if a community engagement approach is not delivered, or not delivered well, include:

- Balancing individual views with broader community views.
- Lack of public understanding and awareness of the proposal.
- Community satisfaction.
- Failure to understand community sentiments on a project.
- Impacts associated with project delays.
- Media interest.
- Reputational risks.

9. Approval of the Community Engagement Approach

Seek Council approval for the community engagement approac

APPENDIX A – PROPOSED COMMUNITY LAND AREA IN RED

APPENDIX 2

Community Land Management Plan – Football Park

Name and Address of Property	Football Park – Turner Avenue, WEST LAKES
Ownership	City of Charles Sturt
Legal Description	Portion of Lots 5066 in DP 128680 (Certificate of Title Vol 6264 Fol 992) as depicted in the Site Map contained in this management plan.
Location	Currently - Lot 5066 Turner Avenue, WEST LAKES, 5021
Trust, Dedication or Restriction	Nil
Leases or Licences Issued	Refer Lease/Licence Register of Community Land
Open Space Category	District
Open Space Types	Sportsground, Community
Endorsed by Council	Item – October 2023
Relevant Policies/By Laws (no order of priority is intended)	Environmental Sustainability Policy Memorials Policy Path Policy Play Space Policy Public Art Policy Public Environment – Smoke Free Policy Tree and Vegetation Policy Telecommunication and Electricity Infrastructure on Council Land Policy Public Reserves for Commercial Fitness Activities Policy Council By-Law No. 1 – Permits and Penalties Council By-Law No. 3 – Local Government Land Council By-Law No. 5 – Dogs and Cats

General description of the lands

Football Park is a community land parcel as shown in the 'Site Map' of this Community Land Management Plan. Football Park is a prominent outdoor sporting and recreational facility providing a variety of structured, formal, and informal recreational and sporting activity opportunities for use and enjoyment by the community, sporting clubs and community groups.

Football Park (except for any part of the land, where relevant, that is subject to any lease/licence as granted by Council in accordance with Section 202 of the Local Government Act) is categorised as District Open Space and Sportsground in the Types and Hierarchy explained in Community Land Management Plans – An introduction.

Purpose for which the land is held

The Council holds Football Park for the primary purpose of providing open space, sporting, recreation and community facilities and services for community use and spaces that may be utilised for complementary business purposes. The Council also holds these lands for secondary purposes associated with addressing environmental, urban design, heritage and stormwater management needs (in no particular order of precedence).

Lease or Licence Permissions

Council may grant or renew leases and/or licences over any part or parts of Football Park.

Any lease or licence granted or proposed to be granted must be consistent with the uses and purposes for which the Council holds Football Park and surrounds, and its objectives, as outlined in this Community Land Management Plan. They may be issued to various sporting, recreation, business, commercial, social or community clubs or groups for the use of grounds whose activities cater for the local or broader community.

The Council may grant leases and licences of any length, and on any terms, to organisations established for sporting, recreation, social and/or community purposes over all or any part of Football Park.

Council may issue a permit to allow access over all or any part of Football Park or to allow for an activity of a short-term nature. Uses of land prohibited by Council by laws without approval may be approved in relation to the oval.

Council may issue an authorisation for commercial activities under Section 200 of the Local Government Act 1999. Authorised activities must be consistent with the purposes for which Football Park is held. Approvals may be given on conditions the Council considers appropriate.

An example of activities Council considers relevant to the purposes of the land when considering lease, licence, authorisation or permit requests are (without limitation)

- Passive and active sporting activities, events and competitions.
- Community and recreational activities and/or services catering to all ages and cultural groups.
- Fundraising, educational and community awareness events that support cultural diversity, health, fitness and general community wellbeing.

Permits, licences or easements may be granted by Council to public service provider authorities, within delegations of a relevant Act, for the purposes of provision of electricity, gas, water, internet, and telecommunications services (except for above ground telecommunications towers).

Management Objectives for the land (in no order of precedence)

- To provide high quality outdoor sporting facilities and open space areas, and services from those areas and facilities, that encourage participation in, and facilitate, sporting, recreational, cultural and community pursuits and to seek to maximise the use of the lands and their facilities for these purposes.
- To support and encourage sporting clubs and associations to provide the community opportunities for sporting and recreational activities.
- To facilitate occupation of any part of the open space areas by sporting clubs/associations, community clubs/groups or businesses for community and sporting purposes as set out in any licence/lease/permit granted by the Council.
- To address specific environmental, heritage and urban design objectives.
- To utilise a portion of the open space area of the reserve for stormwater management purposes if necessary.

Proposal for managing the lands

The management of Football Park is to be consistent with the descriptions and guiding principles for use and development identified in District Open Space Hierarchy and Sportsground Open Space Type described in Community Land Management Plans – An introduction.

Performance Targets and Measures for the lands

The performance targets and measures for Football Park are outlined below. They do not indicate an order of hierarchy or priority.

Performance Targets	Performance Measures
To develop and pursue opportunities for community participation in active and passive, formal and/or informal sporting, recreational, cultural and community-based pursuits.	Increased visitation and use of Council's open space areas and facilities as measured by an audit of Council's customer feedback platforms and customer surveys as conducted from time to time and reported to Asset Management Committee.
To develop and pursue maximised shared use of outdoor sporting and community areas, open space and facilities that support the sporting, recreational and community uses of the land (including but not limited to playing and activity surfaces, lighting, seating, shade, amenities, art works, cultural heritage references, lighting, paths, fencing, fitness and play equipment etc.).	Increased community satisfaction with, and use of, Council's open space areas and recreational facilities measured by an audit of customer feedback platforms, issued permits, registers and customer surveys as conducted from time to time and reported to Asset Management Committee.
Support lessees and/or licensees to provide and develop sporting and recreational opportunities for the community.	Lessee/licensee obligations met, and memberships retained, as measured by a review of Council's registers and annual rent review processes with non-compliance matters reported to the Asset Management Committee.
Renew/upgrade/develop landscaped areas, recreational facilities and associated infrastructure as outlined in the relevant Asset Management Plan.	Completed works reported to Asset Management Committee.

Provide a safe environment for visitors and users of the facility	Reduction in security incidents as reported to Council and measured by an annual review of Council's customer feedback platforms.

Site Map

N

APPENDIX 3

Community Engagement Approach for Proposal For New Licence On "Football Park" South Australian National Football League

October 2023

Contact: Nadia Nuzzo
Property Management Officer
Property Services
PH: 08 8408 1268
nnuzzo@charlessturt.sa.gov.au

Community Engagement Approach for Proposal for new licence on "Football Park"

1. Purpose and Objectives

The purpose of this Community Engagement Approach is to articulate the process and measures that will be undertaken to ensure identified Communities of Interest and the Mayor and Elected Ward Members are appropriately informed regarding a proposal for a new licence for South Australian National Football League (SANFL) over the location known as "Football Park" (refer **Appendix A**)

This project is a matter set out in Part 2 of Council's Public Consultation Policy (PCP) as required under Section 202 of the *Local Government Act 1999* (the Act). The engagement techniques referenced in this Community Engagement Approach have been determined by council in accordance with the legislative requirements and directions set out in the PCP, in addition to any additional, discretionary activities.

The objectives of this Community Engagement Approach are to ensure that:

- Information is provided to the Charles Sturt community regarding the proposed new license for Football Park.
- Our Charles Sturt community has easy access to the appropriate project information.
- That the process builds positive relationships between Council and the community, and positions Charles Sturt as an organisation that is providing sound management decisions.
- That information is provided to the Charles Sturt community on any decisions and the reasoning for those decisions.

2. Project Background

SANFL have requested a Ground Licence (only) for the use of Football Park at Lot 5066, Turner Drive, West Lakes for a period of 21 years plus a right to renew for a further 21 years. The execution of the licence will be subject to a decision of Council following consultation with the public.

The execution of a licence will also be subject to the approval of a Community Land Management Plan for Lot 5066, Turner Drive, West Lakes, which will be subject to consultation with the public and a decision of Council.

3. Consultation Scope

This consultation will be carried out in accordance with the requirements of the Act, Council's PCP, Part 2 requirements and any additional, discretionary activities. The engagement level for this project is 'consult' and public feedback will be open for a 21-day consultation period.

All property owners/landowners and residents within the defined consultation catchment area will receive a consultation pack to their listed property address, while absent property owners will receive materials to their listed postal address. The public will be invited to provide make a submission via public promotional material. Feedback will be sought online on the Your Say Charles Sturt project page, though alternative methods will be available and promoted to accommodate individual preferences.

Public feedback for this consultation is limited to making a submission in response to the proposal for a new license for Football Park. Staff will consider all submissions, with confidential submissions and staff responses included in a decision report.

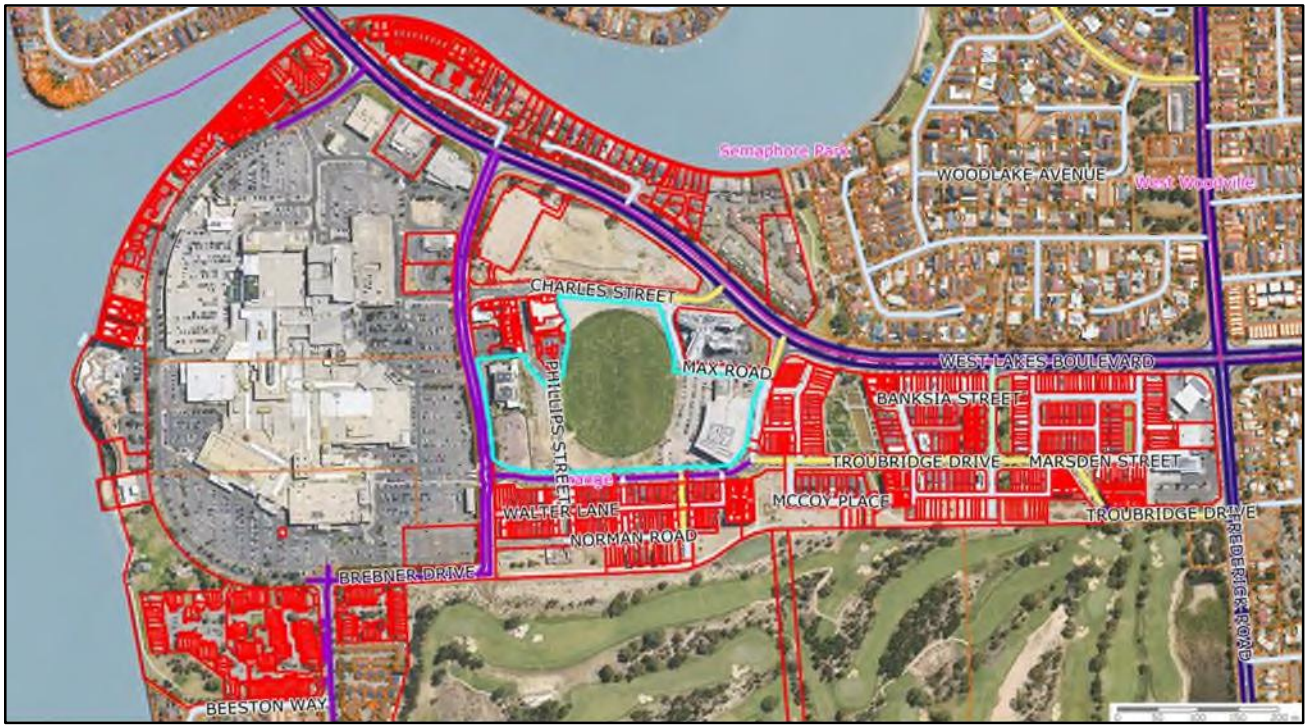
While staff will not respond directly to each submission made during the consultation period, submissions will be acknowledged, and any concerns or queries raised will be addressed in the decision report following the conclusion of the engagement.

4. Communities of Interest

Key stakeholders and communities of interest for this project include:

- Mayor and Elected Members
- Relevant City of Charles Sturt officers.
- Property owners, landowners, residents, and community, sporting, or commercial centres within the consultation catchment area (refer **Figure 1**)
- The broader Charles Sturt community.

Figure 1 – Defined Consultation Catchment Area
All properties highlighted in red are included in the catchment area, in addition to the Grange Golf Club and Westfield Shopping Centre Management and property owners (excl. individual shop tenants).



5. Planning Community Engagement and Timeframe

The timeframe and steps for the scope of this engagement is outlined below:

Step	Title	Description	Timeframe
1.	Prepare Approach	Prepare a community engagement approach in relation to the matter.	October 2023
2.	Authorise Approach	Obtain authorisation of the community engagement approach from Council.	October 2023
3.	Undertake Community Engagement	The engagement activities include the minimum statutory requirements under the Council's PCP, as directed by the *Local Government Act 1999* (Section 202), and any additional, discretionary, engagement activities as detailed in this section.	November 2023
4.	Consider Submissions	Collate the submissions and feedback received during consultation and provide to staff for response/comment.	November 2023
5.	Prepare & Present Decision Report	Prepare and present a report to Committee and/or Council which: • Presents information in the broader context of the matter; • Summarises the community engagement process and outcomes; and • Makes recommendations for Committee and/or Council to consider when deciding on the matter.	December 2023
6.	Council Decision	Council members will consider the decision report and recommendation(s) and decide on the matter. The right of a member of the community to address Council by way of deputation in support of any written submission may be granted at the discretion of the Mayor.	December 2023
7.	Communicate Decision	Following the decision of Council, communicate the decision to all consultation participants and Your Say Charles Sturt project page followers via: • Your Say Charles Sturt email campaign; • Update to the Your Say Charles Sturt project page; • Postal letter, where no email address has been provided.	December 2023

Levels of Engagement

The level of engagement for this project is "**consult"** given the:

- Multiple issues within a localised community.
- Moderate degree of complexity across a broad community of interest.
- Moderate degree of impact on the community.
- Clear process forward or clear options for the way forward.

Communication and Engagement Activities and Promotions
The following communication and engagement activities and promotions are proposed:

- Consultation package to all businesses, residents, and property owners/landowners, including absent property/landowners, within the defined catchment area.
- Public Notice in the Advertiser Newspaper (including online), refer **Appendix 2**.
- Your Say Charles Sturt consultation project page and email campaign.
- Your Say Charles Sturt news updates, including notification emails to project followers and consultation participants.
- Your Say Charles Sturt online submission/feedback form with alternative feedback methods, including electronic submissions (eg email) or hardcopy (eg postal) available and promoted.
- Onsite signage at Football Park promoting awareness of the proposal and the opportunity to be involved and provide feedback.
- Information stand at Ngutungka West Lakes to display information on the consultation and opportunity to provide feedback.
- Community "Drop-In" sessions at Ngutungka West Lakes offered for access to relevant council staff, to share feedback, collect hard copy feedback forms and/or to view information on the proposal.
- City of Charles Sturt public website and relevant Charles Sturt Social Media Platforms, if deemed appropriate noting the highly localised area of interest.

6. Reporting on Community Engagement

All submissions/feedback received during the consultation period will be collated and reviewed by staff. A decision report will be prepared for Council which presents the results of engagement, staff responses to submissions made, and which makes recommendation/s on the request to execute a licence agreement.

Consultation participants and Your Say Charles Sturt project followers will be notified by their registered Your Say email address or postal address when the decision report is made public via the Committee/Council meeting agenda on the City of Charles Sturt public website. Information on the how to make a deputation will be provided at this time. They will also be updated on the outcome, following a decision of Council.

Notification and updates will not be provided to those individuals within the catchment area who did not participate in the consultation or to the general public who are not following the project page.

7. Budget

The resources required to plan, deliver and report on the public consultation on the request to execute a new licence agreement:

Resource Requirement	Budget Estimate
Internal administration costs associated with the project and preparation of key messages and engagement/marketing collateral, including development of the Your Say page, project updates on required platforms and delivery of the consultation, including drop in sessions.	Covered by recurrent operational budget. $2,200
Public Notice in the Advertiser	$1,500
Signage & other marketing collateral	$350
Use of City of Charles Sturt online platforms (website, Your Say Charles Sturt, and social media).	Covered by recurrent operational budget

Consultation Mailout	
Preparation, printing & packaging of catchment area collateral (approx. 1560	$450
Mailout x 360	$430
Maildrop x approx. 1,200	$720
Total	**$5,650**

8. Risk Management

The key issues and risks for Council if a community engagement approach is not delivered, or not delivered well, include:

- Balancing individual views with broader community views.
- Lack of public understanding and awareness of the proposal.
- Community satisfaction.
- Failure to understand community sentiments on a project.
- Impacts associated with project delays.
- Media interest.
- Reputational risks.

9. Approval of the Community Engagement Approach

Seek Council approval for the community engagement approach.

APPENDIX 1 – PLAN OF PREMISES

Appendix 2

Notice of Proposal

New Licence – South Australian National Football League

Notice is hereby given that, pursuant to the provisions of Section 202 of the Local Government Act 1999, the City of Charles Sturt proposes to grant a twenty one (21) + twenty one (21) year Licence for:

Use by the South Australian National Football League for premises at Lot 5066 Turner Drive, West Lakes

The plan of the area, the subject of the proposal, can be inspected at the Civic Centre, 72 Woodville Road, Woodville, and **www.charlessturt.sa.gov.au**
A copy of the plan will be sent to interested persons on request.

Feedback for the proposal may be submitted via the Council website **https://www.yoursaycharlessturt.com.au** or written submissions should be sent to the Chief Executive Officer, PO Box 1, Woodville 5011 by _____

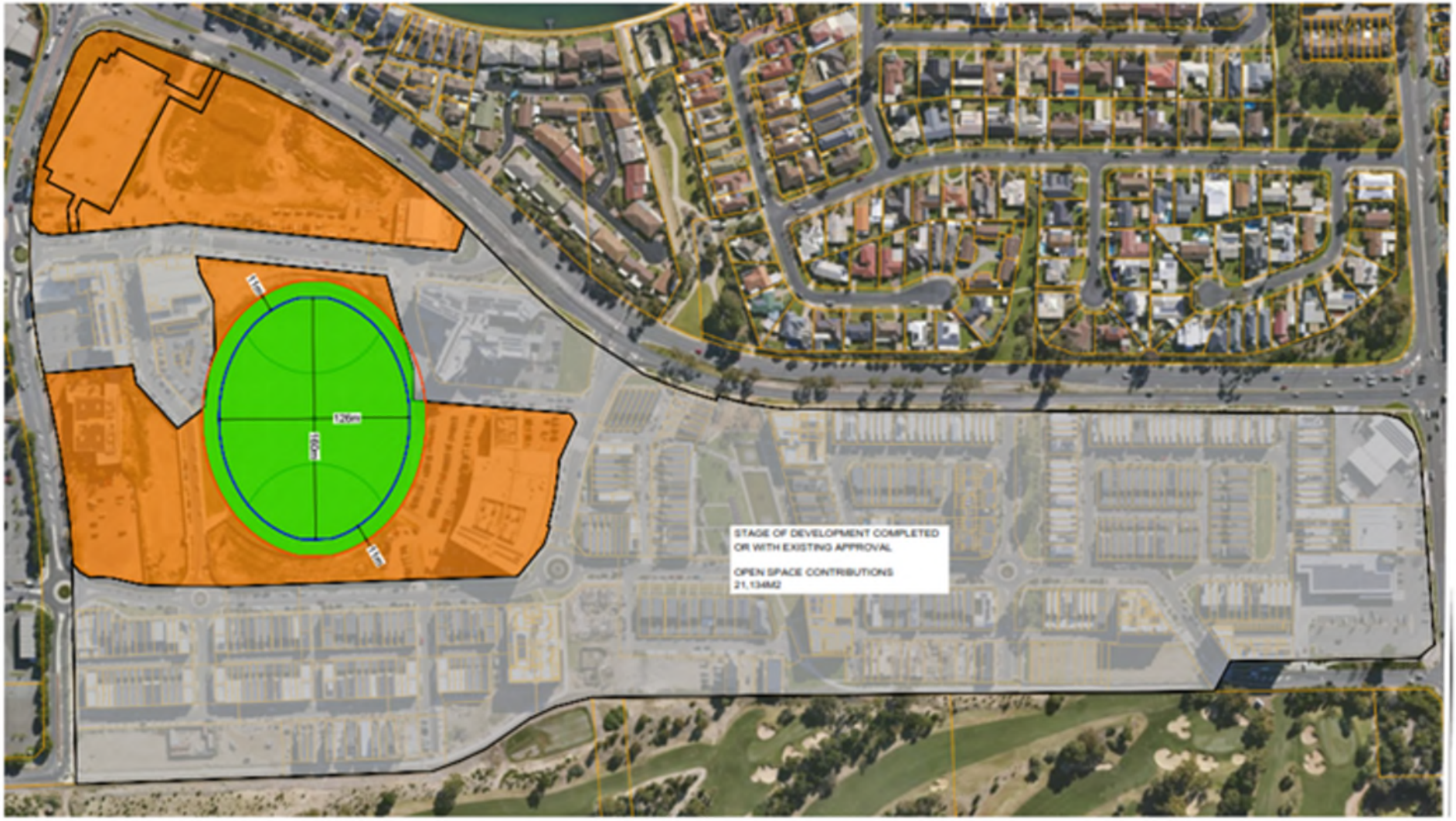
We will advise those who have made submissions when the proposal will be considered by Council.

For further information contact Nadia Nuzzo on 8408 1111, email **nnuzzo@charlessturt.sa.gov.au**

PAUL SUTTON, Chief Executive Officer

APPENDIX 4

OVAL Master Plan – Open Space Agreement



APPENDIX 5

SANFL
ABN 59 518 757 737

Office
Level 2, Riverbank Stand,
Adelaide Oval, War Memorial Drive,
North Adelaide SA 5006

Postal Address
PO Box 606 Tynte Street,
North Adelaide SA 5006
T 08 8424 2200
W sanfl.com.au

MAJOR PARTNERS

HOSTPLUS WEST END

We love footy

11 October 2023

Paul Sutton
Chief Executive Officer
City of Charles Sturt Council
PO Box 1
WOODVILLE SA 5011

Dear Paul

Re: Request for licence to use West Lakes Oval

I am writing to formally request that SANFL be granted a 21+21-year non-exclusive licence to use the oval at West Lakes, historically known as Football Park. If this licence is granted, SANFL plans to establish a football facility for the states most talented junior players, on the land adjacent to the Mosaic Hotel (which is owned and operated by SANFL).

SANFL already has an extremely strong and well-established relationship with the City of Charles Sturt and as outlined below we believe we can build a long-term mutually beneficial partnership at the West Lakes site.

SANFL Overview

Formed in 1877, SANFL is a not-for-profit sporting organisation that's mission is to protect, lead, manage and deliver the promotion and development of Australian Football for the people of South Australia.

SANFL is affiliated to the national body, the Australian Football League (AFL), but is governed by the South Australian Football Commission and is the peak body for Australian Rules Football in South Australia.

While SANFL is predominantly recognised in the public domain as a state league Australian Rules Football competition, the organisation is responsible for the overall health, sustainability, and growth of the sport in South Australia. This includes promotion of the sport, facilitating opportunities for participants to engage in the sport via competition and program management, support and education for affiliated competitions and clubs to increase their own capacity as organisations, amongst many other activities.

There are over 300 players directly involved in SANFL Talent programs, which include junior male and female teams, first nations and multicultural teams, as well as participants with an intellectual disability. These young boys and girls will access the West Lakes oval to pursue their dreams of playing at the highest level. There are also a further 700 players at eight (8) SANFL Clubs who will from time to time have the benefit of using the football facility at West Lakes.

SANFL also runs the SANFL Junior Competition for 13,000 girls and boys aged 6 to 17 across the metropolitan area. Many Clubs are often looking for additional playing venues. While not included in the hours of use request, SANFL is very open to working with the Council, at the request of a junior club from within the Charles Sturt Council area, to allowing Football Park (together with the SANFL change rooms) to be used for junior games on Sunday mornings.

Background

For 40 years Football Park at West Lakes was the home of football in South Australia, until 2014 when AFL games were relocated back to Adelaide Oval and the land was sold to Commercial & General to take the precinct into the next generation.

As the owner of the land at West Lakes, SANFL knew it will eventually have to find a new football facility and oval to run and manage its various programs, particularly its talent pathways for the best boys and girls in the state to realise their potential and pursue excellence.

By December 2019, SANFL had been transferred the head lease for Thebarton Oval from the Adelaide Footy League and secured $11m in government funding ($5m State Government, $6m Federal Government) to build its new talent facility at Thebarton Oval.

SANFL was informally approached by the Adelaide Football Club in October 2020 regarding the possibility of co-locating at Thebarton Oval, which SANFL was willing to consider on the basis there was access to two ovals (Thebarton Oval and King Reserve). The Adelaide Football Club at the time were considering several options.

At this time, SANFL had its project fully funded and ready to proceed. It had begun negotiations with the City of West Torrens Council on a new 21+21-year lease at Thebarton Oval, to replace the current lease, which is due to expire in 2031. In early 2022, the City of West Torrens Council resolved it would not consider a new long-term lease for the SANFL at Thebarton Oval, as its priority was to allow the Adelaide Football Club to establish its headquarters at Thebarton Oval.

SANFL then began looking at alternative locations to build its talent facility and relocate its $11m of government funding.

West Lakes Strategic Alignment

Following the events outlined above, SANFL engaged with City of Charles Sturt and Commercial & General to investigate options to relocate to West Lakes.

Whilst the change in plans has been disruptive to our business, we feel extremely fortunate to have the opportunity to return to West Lakes once again and reestablish Football Park as the home for talented young players in South Australia, many of whom will reside in the local area. At the same time, it will provide a potential alternative venue for junior football clubs from within the City of Charles Sturt.

Our vision at SANFL is to connect communities through the enjoyment of footy and through this vision, we believe we can partner with City of Charles Sturt to create a place that achieves shared desired outcomes for people, place, and business for many years to come.

People

Our vision for the site focuses on people and increasing public amenity to the iconic oval, whilst also providing safe and functional linkages to our high-performance football facility. With SANFL use being largely programmed in the later afternoon and evening, the oval space will be highly accessible for community use. With the ability to light the oval, the space will be accessible winter mornings for fitness and dog walking (as currently demonstrated at Unley Oval); Young children and families visiting the library and shopping centre during the day can walk down to the oval to spend time playing on the immaculate grass; teenagers can practice their goal kicking with mates; local runners and walkers will add the new oval running loop into their regular fitness sessions around West Lakes. The accessible open space will be crucial to providing required amenity for surrounding residents both now and in the future.

Place

SANFL has a strategic imperative to deliver Quality Facilities at all Levels. The SANFL talent football facility (which will include community use change rooms) is no exception to this imperative with the building complimenting its surroundings and contributing to a welcoming and inclusive precinct. The community use changerooms can be utilised by a variety of clubs from within the City of Charles Sturt and this investment by SANFL will save Council approximately $2m+ as Council would have had to have built standalone change rooms at the oval to allow community use.

SANFL's connection to place at West Lakes is significant and the iconic building will provide a recognisable anchor point for people to meet at the oval.

Business

The co-location of Mosaic Hotel, X Golf and Hey Caddy and the new SANFL talent facility will enable excellent business outcomes for the precinct by providing ongoing local jobs and increased visitation numbers to the area. Our ability to manage multiple venues from the same precinct will be a significant factor in its success. Through the development of welcoming and inclusive public open space, more people will be attracted to the precinct to spend time and contribute to the thriving social fabric of residential, recreational, hospitality and retail offerings.

Football Programs and Usage

The usage of the oval has been critically reviewed by SANFL and was as presented to the City of Charles Sturt Councillors on 21 August 2023 (attached). SANFL is requesting approval for monthly usage up to 100 hours, comprising of 80 hours (Monday – Friday) and 20 hours (weekends).

Proposed annual usage equates to 850 hours per annum, which is approximately 20% of the available hours between 7am to 7pm.

Licence Request

SANFL is formally requesting to enter into a 21+21-year non-exclusive licence to use West Lakes oval. A long-term licence is critical given the proposed investment into the precinct is approximately $27m with SANFL committing to ongoing maintenance of the public amenity (oval and field lighting) equalling approximately $120,00 per annum. Included in the $27m is also a $1m contribution to oval and precinct development which will have substantial community benefits in addition to the community use changerooms previously mentioned.

The negotiation on the commercial terms of the licence have commenced in good faith with City of Charles Sturt Management and are progressing well.

In terms of capital contribution, asset replacement and maintenance for the site, SANFL is committed to the following, pending favourable outcomes on other items being discussed.

SANFL Capital Investment	
SANFL high performance and community football facility	$22.6m
Carpark development	$3.3m
Precinct & Oval Development (perimeter fence $150k, interchange area $50k, field lighting $600k, scoreboard $150k, relocation of goalposts $50k)	$1.0m
TOTAL	**$26.9m**
SANFL Capital Renewal	
Lighting	100%
Scoreboard	100%
SANFL Ongoing Maintenance	
Playing Surface	100%
Lighting	100%
Scoreboard	100%
Goal post and behind goal netting	100%

Timelines

Based on the current timelines, SANFL is hopeful that the non-exclusive licence can be approved by Council at its last meeting this year on 11th December 2023 following public consultation.

We would be able to then sign the non-exclusive licence as soon as practical to commence once the oval is vested with Council. We assume the most appropriate time for the oval to vest with Council would be once the Adelaide Football Club have relocated to Thebarton Oval, likely to occur in 2026.

In relation to our facility, we are aiming to lodge the planning application by December 2023 and commence construction in July 2024 with completion expected by December 2025.

Thanks again for your support of football in South Australia and we look forward to working with you on delivery a fantastic outcome for the West Lakes community.

Yours Sincerely
SA NATIONAL FOOTBALL LEAGUE INC

Darren Chandler
CHIEF EXECUTIVE OFFICER

Football Park Oval Use

ADELAIDE FOOTBALL CLUB USE

- 100 hours per month
- AFL Men's Team Training / Trial (Generally between 9.00am – 5.00pm)
- AFLW Team Training / Trial (after 4pm)
- SANFL Team training / Trials (after 4.00pm)
- 23 Hours per week
- 100 Total Hours per month
- 1,200 Total Hours per annum

SANFL INITIAL USE

- 4pm – 8pm Monday – Friday 87 hours per month (1044 hours per annum)
- 8.00am – 12.00pm Sunday 17.3 hours per month (208 hours per annum)
- 25 Match Day 12.5 hours per month (150 hours per annum)

- 27 Hours per week
- 116.8 Total Hours per month
- 1,402 Total Hours per annum

SANFL PROPOSED USE

- Average Training 60 hours per month (720 hours per annum) Maximum 80 hours per month (March – June)
- 25 Match Day 12.5 hours per month (150 hours per annum)

- 16.5 Hours per week
- 72.5 Total Hours per month
- 850 Total Hours per annum
- Average days per weeknight available to Community 2.5

Football Park Oval Use Breakdown

	Training Weekly Average Use (hours) Monday – Friday	Training Monthly Average Use (hours) Monday – Friday	Matches Average Weekly Use (hours) Saturday – Sunday	Matches Average Monthly Use (hours) Saturday – Sunday
November	13	60	0	0
December	13	60	0	0
January	13	60	5	20
February	17	80	5	20
March	17	80	5	20
April	17	80	5	20
May	17	80	5	20
June	17	80	5	20
July	13	60	5	20
August	9	40	2.5	10
September	9	40	0	0
October	0	0	0	0
TOTAL: **AVERAGE:**	**720 hours** **14 hours**	**720 hours** **60 hours**	**150 hours** **3 hours**	**150 ours** **13 hours**

APPENDIX 6

https://www.adelaidenow.com.au/news/south-australia/adelaide-crows-thebarton-oval-headquarters-premier-peter-malinauskas-reveals-15m-funds-in-critical-last-step/news-story/346fd56778a97f2a2151ad52be55c29b

EXCLUSIVE

Adelaide Crows Thebarton Oval headquarters: Premier Peter Malinauskas reveals $15m funds in 'critical last step'

The Adelaide Crows are hailing an end to their decade-long quest for a new home after a crucial state funding package.

Paul Starick Editor At Large
Follow

@paulstarick
3 min read
October 9, 2023 - 12:06PM
Sunday Mail (SA)

Premier Peter Malinauskas reveals $15m funds in 'critical last step' in Adelaide Crows Thebarton Oval headquarters
The Adelaide Crows are declaring an end to their decade-long quest for a new home...

The Adelaide Crows are declaring an end to their decade-long quest for a new home after a "critical last step" of securing state government money for Thebarton Oval.
Revealing the $15m funding in an exclusive Sunday Mail interview, Premier Peter Malinauskas declared: "It's time to get this done. It's time to build this thing."

The $100m Thebarton Oval redevelopment will include world-class training and administration headquarters, two ovals and hospitality spaces.

The $15m state funding matches an earlier federal allocation and is pitched as creating a permanent home ground for the Crows' hugely successful AFLW side and opening up the Oval to the community.

The precinct will be open to the public outside designated match and training times. The Crows will post public opening times on their website as part of the funding deal.

New Crows Facility artist impression. Supplied: City Collective

The state government will plough another $10m into the Oval precinct, particularly open and green space and recreational facilities, including bike paths.

Adelaide Football Club chairman John Olsen told the Sunday Mail: “This decision and support from the government is the critical last step for us now to be able to proceed to deliver this project.”

Mr Olsen said the redevelopment proposal would now be taken to a Master Plan Advisory Group, then West Torrens Council, before more consultation and then through the state planning process.

The Crows started exploring a move away from their West Lakes home in 2013, meeting with Adelaide City Council officials to discuss “potential training bases” in the parklands.

At least four sites later were scuttled, including the Adelaide Aquatic Centre in 2020 and Brompton Gasworks in 2022, before plans for the former SANFL ground at Thebarton Oval was unveiled in August last year.

Adelaide Football Club chairman John Olsen told the Sunday Mail the decision was the "critical last step" to deliver the project.
Picture: Roy VanDerVegt

Premier Peter Malinauskas said the $15m funding was important to show support for one of the state's two AFL clubs.
Picture: NCA NewsWIRE/Emma Brasier

ADELAIDE CROWS' SEARCH FOR NEW HQ

The Crows considered a range of sites around Adelaide for their new headquarters.

1/ Adelaide City Council nursery: War Memorial Drive, near Hackney

Rejected outright in 2018 by councillors during private briefing with the Adelaide Football Club.

2/ Adelaide Aquatic Centre: North Adelaide parklands

Project abandoned in 2020 due to the Covid pandemic and strong opposition from some councillors, pool users and North Adelaide residents.

3/ Former SA Water depot: Corner of James Congdon Drive and Port Rd, Adelaide

Abandoned after city councillors refused to privately meet with Crows chairman John Olsen, followed by a formal vote to block any commercial activity within the parklands.

4/ Brompton Gasworks: Chief St, Brompton

At one point the club's favoured option but in January the Marshall government awarded development rights to MAB Corporation, which plans a high-density living development.

5/ Thebarton Oval

An agreement has now been reached between Adelaide Football Club and West Torrens Council for new club headquarters, using modified plans developed for the Aquatic Centre site.

But nearby residents protested against a loss of open space at Kings Reserve, adjacent Thebarton Oval, forcing the Crows to compromise in April on plans for a MCG-sized training ground and replace that with a Marvel Stadium-sized ground from 2031, when land is available at the eastern edge after the nearby South Rd tunnels are completed.

Mr Malinauskas told the Sunday Mail the $15m funding was important to show support for one of the state's two AFL clubs, saying the government would work with the Crows' cross-town rival Port Adelaide on "any opportunities that may present themselves in the future".

"This is very much a commitment to the Crows … The Adelaide footy club deserves a permanent home. The AFLW side is the most successful footy team in the country," he said.

An aerial artist impression of the proposed new Adelaide Crows headquarters at Thebarton. Picture: City Collective

"It's been a long time since a non-Victorian team has won an AFL premiership – too long in our view – and our AFL clubs need to be able to compete with the best. (These) facilities do provide that opportunity for both men and women."

Infrastructure and Transport Minister Tom Koutsantonis, whose West Torrens electorate includes Thebarton Oval, said the Crows were "investing $100m into the western suburbs, into a community asset".

"It'll be great to have the Oval back. My daughters live down the road and my eldest daughter is turning 13 next month and she's never set foot inside Thebarton Oval," he said.

"I grew up in the area and Thebarton Oval used to be a key part of growing up in the area.

"Now it's just surrounded by a fence and what the Crows are going to do is bring down those fences."

New Crows Facility artist impression. Supplied: City Collective

New Crows Facility artist impression. Supplied: City Collective

Resident spokeswoman Emma Dawes, of the 5031 CF&GS Action Group, said Mr Koutsantonis's intervention had helped ensure previous plans for Kings Reserve were not cast aside but could coexist with a football hub.

More Coverage

Dr Dawes said the funding was "a significant step forwards towards a precinct that can service the needs of the Crows, and continue to meet those of the inner-west community".

The western end of Kings Reserve, which includes community barbecues and trees, will not be part of the Crows redevelopment, from which there will be no net tree loss across the Oval precinct.

The state government committed in October last year to build direct entry and exit access from an upgraded South Rd to the Crows' Thebarton Oval headquarters in bid to ease traffic and parking concerns.

https://www.adelaidenow.com.au/news/south-australia/jordan-dawson-chelsea-randall-react-to-crows-thebarton-move/news-story/13b6a11bc0be4f091bdbdc7e54defd42

Jordan Dawson, Chelsea Randall react to Crows Thebarton move

The captains of the Crows men's and women's sides were not the only ones applauding the news the club had finally found a new home.

Shashi Baltutis

3 min read

The Advertiser October 9, 2023 - 12:03PM

See inside Adelaide Football Club's proposed new HQ
Adelaide Football Club's proposed new training, administration and community precinct at Thebarton Oval. (City Collective)

Adelaide Crows stars and fans alike say they're thrilled the club has finally been able to declare an end to its decades long search for a new home.

Crows captain Jordan Dawson says he is "super excited" about the new facility at Thebarton Oval after Premier Peter Malinauskas revealed to the Sunday Mail that $15m in state funds would be poured in to "build this thing".

"For us it's about having the best facilities in Australia but also growing as a club and to be that top-tier professional team," Dawson said.

"Hopefully I'll still be playing by the time we move in here."

Premier Peter Malinauskas reveals $15m funds in 'critical last step' in Adelaide Crows…
The Adelaide Crows are declaring an end to their decade-long...

Dawson said the unity between the men's and women's teams will be a highlight.

"Having the AFLW team and the men's team under the same roof will be awesome," he said.

The $100m redevelopment of the Thebarton Oval will offer a permanent home to the popular Crows AFLW side and will include world class training and administration facilities, as well as hospitality facilities and two ovals.

It will also be open to the public outside of official match and training times.

Crows supporter “since day one”, Brian Watson, 71, said he was also looking forward to the big move.

Crows fans Matilda, Benji, Eva and Jordan with Crows players Sarah Allan, Jordan Dawson and Chelsea Randall. Picture: Keryn Stevens

“It’s absolutely fantastic and we had to find somewhere,” Mr Watson, from Kidman Park, said.

“Supporters can come together now and it’ll be easy access for everybody.”

His grandchildren, Benji and Matilda Jones were also excited by the move.

“I’ve been going (to games) since I was born and this will be really good,” Benji, eight, said.

His sister Matilda, 11, said the new site would be an improvement on the West Lakes headquarters.

“I think it’s really good that it’ll be open to everyone,” she said.

An artist's impression of the new Crows facility.

The move has been branded as "a positive step" by the local community group, who were concerned about the effect on the nearby King's Reserve.

"This is one of the only pieces of green space in the area and once it's gone, we can never get it back," 5031 Community Facilities and Green Spaces Action Group spokesman Dr Emma Dawes said.

"Today's announcement is a significant step forwards towards a precinct that can service both the needs of the Crows, and that of the inner west community."

Dr Dawes said the group spoke to Infrastructure Minister Tom Koutsantonis, their local member, to make sure the space was not "cast aside" with the new headquarters.

ADELAIDE CROWS' SEARCH FOR NEW HQ

The Crows considered a range of sites around Adelaide for their new headquarters.

1/ Adelaide City Council nursery: War Memorial Drive, near Hackney

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Abandoned after city councillors refused to privately meet with Crows chairman John Olsen, followed by a formal vote to block any commercial activity within the parklands.

4/ Brompton Gasworks: Chief St, Brompton

At one point the club's favoured option but in January the Marshall government awarded development rights to MAB Corporation, which plans a high-density living development.

5/ Thebarton Oval

An agreement has now been reached between Adelaide Football Club and West Torrens Council for new club headquarters, using modified plans developed for the Aquatic Centre site.

She hailed the plans as allowing the reserve to "coexist with a football hub".

But the group condemned tree felling to make way for the development.

"While we are happy the majority of trees on Kings Reserve will be maintained, we still think the Crows designers can do more to preserve more of the 71 trees facing the chainsaw around Thebarton Oval," Dr Dawes said.

"We're looking forward to working with the state government and the Crows to make sure this is something we can be proud of."

But Dr Dawes said "the fight is not over" in maintaining greenery in the area as negotiations continue.

Not everyone is happy with the move however, as local soccer club MA Hawks, who use the Therbarton Oval precinct for training and matches, are set to be displaced.

MA Hawks club president Peter Bouras said he was informed on Friday that the club would move, and now worries about losing revenue.

"There are a lot of questions that I need answers to," Mr Bouras said.

Club members must decide between two alternatives for their home ground, which have not yet been revealed.

Mr Koutsantonis said the club does "a great job of engagement in the local community" and the government is working to relocate them in the western suburbs.

"They're a very important soccer club... and we want to keep that culture going in the western suburbs," he said.

The news comes after at least four sites were identified and then rejected, including the Adelaide Aquatic Centre and Brompton Gas Works before settling on the former SANFL ground at Thebarton in August.

The Thebarton move has not come without local opposition though.

The Crows original hopes of building an MCG sized training ground were scuppered in April when the club agreed to aim for a smaller Marvel Stadium sized facility instead.

APPENDIX 7

CCS - Typical Weekly Sportsground Usage

West Lakes Shore Oval Typical Average Weekly Usage – 37.5hrs/wk (150hr/mth)

SMOSH Oval Schedule	2023 Winter Season			April to August (pending finals in September)			
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
08:00:00 AM	Community Use Oval Recovery and Maintenance					Senior Men / Senior Women Matches 8am - 5pm (If Men & Women both play home, finish 9pm)	Juniors / Youth / Girls / Masters Matches 8am - 5pm
08:30:00 AM							
09:00:00 AM							
09:30:00 AM							
10:00:00 AM							
10:30:00 AM							
11:00:00 AM							
11:30:00 AM							
12:00:00 PM							
12:30:00 PM							
01:00:00 PM							
01:30:00 PM							
02:00:00 PM							
02:30:00 PM							
03:00:00 PM							
03:30:00 PM							
04:00:00 PM		U11 - 4pm-5pm			U7, U8, U10 & U11 4pm-5pm		
04:30:00 PM	Girls Training 4.30pm - 6pm			Girls Training 4.30pm - 6pm			
05:00:00 PM		U12 & U13 - 5pm-6pm	U14, U15 & U16 5pm-6pm		U9 & 2 x Youth 5pm-6pm		
05:30:00 PM							
06:00:00 PM	Senior Women Training 6pm - 7.30pm	Senior Men Training 6pm - 7.30pm	Senior Women & West Masters Training 6pm - 7.30pm	Senior Men Training 6pm - 7.30pm	Juniors / Youth / Girls Matches 6pm - 9.30pm		
06:30:00 PM							
07:00:00 PM							
07:30:00 PM							
08:00:00 PM							
08:30:00 PM							
09:00:00 PM							
09:30:00 PM							
10:00:00 PM							
10:30:00 PM							

CCS - Typical Weekly Sportsground Usage

Sam Johnson Reserve -Typical Average Weekly Usage – 29/wk (116hr/mth)

Sam Johnson Reserve 2023 Winter Season April - Aug (pending finals in Sept)

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00:00 AM	Community Use Oval Recovery and Maintenance						
8:30:00 AM							JUNIOR FOOTBALL MATCHES
9:00:00 AM							
9:30:00 AM							
10:00:00 AM						SENIOR MENS & SENIOR WOMENS FOOTBALL MATCHES	
10:30:00 AM							
11:00:00 AM							
11:30:00 AM							
12:00:00 PM							
12:30:00 PM							
1:00:00 PM							
1:30:00 PM							
2:00:00 PM							
2:30:00 PM							
3:00:00 PM							
3:30:00 PM							
4:00:00 PM							
4:30:00 PM				AUSKICK			
5:00:00 PM			SKILLS TRAINING GIRLS & WOMENS				
5:30:00 PM	SENIOR WOMENS & GIRLS TRAINING & BRINKWORTH SPALDING REDHILL FC FOOTBALL TRAINING	U13 - U17s TRAINING BOYS & GIRLS		U7 - U17S TRAINING BOYS & GIRLS	JUNIOR FOOTBALL MATCHES AS SCHEDULED		
6:00:00 PM			BRINKWORTH SPALDING REDHILL FC FOOTBALL TRAINING				
6:30:00 PM				SENIOR MENS & WOMENS TRAINING			
7:00:00 PM							
7:30:00 PM							
8:00:00 PM							
8:30:00 PM							
9:00:00 PM							
9:30:00 PM							
10:00:00 PM							
10:30:00 PM							

CCS - Typical Weekly Sportsground Usage

Carnegie Nth & Sth Reserves -Typical Average Weekly Usage – 25/wk on each Reserve (50hrs/week, 200hrs/mth)

Carnegie North 2023 Winter Season March - Sept

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00:00 AM	Community Use Oval Recovery and Maintenance						
8:30:00 AM							JUNIOR FOOTBALL MATCHES
9:00:00 AM							
9:30:00 AM							
10:00:00 AM						SENIOR MENS & SENIOR WOMENS FOOTBALL MATCHES	
10:30:00 AM							
11:00:00 AM							
11:30:00 AM							
12:00:00 PM							
12:30:00 PM							
1:00:00 PM							
1:30:00 PM							
2:00:00 PM							
2:30:00 PM							
3:00:00 PM							
3:30:00 PM							
4:00:00 PM							
4:30:00 PM							
5:00:00 PM				U6-U15 training			
5:30:00 PM	U6-U15 training	U6-U15 training	U6-U15 Training		Matches & Training Scheduled (two grounds)		
6:00:00 PM							
6:30:00 PM		Senior Women		Senior men, Womens & U/18s training			
7:00:00 PM							
7:30:00 PM		Senior & Reserves Men/ U/18s					
8:00:00 PM							
8:30:00 PM							
9:00:00 PM							
9:30:00 PM							
10:00:00 PM							
10:30:00 PM							

6.103 HENLEY NGUTUNGKA PROJECT AND BUDGET UPDATE

TO	Council
FROM:	Coordinator Open Space & Property Projects - Richard Hughes
DATE:	23 October 2023

Brief

This report serves to update Council on Henley Ngutungka including the status of the design, construction tender and the budget required to deliver to project.

Recommendation

1. **That the report be received and noted and that further reports be presented to Council at significant milestones during the construction of Henley Ngutungka.**

2. **That Council recognise the current construction market conditions and the unforeseen cost increases across the industry including Henley Ngutungka.**

3. **That the preferred building contractor be appointed to deliver the full scope of work and a further budget bid be submitted for the 2024/2025 financial year to increase the total budget from the current $9.575m to $11.219m to allow for the actual tendered price and construction contingencies.**

4. **That the additional cost of the 2024/25 budget bid for Henley Ngutungka be included in the updated long term financial plan (LTFP).**

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Community - A strong and connected community

In our City no one gets left behind; everyone has access to quality resources, services, programs, information and social infrastructure to fully participate in their community.
Charles Sturt is made up of strong and vibrant communities; we celebrate our identity; heritage and cultural diversity. People feel a sense of belonging, inclusion and social connectedness.

Our Liveability - A liveable City of great places

City assets and infrastructure are developed and enhanced on a strategic and equitable basis in collaboration with local communities and other relevant parties, including industry and government.
Support diverse events and experiences that bring people together and contribute to the history, culture and vitality of our neighbourhoods.

Our Environment - An environmentally responsible & sustainable City

Charles Sturt is recognised as a leading partner and educator pursuing a sustainable future with our community.
Reduced waste production across our city, combined with the growth of our circular economy..

Our Economy - An economically thriving City

The Western Region economy is promoted through leadership and collaboration across all stakeholders and our community.
Local businesses and entrepreneurial activities flourish through the support, engagement and relationships that are developed and maintained.
Businesses and industry sectors continue to grow and diversify.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.
We provide excellence in customer experience by ensuring our customers are at the heart of everything we do.
We care about our people ensuring we support, develop and motivate our workforce to meet Community needs with capability and confidence.
The management of our city is progressive, responsive and sustainable to ensure a united and unique place for future generations.
Open and accountable governance.

Relevant Council policies are:

- Asset Management Policy
- Disposal of Assets Policy

Relevant statutory provisions are:

- Local Government Act 1999

Background

Council has recently embarked on the Henley Library and Henley Community Centre redevelopment which will see the services merge into the one site, Henley Ngutungka. The Henley Town Hall and the old library located at 378 Seaview Road will be redeveloped into a contemporary and inclusive facility which will nurture community groups across both the library and community centre sites.

A report was presented on the 14 June 2022 (refer CL 14/06/22, Item 6.43) which informed Council on the community engagement results on a new facility and presented options to assist with the funding of the redevelopment, with Council resolving the following:

1. That Council notes the Community Engagement Report (Appendix 1).

2. That Council endorses the Henley Hub concept design and associated cost plan (Appendix 2) and allocates $9.375mil towards the new Ngutungka Henley at 378 Seaview Road and a further $200,000 towards additional car parking at the former Henley Depot, noting that the increase in expenditure over what is currently included within the draft 2022/23 budget will occur in the 2023/24 financial year.

3. Council resolves that 318 Seaview Road Henley Beach is surplus to requirements and will sell the property in accordance with its Asset Disposal Policy in the 2022/23 financial year, to assist in funding the Ngutungka Henley at 378 Seaview Road Henley Beach.

4. That Council endorses the Henley Depot redevelopment concept (Appendix 3), for the purposes of:

4.1 Providing a long term future for the Henley Woodworkers and the Toy Boys;
4.2 Creating an additional 15 free timed car parks to service the new Ngutungka Henley and;
4.3 Presenting a further report to Council on the asset condition of the depot that includes the terms and conditions of an extended 5 plus 5 year license to occupy by the Toy Boys.

5. That the presenters be thanked for their presentation and a copy be included in the Minutes.

Report

JPE Architects were engaged in September 2021 to assist with the community and stakeholder engagement process which informed the detailed design for the new Henley Ngutungka facility. The current site conditions were assessed including the State Heritage listed Henley Town Hall. A full set of design documentation has been developed which has been submitted for Planning Consent and suitable for tender purposes to appoint a building contractor.

Concept Image of Henley Ngutungka

The design includes:

- Seven community activity spaces of varying sizes including a community kitchen, an undercover outdoor space, a dedicated creative space on the town hall stage and multiple quite meeting rooms
- Ability to access the venue after hours
- Spaces to study read and relax
- An outdoor landscaped space
- Amenities including a changing places facility
- An upgraded Henley Historical Society office

The facility layout plan will enable Council to offer various services and social connection programmes including:

- Library resources
- Book, CD and DVD collection
- Magazines and newspapers
- Access to various types of technology
- A free bike service
- Art displays
- Cooking and Nutrition
- Fitness and wellbeing
- Creative classes
- Early literacy
- Digital literacy

This is a unique site with various challenges including upgrading and retrofitting the State Heritage listed Henley Town Hall. Whilst we are faced with some unique construction

challenges, it is a great opportunity to increase community access and celebrate the history and incorporate a new contemporary building.

Public art will also feature within the facility which will seek to weave in Aboriginal culture and influences into Henley Ngutungka.

An extensive 2 stage construction tender process commenced in February 2023 which included an Expression on Interest (EOI) phase from which four competent builders were selected to progress to the final select tender phase. The select tenders have been received and evaluated and we are now ready to appoint a building contractor to commence on site from November 2023.

All tenders received exceed the quantity surveyor's pretender estimate and the Council endorsed total project cost of $9,575.000. Multiple factors contributed to increased costs on this particular project which is consistent with all construction projects on a national scale including:

- Significant movement within the construction industry over the past few years
- Key shortages in skills within the overall market including tradespeople and subcontractors
- Shortages and increased prices of materials (timber and structural steel)
- Increased volumes within the public sector tendering
- Increased pricing – market forces of increased demand and lack of supply

The combination of these risks leads to higher prices which has become evident with the tenders received. Although mitigation strategies have been implemented, higher prices were unavoidable.

Mitigation Strategies included:

- Pre-Tender pricing awareness through Quantity Surveyors
- Balanced approach to evaluation criteria – qualitative elements with pricing criteria
- Increased time dedicated to short-listing and detailed clarifications in the evaluation process
- Ensure the detailed design aligns with the original budget
- Understanding and awareness that budgets may be exceeded with desired scope (requirement for increase budget or de-scoping)

The quantity surveyors pre - tender estimate indicated the project could be delivered within budget, therefore planning consent has been lodged. Planning approval is now imminent based on the current design. De-scoping of the project was an option considered to achieve the endorsed budget, however it would significantly affect the design and functionality of the building. Further more, a construction delay of up to 12-months would be likely should design changes be made due to re-approval needing to be sought for the updated (reduced scope) design. Additional re-design costs will also be incurred as well as the significant time lost due to re-design and re-lodging of the planning application.

The building design has been well considered and takes into account the integration of both the library and community centre operations. The utilisation of the space is maximised to consider the efficiency for both services. De-scoping would result in a smaller building footprint, therefore dramatically affecting how the space is used and

negatively affecting services to the community. Other potential project savings considered were the fit out finishes, fixtures and external building materials. These elements are minor in terms of cost savings and would compromise the presentation as well as functionality of the space. Considering the effects of de-scoping it is not recommended to pursue this option.

Financial and Resource Implications

The pretender estimates and the actual tendered pricing is listed below for a comparison. A full breakdown is also referred to in **Appendix 1**.

- *$9,508,778.00 - Rider Levett Bucknall pretender estimate (PTE)*
- *$10,047.503.00 - Tenderer 1 - 5.7% variance from the PTE*
- *$10,619.900.00 – Tenderer 2 - 11.7% variance from the PTE*
- ***$10,199.000.00 - Tenderer 3 - Preferred, 7.3% variance from the PTE***
- *$10,160.738.00 – Tenderer 4 - 6.9% variance from the PTE*

The project funding is allocated over two (2) financial years with the following breakdown:

2023/2024

$ Value to be confirmed – 318 Seaview Road – Council asset disposal detailed in a revised valuation as detailed within confidential report Item 11.08 (CL 23/10/23, Item 11.08).
$2,262,300.00 – Council Contribution
$800,000.00 – Local Roads and Community Infrastructure Grant

$ Sub total to be confirmed upon asset sale - Approximate anticipated values to be indicated in line with Confidential Item 11.08 (CL 23/10/23, Item 11.08).

2024/2025

$5,136.00.00 – Council Contribution

The total project value allocated over two (2) financial years is $11,219.000.00 which includes a construction cost of $10,199.00.00 and a 10% project contingency. The project contingency includes statutory and professional fees as recommended by the cost consultant of $1,019.000.00.

Customer Service and Community Implications

There are no customer service or community implications.

Environmental Implications

Henley Ngutungka has various initiatives with a consideration to Environmentally sustainable design (ESD). The building envelope and built form considers passive design, building materials, renewable energy, Indoor environment, and health and well-being.

The design utilises the northern aspect of the town hall for its thermal mass along with the adaptive reuse of the building within the new development. The primary street façade for its new build portion of the site is west facing. The design responds to this orientation through introducing thermal mass and shading to reduce heat load whilst providing connection to the street. The openings throughout the new build are considered to allow for natural ventilation, connection to the outdoors and optimisation of natural light. Carbon neutral concrete will also be used to reduce the carbon impact of the building. The facility is all electric with a 50KW solar panel system to enable the site to generate renewable energy for reuse within the building.

Community Engagement/Consultation (including with community, Council members and staff)

There is no requirement for community engagement or consultation.

Risk Management/Legislative Implications

Given the value of the project, Council has undertaken a prudential review as required under the Local Government Act 1999. No legislative shortcomings have been identified based on the independent review.

The Council's Long Term Financial plan (LTFP) will be adjusted to accommodate the additional expenditure. The proposed Council contribution in the 2024/2025 financial year falls within the financial sustainability benchmarks and can be readily accommodated within Council's LTFP.

Conclusion

Henley Ngutungka is well advanced from a planning, design and procurement perspective. The community and stakeholder engagement is complete with the results informing the project themes. JPE Architects have translated these project themes into a detailed design that will certainly create a unique community centred destination that celebrates the site history while incorporating a new contemporary building. It will provide a facility that will attract the community across all generations and serve the community well into the future. Considering all of the above, the preferred building contractor be appointed and the 2024/2025 budget adjusted as recommended.

Appendices

#	Attachment
1	Appendix 1 - Tender Cost Comparison - RLB Tender Analysis

APPENDIX 1

NGUTUNGKA HENLY - LIBRARY AND COMMUNITY CENTRE
TENDER ANALYSIS

RLB Rider Levett Bucknall

TRADE DESCRIPTION	Pre-Tender Estimate	Analysis RLB	Tenderer 1 Tender	Tenderer 1 Variance to RLB	Analysis 1	Tenderer 2 Tender	Tenderer 2 Variance to RLB	Analysis 2	Tenderer 3 Tender	Tenderer 3 Variance to RLB	Analysis 3	Tenderer 4 Tender	Tenderer 4 Variance to RLB	Analysis 3	
Preliminaries	796,500	9.6%	682,200	- 114,300	7.5%	1,250,983	454,483	13.4%	990,203	193,703	10.9%	781,879	- 14,621	8.7%	
Builders Work & Margin	389,000	4.7%	275,000	- 114,000	3.0%	32,156	- 356,844	0.3%	84,435	- 304,565	0.9%	343,600	- 45,400	3.8%	
Final Clean	-		20,820	20,820		-	-		-	-		-	-		
Sub-Total	1,185,500	14.2%	978,020	- 207,480	10.8%	1,283,139	97,639	13.7%	1,074,638	- 110,862	11.8%	1,125,479	- 60,021	12.5%	
DEMOLITION / SITE PREPARATION															
Demolition	253,230		140,500	- 112,730		169,979	- 83,251		124,000	- 129,230		123,411	- 129,819		
Site Works/Excavation	128,735		133,745	5,010		175,368	46,633		156,815	28,080		109,165	- 19,570		
Termite Treatment	-		-	-		-	-		-	-		12,129	12,129		
Sub-Total	381,965		274,245	- 107,720		345,347	- 36,618		280,815	- 101,150		244,705	- 137,260		
STRUCTURAL WORKS															
Concreting	496,172		589,105	92,933		677,430	181,258		406,356	- 89,816		435,510	- 60,662		
Bricklayer incl forming openings	109,100		135,400	26,300		137,615	28,515		126,220	17,120		130,400	21,300		
Structural Steel	550,998		520,700	- 30,298		725,958	174,960		580,900	29,902		706,006	155,008		CC3 specified - CC2 if warranted would be acceptable
Sub-Total	1,156,270		1,245,205	88,935		1,541,003	384,733		1,113,476	- 42,794		1,271,916	115,646		
CLADDING & ROOFING															
GRC, CFC & Aluminium Cladding	553,830		934,845	381,015	RLB Split	1,107,200	553,370		1,099,111	545,281	RLB Split	948,000	394,170		
Windows & Glazing incl Glazed Operable Wall	588,230		613,115	24,885		596,267	8,037		482,720	- 105,510		480,100	- 108,130		
Roofing	235,635		240,000	4,365	RLB Split	240,100	4,465		240,000	4,365	RLB Split	232,801	- 2,834		
Sub-Total	1,377,695		1,787,960	410,265		1,943,567	565,872		1,821,831	444,136		1,660,901	283,206		
FITOUT WORKS															
Ceilings/Linings incl Screens	624,730		616,570	- 8,160		616,314	- 8,416		609,260	- 15,470		710,291	85,561		
Tiling	211,930		222,480	10,550		165,780	- 46,150		193,725	- 18,205		203,898	- 8,032		
Plastering	57,070		97,180	40,110		102,600	45,530		104,960	47,890		102,600	45,530		
Floor Coverings	68,920		168,209	99,289		125,213	56,293		120,184	51,264		133,872	64,952		
Painting	148,833		101,750	- 47,083		159,788	10,955		114,285	- 34,548		99,193	- 49,640		
Toilet Partitions	9,200		10,000	800	RLB Split	9,870	670		-	- 9,200		12,870	3,670		
Signage & Window Film	142,310		155,967	13,657		219,175	76,865		183,052	40,742		169,208	26,898		
Metal Work	116,520		112,624	- 3,896	RLB Split	57,017	- 59,503		36,300	- 80,220		25,800	- 90,720		
Louvres & Grilles	-		-	-		-	-		-	-		28,947	28,947		
Carpentary	164,980		348,964	183,984		988,813	823,833		1,286,085	1,121,105		283,875	118,895		
Joinery	456,410		752,330	295,920		Incl.in Carpentry	- 456,410					693,275	236,865		
Doors & Hardware	60,650		59,092	- 1,558		-	- 60,650		-	- 60,650		41,284	- 19,366		
Operable Wall to Kitchen	45,200		-	- 45,200		-	- 45,200		-	- 45,200		121,750	76,550		
Sub-Total	2,106,753		2,645,165	538,412		2,444,570	337,817		2,647,851	541,098		2,626,863	520,110		
FURNITURE & EQUIPMENT															
Curtains & Blinds	26,880		15,510									20,252			
Library Shelving	338,170														
Loose Furniture	336,370		320,136	93,797		820,003	93,583		813,451	87,031		798,423	120,188		
Appliances	25,000											27,933			
Whitegoods, Equipment & Library Shelving			484,571												
Sub-Total	726,420		820,217	93,797		820,003	93,583		813,451	87,031		846,608	120,188		
SERVICES															
Electrical & AV	785,000		786,841	1,841		681,150	- 103,850		697,290	- 87,710		797,028	12,028		
Mechanical	480,000		389,996	- 90,004		375,180	- 104,820		378,120	- 101,880		380,134	- 99,866		
Fire Services	100,000		58,350	- 41,650		65,360	- 34,640		68,360	- 31,640		66,806	- 33,194		
Plumbing incl Stormwater	393,395		395,400	2,005		396,509	3,114		398,600	5,205		366,038	- 27,357		
Lift Services	130,000		83,300	- 46,700		89,600	- 40,400		84,800	- 45,200		82,000	- 48,000		
Sub-Total	1,888,395		1,713,887	- 174,508		1,607,799	- 280,596		1,627,170	- 261,225		1,692,006	- 196,389		
EXTERNAL WORKS															
Landscaping	229,363		273,305	43,942		229,861	498		323,568	94,205		374,760	145,397		
Paving	78,657		-	- 78,657		49,263	- 29,394		Incl. Above	- 78,657		-	- 78,657		
Fencing	18,760		-	- 18,760		49,848	31,088		35,750	16,990		-	- 18,760		
Sub-Total	326,780		273,305	- 53,475		328,972	2,192		359,318	32,538		374,760	47,980		

NGUTUNGKA HENLEY - LIBRARY AND COMMUNITY CENTRE TENDER ANALYSIS

RLB Rider Levett Bucknall

TRADE DESCRIPTION	Pre-Tender Estimate	Analysis RLB	Tenderer 1 Tender	Tenderer 1 Variance to RLB	Analysis 1	Tenderer 2 Tender	Tenderer 2 Variance to RLB	Analysis 2	Tenderer 3 Tender	Tenderer 3 Variance to RLB	Analysis 3	Tenderer 4 Tender	Tenderer 4 Variance to RLB	Analysis 3
PROVISIONAL SUMS														
. Audio Visual, Evacuation & Paging System	350,000		280,000			280,000			280,000			280,000		
. Salt Damp Repairs & Rectification	4,000		7,500			7,500			7,500			7,500		
. NBN Lead-in Services Alterations	5,000													
. Replacement of Deteriorated Timber Members			15,000			5,000			20,000			10,000		
. Reshaping of Existing Roof & Timber Trusses			7,000						15,000					
. Replacement of 2No. Aluminium Windows with Salvaged Timber Windows from Town Hall						3,000								
. Engineers Inspections & Fees for Existing Timber Flooring, Roofing and Ceilings in Town Hall to Facilitiate Installation of Concrete, Steelwork, Operable Walls and Glass						10,000								
. Temporary Propping / Shoring / Retaining of Existing Structure									10,000					
. Make Good Existing Hardwood Floorboards									18,750					
. Make Good to Existing Rendering / Plastering									45,000					
. Security Services - Detection & Access Control Systems									65,000					
. Electronic Challenge Tecom												20,000		
Sub-Total	359,000		309,500	- 49,500		305,500	- 53,500		461,250	102,250		317,500	- 41,500	
Total	9,508,778		10,047,503	538,725		10,619,900	1,111,122		10,199,800	691,022		10,160,738	651,960	
				5.7%			11.7%			7.3%			6.9%	

NOTES

PC Sum 5 - Making Good, Sanding, Finishing & Repairs to Existing timber Floors and Floorboards		33,250 Not included above but listed in tender clarifications		
Return Schedule D2 - Schedule of Rates	Trade Contractor Rates Provided	No Schedule of Rates Provided	Rates for Staffing only	Rates for Staffing Rates for Excavation, Filling and Disposal
Contract Award	5th September 2023	20th September 2023	3rd October 2023	3rd October 2023
Site Possession	23rd October 2023	20th October 2023	30th October 2023	6th November 2023
Practical Completion	6th September 2024	28th October 2024	30th October 2024	14th October 2024
Work Times	7.00am - 4.30pm Mon - Fri	7.00am - 4.00pm Mon - Fri	7.00am - 5.00pm Mon - Fri	7.00am - 4.00pm Mon - Fri 7.00am - 3.00pm Sat
Variations %	Not Stated	Not Stated	15%	Not Stated

6.104 NET ZERO QUARTERLY UPDATE

TO	Council
FROM:	Environmental Management Officer (Climate Emergency Response) - Zoe Smith
DATE:	23 October 2023

Brief

The City of Charles Sturt recognises its role in and risks of climate change and declared a Climate Emergency in December 2019. Net Zero: Our map to net zero corporate emissions 2020 to 2025 (Net Zero) was endorsed in late 2020 and has achieved many outcomes for our community and Council operations. An update and review on the progress of Net Zero through the six established strategic working groups, are contained within this report.

Recommendation

1. **That Council note the July to September 2023 update associated with the implementation of Net Zero to reduce greenhouse gas emissions from Council operations.**

2. **That Council endorse the sunsetting of Net Zero and enable any progressing or business as usual actions from Net Zero to be supported through the new Climate Change Response Strategy currently under development.**

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Community - A strong and connected community

Charles Sturt is a place where people feel safe in their homes, neighbourhoods and public places; they are resilient and manage shocks and stresses to build a stronger community.

Our Liveability - A liveable City of great places

A well-designed urban environment that is adaptive to a diverse and growing City.

Our Environment - An environmentally responsible & sustainable City

Greenhouse gas emissions significantly reduce, and we adapt to our changing climate.
Charles Sturt is recognised as a leading partner and educator pursuing a sustainable future with our community.
Reduced waste production across our city, combined with the growth of our circular economy..

Our Leadership - A leading & progressive Local Government organisation

The management of our city is progressive, responsive and sustainable to ensure a united and unique place for future generations.

Relevant Council policies are:

- Environmental Sustainability Policy 2022

Relevant statutory provisions are:

- Nil

Background

Since the commencement of our Net Zero plan, significant work has been undertaken by Council to complete specific actions and reach the targets set. This has been collective action across all business units, and we have made significant emissions reductions across our gas, electricity and fuel sources.

This report provides an overview of recent actions for the past quarter, the findings of the review and recommendations for the future of corporate emissions reduction.

Report

Net Zero Review

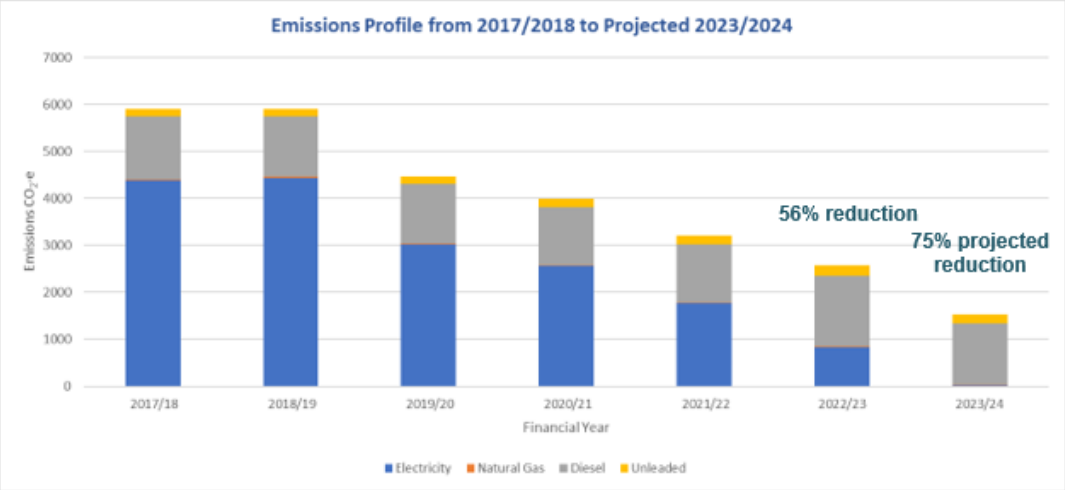
A significant number of our Net Zero actions and targets have been completed ahead of schedule.

A review of the plan has been undertaken - many of the actions will continue as business and usual, others will be reviewed and transition across for the next stage of our climate adaptation and resilience work and be included within our new Climate Change Response Strategy (the Strategy) endorsed for development at the Council meeting held 13 February 2023 (refer CL 13/02/23, Item 6.18).

This Strategy will be presented in draft for the purposes of consultation, to the Council meeting 27th November 2023.

The below achievements highlight the significant amount of work undertaken to date.

Across all Council operations, many actions have resulted in a reduction of our corporate emissions. This has enabled us to exceed our overarching emission reduction target of 50% by 2025 and achieve 56% emissions reduction in 2022/23 on our electricity, gas and fuel (baseline from 2017/18). Council operations is on target to achieve an 80% reduction by the end of 2023/24 when the full annual effect of our renewable energy electricity contract is realised. This reduction is shown graphically below.



In addition, we have achieved the following for our overarching Net Zero targets:

Target	Status	Comment
Overarching		
50% emissions reduction based on 2017/18 levels by 2025	Completed	Emissions have reduced by 56% in 2022/23 compared to 2017/18 levels.
Net Zero corporate emissions by 2023/24	Target to be revised in new Strategy	This target requires the purchase of carbon offsets. Based on the outcomes of the 23/24 budget deliberations, the purchase of carbon offsets is not a priority for council or our community. As such this direction will not be pursued at this time.
Building, Lighting and Open Space		
Net zero carbon for new buildings by 2025	Ongoing and on track to become business as usual	Progress continues on the building actions which will contribute to this goal. Environmentally Sustainable Design guidelines included in all building renewals and within AMPs.
Continuously improve energy efficiency solar PV uptake for existing buildings based on 2017/18 levels	Business as Usual	Solar installations at various sites and modifications to the air-conditioning and BMS at the Civic centre office now completed.
Transport		
15% of passenger vehicles to be EVs by 2025	Progressing on track to become business as usual for the purchase of EVs	The first two EVs have been received and new EV charging infrastructure has been installed at the old Meals on Wheels site and at the Beverley Centre to support the new EVs. Further 5 EVs have been ordered with delivery of these vehicles anticipated during the second quarter of the financial year. Two additional EVs are required to reach 15%. Vehicle Policy amended to ensure the purchase of EVs occurs as BAU.
45% of passenger fleet to be hybrid vehicles by 2023	Completed	There are now 29 hybrid vehicles in the fleet, and we have exceeded our target 45% or 27 vehicles.
Not Waste		
Increase recovery rate of food organics from kerbside collections to 60% by 2025 and 70% by 2030 from 18% in 2019	Progressing on track with programs to increase recovery rates	Weekly FOGO trial is 6 months in, and mid-term audits are about to commence. Trial results will guide future programs to increase food waste recycling.

	business as usual	The new Strategy will include ongoing targets.
Increase purchase of recycled goods each year until Council is buying back recycled material equivalent to 50% by weight of the contents of kerbside recycling bins by 2025 and 100% by 2030	Progressing on track with the purchase of recycled content business as usual	All departments continue to look for opportunities to purchase recycled content materials and products. Progress toward the targets is reported annually via Councils annual report.
Renewable Energy Procurement		
Achieve 100% renewable electricity for Council operations by end of 2023 financial year	Completed	100% renewable electricity contract in place since 1 January 2023.
Carbon Offsets		
Achieve carbon neutral/net zero emissions by 2023/24	Target to be revised in new Strategy	To achieve this target require the purchase of carbon offsets. Based on the outcomes of the 23/24 budget deliberations, the purchase of carbon offsets is not a priority for council or our community. As such this direction will not be pursued at this time.

Sitting below the above overarching targets are 45 specific actions, allocated across the 6 working groups.

Of these actions:

- 33 actions are 'Completed'.
- 11 actions have become 'Business as usual' through policy, process or other mechanisms.
- 1 action is 'Ongoing and on track'.
- 1 action is 'Progressing but behind'.
- 1 actions are 'Progressing on track'.

A detailed breakdown of these actions in contained within **Appendix 1**.

Next Steps

With the development of the new Climate Change Response Strategy and the completion or integration of the majority of Net Zero actions into business as usual, it is recommended that:

- Council sunset Net Zero and enable any progressing action to continue through the new Strategy and continued support for the implementation of business as usual actions in the new Strategy.
- The new Strategy incorporate all emissions including scope 3 emissions reductions, of which Net Zero did not specifically focus on, but rather Scope 1- Fuel and gas, and scope 2 electricity emissions.
- The purchase of carbon offsets and considerations of becoming climate neutral should be explored in the future as Council continues to focus on reducing our

emissions.

The below details the specific achievements for this quarter:

Quarter 1 23/24 Achievements

Key achievements over the past quarter from the 6 working groups include:

Building, Lighting and Open Space

- Grant funding secured to undertake an embodied emissions project for roads and footpaths.
- Council AMPs currently being reviewed with an increased focus on both asset vulnerability to climate change and sustainability objectives.

Transport

- EV charging infrastructure has been installed at the old Meals on Wheels site and at the Beverley Centre to support the new EVs.
- Further 5 EVs have been ordered with delivery of these vehicles anticipated during the second quarter of the financial year.

Not Waste

- FOGO trial has been in place for 6 months and mid-term audits will occur in the coming weeks.

Renewable Energy Procurement

- Council entered into a two (2) year contract in July 2023, for 100% renewable electricity as per the previous contract, with a 10% saving on current pricing realised through the LGAP competitive tender process.

Carbon Offsets

- New software is being utilised to undertake in house carbon accounting for scope 1, 2 and 3 emissions and improve data requirements.

Staff Led Initiatives

- Presentation from South Australians for Climate Action on the current Accelerating to Net Zero project in partnership with State Government.
- 2 Climate Change Conversations sessions held with staff as part of Accelerating to Net Zero project.

Financial and Resource Implications

A range of actions under each of the 6 Strategic Working Groups have required project funding. Funds required to support each of these actions have been addressed in budget bids and reports to Council.

Customer Service and Community Implications

Actions within Net Zero will not only reduce the corporate carbon emission but support community to reduce emissions in a variety of ways from waste to transport and through our leadership and advocacy. Council will continue to develop our response to Climate Emergency and lead a range of initiatives for our community.

Environmental Implications

Council has taken a strong step forward in it's role on Climate Emergency through Net Zero which has reduced corporate carbon emissions and contributed to the Local, National and International climate emergency response. Keeping climate change under 1.5 degrees of warming remains critically important, but also increasingly difficult. This global effort continues to require urgent and effective action by all levels of government and the broader community.

The work of Net Zero also directly links with many other programs and activities that respond to the challenges posed by climate change. These include (among others) Council's efforts to:

- address flooding risks in key catchments (in particular the West Lakes catchment which is expected to be impacted by sea level rise);
- maintain and increase tree canopy cover (Growing Green);
- capture, recycle and use treated stormwater for irrigation (Waterproofing the West);
- provide community development and support programs for elderly and infirm residents (including advice on coping strategies during periods of extreme heat); and
- implement urban design responses that reduce the impacts of urban heat and increase shading in public area.

Community Engagement/Consultation (including with community, Council members and staff)

There has been significant community engagement over the life of Net Zero. Work continues to promote, through various Council media, our Net Zero actions and progress of these actions to the community, demonstrating our commitment to our Climate Emergency Declaration. General and targeted community engagement will ensure we bring the community along with us on our journey and learn from and support them to tackle the Climate Emergency.

The next stage of consultation with our community will occur as part of the new Climate Change Response Strategy and be undertaken early in 2024.

Risk Management/Legislative Implications

There are significant risks associated with climate change, which are addressed by Council through a number of corporate documents and through the regional AdaptWest program. Risks associated with not reducing emissions include increased exposure to rising electricity costs, increased need to undertake remedial work in future years, loss of financial benefit associated with energy efficiency (delayed benefit, leading to increase in costs to Council during the intervening years). There are no direct legislative implications.

Conclusion

The success of Net Zero in significantly reducing our corporate emissions is testament to the commitment of all Council staff involved in implementing the actions as well as the support from leadership and Elected Members. We maintain a strong commitment to our Climate Emergency Declaration and will continue to mitigate and adapt our council operations and support community through the new Climate Change Response Strategy.

Appendices

#	Attachment
1	Appendix 1 - Net Zero Action Tracking

APPENDIX 1

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Building Lighting & Open Space Our buildings and open space projects use less energy, are powered by renewables, are designed to reduce climate change impacts and we create more comfortable space					
Target 1	Net zero carbon buildings for new buildings by 2025	By 2025		Ongoing and on track to become business as usual	Progress continues on the building actions which will contribute to this goal. Environmentally Sustainable Design guidelines included in all building renewals and within AMPs.
Target 2	Continuously improve energy efficiency solar PV uptake for existing buildings based on 2017/18 levels	Ongoing		Business as Usual	Solar installations at various sites and modifications to the air-conditioning and BMS at the Civic centre office now completed.
Action B1	Implement the CCS Environmental Sustainability Objectives for building and open space projects and integrate into project planning	Ongoing		Business as Usual	The ESD Requirements are being implemented and referenced in both major projects and maintenance activities as part of business as usual.
Action B2	Disconnect from natural gas where possible and do not connect to gas for new buildings where feasible	Ongoing		Business as Usual	Gas is no longer specified or accepted in new developments, including the current redevelopment projects at Pedlar Reserve and Henley, and opportunities to disconnect existing sites from natural gas will continue to be explored
Action B3	Complete the LED energy efficient streetlight rollout	2020/21		Completed	Infill lighting program underway with the remainder of streetlights on main roads to be upgraded to LED in next few years
Action B4	Integrate mitigation requirements into project planning, budget bid process and procurement to assess for lowest climate change impact where appropriate	Within 12 months		Completed	ESD Requirements now part of budget bid assessment, project brief and planning for major projects and are being integrated into procurement processes with work continuing to focus on weighting of sustainability in tender return schedules and education of suppliers.
Action B5	Integrate request for information about mitigation and net zero emission policies of suppliers into procurement process	Within 12 months		Completed	Tender specifications and return schedules now include increased commitment and weighting to net zero principles and practices

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action B6	Determine operational building energy management roles and responsibilities (to monitor solar generation and building management systems to optimise performance)	Within 12 months		Progressing but behind	Role and responsibilities for building energy management continue to be defined and discussed with relevant stakeholders.
Action B7	Complete the installation of solar PV on 13 Council buildings project	2020/21		Completed	Construction completed at all 13 sites
Action B8	Investigate and implement additional onsite solar PV installations and battery storage beginning with feasibility of battery potential at Beverley to link in with new car charging stations	2020-2024		Completed	Additional work at Beverley Depot on hold due to redevelopment however solar installations completed at 3 other locations.
Action B9	Participate in consultation to strengthen the energy efficiency provisions of the National Construction Code (consultation estimated to be in late 2020 or early 2021)	2020/21		Completed	Submissions were provided to NCC by both AdaptWest and Climate Australia to help shape and inform future NCC Requirements
Action B10	Investigate and implement budget and guideline requirements for energy efficiency to be embedded in building contingency repairs and maintenance works	2021/22		Completed	The ESD Requirements are being implemented and referenced in both major projects and maintenance activities. CCS in partnership with PAE & Marion Councils also completed a professional development program to build knowledge and capacity of relevant staff across a broad range of sustainability topics.
Action B11	Review and amend Council's Environmental Sustainability Policy to provide stronger direction for Asset Management Plans climate change requirements	Within 18 months		Completed	The Environmental Sustainability Policy is updated and review of Council's suite of Asset Management Plans is underway with an increased focus on both asset vulnerability to climate change and sustainability objectives.
Action B12	Identify and implement energy efficiency retrofits (integrating climate change adaptation measures) for high energy using sites (buildings, reserves, lighting, water management)	2021-2023		Business as Usual	Solar installations at various sites and modifications to the air-conditioning and BMS at the Civic centre office now completed. Ongoing energy efficiency measures are being taken as required.

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action B13	Ensure procurement, maintenance and disposal of air-conditioning systems reduce the greenhouse gas impact of refrigerants by embedding this in the project/program process	By 2022		Completed	Airconditioning units are maintained and replaced to legislated environmental standards.
Action B14	Explore and establish incentives for environmental sustainability for Council's community leased buildings	By 2023		Completed	Council policy has been reviewed to remove barriers to sustainability initiatives in Community Leased building renewals, upgrades or refurbishments.
Action B15	Work jointly with other councils to develop environmentally sustainable development policy + design requirements for council buildings with mandated climate change mitigation and adaptation performance standards	By 2025		Completed	The ESD requirements are being implemented and an extensive training and development program on sustainability for buildings has now been completed for Property and other relevant Staff at all three Council's.
Action B16	Pilot an embodied energy project to build capacity and knowledge to feed into future direction	By 2025		Ongoing and on track	Options being considered to pilot an embodied energy project including an assessment of the redevelopment at the Ngutungka site with grant funding recently successful for an examination of embodied energy in our most typical road and footpath treatments.
Transport We reimagine how and why we travel and integrate sustainable travel into how we do business					
Target 1	15% of passenger vehicles to be EVs by 2025 No. passenger vehicles in fleet (May 2020) = 61 No. vehicles to meet target = 9	By 2025		Progressing on track to become business as usual for the purchase of EVs	First two EVs have been received and new EV charging infrastructure has been installed at the old Meals on Wheels site and at the Beverley Centre to support the new EVs. Further 5 EVs have been ordered with delivery of these vehicles anticipated during the second quarter of the financial year.
Target 2	45% of passenger fleet to be hybrid vehicles by 2023 No. hybrids to meet target = 27 No. hybrids in fleet (May 2020) = 8 No. hybrids expected by Dec 2020 = 17 (28%)	By 2023		Completed	Strong uptake of Hybrid vehicles continues. New hybrid vehicle options continue to be added to the fleet list which will further support uptake. There are now 29 hybrid vehicles in the fleet and we have exceeded our target of 27 vehicles.

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action T1	Consider the feasibility of incentivising hybrid vehicles for staff fleet vehicle choices	Within 6 months		Completed	No incentives currently considered necessary as hybrid uptake has been very strong, however internal motor vehicle policy has been amended to further support the transition to hybrid vehicles.
Action T2	Ensure that fleet only vehicles earmarked for replacement are replaced with hybrid vehicles	Within 6 months		Completed	The recommendations of this action are already being delivered, the motor vehicle policy has been amended to reinforce this requirement.
Action T3	Provide electric vehicle test drive opportunities for staff	Within 6 months		Completed	Fleet Services will arrange test drives of EV's on request closer to the time of purchase due to the rapid advancements in technology and vehicle options. The recently acquired EVs will soon be available for booking by staff and therefore this action is considered complete.
Action T4	Review learnings from COVID-19 flexible working arrangements and integrate virtual communication and other relevant learnings into day to day practice to reduce carbon emissions	2020/21	21/22	Business as Usual	Over 200 staff completed the Staff Transport Survey to understand how flexible working conditions have altered travel patterns and carbon emissions. Results have been reviewed and planning has commenced on future actions and initiatives to improve travel and communication methods to reduce carbon emissions. Carpooling identified as an opportunity to focus on over the next reporting period. Staff led initiative group and Transport group to collaborate on this action going forward.
Action T5	Advocate to the federal government to introduce mandatory greenhouse gas vehicle efficiency standards + incentives and policy direction for electric vehicles	Within 12 months	22/23	Completed	A report was presented to Council in March 2023 where it was endorsed that CCS join the Cities Power Partnership advocacy to the Federal Government for the introduction of fuel efficiency standards. The submission was presented to the Federal Government, and we are currently awaiting a formal reply.
Action T6	Conduct an overarching analysis of our current corporate transport practices (fleet and work journey behaviour) and identify best practice and sustainability	2021/22	23/24	Progressing on track	Results from the recent staff survey have been reviewed and planning has commenced on future actions and initiatives to improve travel and communication methods to reduce carbon emissions.

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
	improvements including technology options, accelerate the uptake of electric vehicles and to identify next stages of the Smart Mover Program				All EVs will also have telematics installed to track power and environmental benefits. Field Services are exploring route optimisation software to help deliver services in the most efficient and sustainable manner.
Action T7	Introduce first electric vehicles into Council's fleet in 2021/22 and install charging infrastructure and investigate how renewables can power it	In 12-18 months	22/23	Completed	First two Electric Vehicles have been purchased and acquired. Charging infrastructure has been installed at Civic and Beverley and now powering from 100% renewables.
Action T8	Analyse and assess the options for electric trucks and street sweepers before any new purchase is made	In 12 months		Business as Usual	Meetings held with PAE to understand learnings from their recent purchase of an electric truck. Recent procurement process for new street sweepers considered an electric option but the technology was not yet fit for purpose and was cost prohibitive, but we will continue to explore electric vehicle options as part of all future procurement of vehicles and plant. Current estimates are that it could be at least 3yrs before technology will be fit for purpose. Continuing to explore options and trial opportunities. Monitoring outcomes of Cleanaway EV trial. State Pledge is now talking 2035 target for truck/commercial vehicle transition. Hydrogen also seems to be a real focus for heavy vehicles so some uncertainty at this time. Seeking trial of Mitsubishi EV truck. Hybrid trucks likely to be a stop gap approach until EV option becomes available. Seeking to take ownership of a hybrid truck within 12 months.

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action T9	Continue to work with and advocate to the state government to expand and improve public transport services for the city	Ongoing		Business as Usual	Also an action of the CCS Transport Plan and this action continues as opportunities present. The State Government recently consulted on proposed changes to legislation to permit the use of personal e-mobility devices on public roads and paths. A submission to this consultation was presented to Council and submitted to the State Government in favour of the change subject to certain considerations. Council has recently endorsed a position that will allow a third party bus shelter provider to install and maintain some 160 new advertising bus shelters at strategic bus stops across the City. The shelters will provide improved comfort and facilities for existing bus users and assist in attracting new users. The first shelter installation has occurred at Stop 25 Grange Road. DIT has recently completed a public transport study for the NW region of metro Adelaide. A meeting was held with DIT in early 2023 to discuss outcomes of this study and provide preliminary feedback and discussions are ongoing. It was also noted that the State Government are currently investigating options to convert the current Diesel rolling stock on the Outer Harbor and Grange railway lines to more sustainable modes such as battery electric or hydrogen.
Not Waste					

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Council and our communities value waste as a resource and act to maximise this value					
Target 1	Increase recovery rate of food organics from kerbside collections to 60% by 2025 and 70% by 2030 from 18% in 2019	2025		Progressing on track with programs to increase recovery rates business as usual	Weekly FOGO trial is 6 months in, and mid-term audits are about to commence. Trial results will guide future programs to increase food waste recycling.
Target 2	Increase purchase of recycled goods each year until Council is buying back recycled material equivalent to 50% by weight of the contents of kerbside recycling bins by 2025 and 100% by 2030	2025		Progressing on track with the purchase of recycled content business as usual	All departments continue to look for opportunities to purchase recycled content materials and products. Progress toward the targets is reported annually via Councils annual report.
Action NW1(a)	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: a) through a targeted community engagement campaign	Over the next 5 years		Business as Usual	Targeted education and information through the FOGO trial is underway to support the diversion of organics from landfill. Ongoing information and education provided through website and social media to residents.
Action NW1(b)	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: b) through provision of free kitchen caddies and compostable bags to residents on request	Over the next 5 years		Business as Usual	Council continues to delivery kitchen caddies and replacement rolls of compostable bags upon request. Residents can also collect these items from any of our Libraries or Civic centre.
Action NW1(c)	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: c) encouraging and supporting supermarkets and other retailers to trial and offer compostable bags at no charge	Over the next 5 years		Completed	Woolworths and Coles supermarkets now provide 100% compostable fruit and vegie bags which can go into FOGO bin and also be used by residents in their kitchen caddies

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action NW1(d)	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: d) providing incentives for large quantities of garden organics to be deposited at the Beverley Recycling and Waste Centre	Over the next 5 years		Completed	At this stage providing free waste drop off is not being considered due to financial constraints.
Action NW1(e)	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: e) Increase awareness of residential green organics collection (from 16% in 2020 to 50% in 2025)	Over the next 5 years		Business as Usual	Council continues to raise awareness through information and programs including delivery kitchen caddies and replacement rolls of compostable bags upon request. Residents can also collect these items from any of our Libraries or Civic centre. Work continues on the Weekly FOGO trial which is now 6 months in.
Action NW2	Enable increased organics diversion from landfill by engaging with the State Government about alternative collection frequencies	Within 12 months		Completed	Weekly FOGO trial, supported by GISA is 6 months in and mid-term audits are about to commence. GISA released a guide for metro councils to implement weekly FOGO.
Action NW3	Roll-out the Civic office recycling improvement program and then implement at Beverley, libraries and community centres	Within 12 months		Completed	Bulk bin service has been provide to all of councils community centres and Libraries along with community battery recycling services.
Action NW4	Engage with event planning staff to support vegetarian food options for catering	Over the next 12 months		Completed	Staff provide vegetarian options when catering is required. At least a 50/50 split.
Action NW5	Identify how recycling and green organics collection service can be provided to community centres and clubs in council buildings in the future street litter bin review	In 12 months time		Completed	Bulk bin service is now available to all sporting clubs as well as council buildings. Sporting clubs were also offered grant funding to help improve their waste and recycling practices through the Waste Sorted Community Grant program.

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
Action NW6	Continue to participate in the LGA Circular Procurement Pilot	Over the next 21 months		Completed	Recycled content data is reported on annually.
Action NW7	Include a requirement for capital and operating projects to require reuse, recycle, take back or apply other options to reduce waste and maximise value of resources, where applicable	Within 24 months		Completed	Tender schedules have a recycled content section where applicable.
Renewable Energy Procurement We contribute to growth of renewable energy generation in Australia					
Target 1	Achieve 100% renewable electricity for Council operations by end of 2023 financial year	2023		Completed	100% renewable electricity contracts in place since 1 January 2023
Action R1	Engage with Marion and Port Adelaide Enfield to identify common renewable energy requirements for electricity procurement	Over the next 6 months		Completed	The shared utilities team and other key staff across the 3 Councils were engaged with the LGA Procurement process to seek 100% renewable electricity for the contract cycle in July 2023.
Action R2	Increase understanding about our electricity usage profile, potential energy savings and demand management options to ensure accurate data and to inform preparation for new electricity contact to begin in January 2023	Over next 18 months		Completed	The shared utilities team provided key insights into our electricity profile.
Action R3	Engage with councils and the LGA to assess sector requirements and options for renewable energy procurement in the lead up to the new electricity contract	2020/21		Completed	LGA Procurement have completed the process for the renewable electricity contract having commenced in July 2023. The City of Charles Sturt entered into a two (2) year contract, once again opting into 100% renewables as per the previous contract, with a 10% saving on current pricing realised through this competitive tender process.
Carbon Offsets					

	Net Zero Statement	Timeframe	Revised Timeframe	23/24 Q1 Status	23/24 Q1 Reporting
We choose accredited carbon offsets with multiple benefits for emissions we cannot directly eliminate					
Target 1	Achieve carbon neutral/net zero emissions by 2023/24	2023/2024		Target to be revised in new Strategy	To achieve this target would require the purchase of carbon offsets. Based on the outcomes of the 23/24 budget deliberations, the purchase of carbon offsets is not a priority for council or our community. As such this direction will not be perused at this time.
Action O1	Determine procedures and responsibilities for administration of carbon neutral claim	By December 2020		Completed	The purchase of carbon offsets is not being endorsed by Council at this time, however ongoing carbon accounting continues to understand our emissions profile and new software is being used to undertake this.
Action O2	Determine if achieving net zero emissions will be certified	By December 2021		Completed	The purchase of carbon offsets is not being endorsed by Council at this time, therefore this action cannot be progressed and is completed, but may be considered in the future
Action O3	Explore offset project options and standards and establish policy or directions statement to guide selection of offsets	2021/22		Completed	The purchase of carbon offsets is not being endorsed by Council at this time, therefore this action cannot be progressed and is completed, but may be considered in the future
Action O4	Investigate the feasibility of a price on carbon for high energy using business units within Council's carbon profile	2021/22		Completed	The purchase of carbon offsets is not being endorsed by Council at this time, therefore this action cannot be progressed and is completed, but may be considered in the future
Action O5	Prepare for net zero emissions claim	2022/23		Completed	The purchase of carbon offsets is not being endorsed by Council at this time, therefore this action cannot be progressed and is completed, but may be considered in the future
Staff Led Initiatives					
Action SLI1	Run a series of Climate Emergency mitigation and adaptation education and initiative workshops with staff from across Council	2021/22		Business as Usual	This will become ongoing BAU under the new Climate Change Response Strategy due to the positive response from staff. Presentation from South Australians for Climate Action
Action SLI2	Form an ongoing working group with additional staff to drive initiatives developed and to be actioned by staff.	2021/22		Business as Usual	This group will continue to meet under the new Climate Change Response Strategy to support it's implementation

6.105 2023 END OF YEAR DINNER

TO Council

FROM: Executive Assistant to the Mayor - Teegan Coutouvidis

DATE: 23 October 2023

Brief

Each year the City of Charles Sturt holds an End of Year dinner for the Elected Members, Freeman of the City, Chief Executive Office, and Council Leadership Team. This function is held in recognition of the years achievements and to recognise the effort and the out of hours commitment provided by Elected Members and Management Staff at the City of Charles Sturt.

This report outlines the suggested arrangements for the 2023 End of Year Dinner, including changes from prior years functions having considered the recommendations and principles from the Ombudsman SA's report into Employee Recognition Practices that was published in 2023 and the South Australian Auditor-General examination of credit card use and management that was published in 2020. While each of these reports have focussed on employee's recognition and expenditure, the Ombudsman has indicated the principles apply to Elected Members also.

Recommendation

1. **That Council endorse the 2023 End of Year Dinner to be held at the Woodville-West Torrens Football Club Function Centre within the approved annual recurring budget.**

2. **That the invitation criteria remain as per previous years as outlined in the report.**

3. **That all alcohol is purchased by the individual.**

4. **That Staff and their partners pay for their own food.**

OR

1. **That Council endorse the 2023 End of Year Dinner to be held at the Woodville-West Torrens Football Club Function Centre.**

2. **That the invitation criteria remain as per previous years as outlined in the report.**

3. **That all attendees pay for their food and drinks.**

OR

1. **That Council choose to not hold an End of Year Dinner function in 2023 and moving forward.**

2. **That the City of Charles Sturt Leadership Team, Freeman of the Mayor's of the City of West Torrens and the City of Port Adelaide Enfield are advised of the outcome.**

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Leadership - A leading & progressive Local Government organisation

Open and accountable governance.

Relevant Council policies are:

- Civic Recognition and Events Policy

Relevant statutory provisions are:

- Nil

Background

Each year the City of Charles Sturt holds an End of Year Dinner in recognition of the year that was and the commitment and out of hours spent by Elected Members and senior staff, noting also that this has significant impact on all of their families. The function is typically held at the end of November / beginning of December and invitations are extended to the following persons:

- City of Charles Sturt Council Members and partners
- Freeman of the City and partners
- Mayor of the City of West Torrens and partner
- Mayor of the City of Port Adelaide Enfield and partner
- Chief Executive Office and Leadership Team and partners

In an election year, invitations are also extended to retiring Council Members and former Councillors who were not re elected.

In most recent years the function has been held at the Royal Adelaide Golf Club in Seaton with attendance of approximately 60 persons in total. The function is a recurring budget item, with a budget of $7,250 approved for the 2023/24 year.

In addition to supporting a local City of Charles Sturt club or business as host, the End of Year function provides the benefit of strengthening the professional working relationship between Council Members and also with the key management staff. The dinner provides an opportunity for the Mayor to recognise and show appreciation for the work completed throughout the year, ensuring that those in attendance are recognised and feel valued for their contribution and commitment.

This report outlines the proposed arrangement and costings for the 2023 End of Year Dinner as well as providing an overview of the Ombudsman SA's report into Employee Recognition Practices and the South Australian Auditor-General examination of credit card use and management (City of Charles Sturt) and the consideration of its application to the End of Year Dinner.

Report

End of Year Dinner

It is proposed that for the 2023 year, the End of Year Dinner is to be held at the Woodville-West Torrens Football Club function room. Invitees will remain the same as previous years with invitations being extended to the City of Charles Sturt Council Members, Freeman of the City, the Mayors of the City of West Torrens and City of Port Adelaide Enfield, the Charles Sturt Executive Office and Leadership Team. Attendees will be entitled to bring one guest with them on the night.

The Woodville-West Torrens Football Club have offered the club's Function room for four hours at nil cost. The costs on the night would be:

- Three course meal (entree, alternate drop main and dessert): $60 per person (staff at own expense)
- Soft drinks (optional extra): $4 per glass or $12 per jug
- Alcoholic beverages would be at the individuals own expense.

Based on previous years, a maximum attendance of approximately 60 persons is likely. Based on this per person costing for dinner the cost to hold the 2023 Mayor's End of Year Dinner would be less that $3,500 (noting staff meals and alcohol would be at the individuals expense).

Council could consider the option of all attendees paying for their own dinner and drinks, making the End of Year Dinner self-funded.

Overview of the Ombudsman SA's Report into Employee Recognition Practices

In April 2023, the Ombudsman SA published findings of an 'own initiative investigation' into employee recognition practices at a small metropolitan South Australian Council. This report is publicly available for viewing on their website (2022-02313-Redacted.pdf (ombudsman.sa.gov.au)). The report details the Councils reward and recognition practices from 2008 to 2022 and the expenditure that was made over that 14 year period. Total expenditure over the period was $37,293 which over the 14 years and apportioned across the organisations 75 employees equates to $35 per person per year. Notwithstanding the immaterial amount of money in the Councils context, and the organisations policy framework around this, the Ombudsman determined that the expenditure was not in the public interest and recognition could have been achieved for no cost through thank you notes and other initiatives that did not require the expenditure of public funds.

South Australian Auditor-General Examination of Credit Card Use and Management at the City of Charles Sturt

In 2020 the South Australian Auditor-General examined the credit card use and management at the City of Charles Sturt, looking at employee recognition practices and expenditure. This report is publicly available for viewing on their website (Examination of credit card use and management: City of Charles Sturt | Auditor-General's Department). The report applies generally consistent parameters as had the Ombudsman's report referred to above, as a matter of principal this can be summarised as being that only the most frugal amounts of expenditure outside of salary on staff should be undertaken. Again the test of whether that expenditure was in the community's interest was applied.

This has resulted in things like the purchase of flowers for an employee that has lost a loved one being limited to direct family member and of a set limit. Refreshments associated with training, information or briefing sessions for staff being discontinued, morning teas recognising milestones of employment or achievements have been largely discontinued except for a frugal farewell in the case of 20+ years service with others being self-funded by the team members. Under these guidelines sustenance food can be provided to staff where a training session or meeting extends for 4 hours duration and across a meal period. Other recognitions are now required to be self-funded by staff.

Financial and Resource Implications

There are no additional financial or resource implications as this is a recurring budget item and has been approved with a budget of $7,250 for the 2023/24 year with likely savings based on implemented changes of $3,500.

Customer Service and Community Implications

There are no customer service or community implications.

Environmental Implications

There are no environmental implications.

Community Engagement/Consultation (including with community, Council members and staff)

There is no requirement for community engagement or consultation.

Risk Management/Legislative Implications

The landscape that Councils operate in has changed in recent years with State Government oversight bodies such as the Auditor Generals Department and the Ombudsman taking an interest in the practices of the sector, carrying out investigations and publishing the outcomes of their work for all councils benefit.

Conclusion

The End of Year Dinner is an annual function that is intended to foster positive relationship building among attendees, it is intended to provide a forum for thanks and recognition both for the individuals and their partners for the effort and time commitment that is made for public service that often requires significant out of hours work. It is an opportunity to show recognition of the achievements of the year and the opportunities and challenges that lie ahead.

Considerations for the 2023 function has been made, including venue choice and public vs personal expenditure based on the recommendations from the OmbudsmanSA's report into Employee Recognition Practices and the South Australian Auditor-Generals 2020 review.

6.106 2023/24 CHRISTMAS AND NEW YEAR'S ARRANGEMENTS - CIVIC CENTRE AND LIBRARY BRANCHES

TO	Council
FROM:	Manager Public Health and Safety - Adam Filipi
DATE:	23 October 2023

Brief

To seek Council endorsement of the operational hours of Council's Civic Centre and Library Services throughout the 2023/24 Christmas and New Year period.

Recommendation

1. **That Council offices at the Civic Centre be closed from 3pm Friday 22 December 2023 and reopen at 8.30am Tuesday 2 January 2024.**

2. **During the non-designated public holidays, Council's Customer Contact Centre will be operating to provide phone, webchat, email and social media responses, whilst ensuring Field Services emergency response capability is maintained.**

3. **The Library Service will deliver modified opening and operating hours during the Christmas/New Year period and resume full service delivery from Tuesday 2 January 2024.**

Status

This report relates to or impacts upon the following Community Plan objectives 2020-2027.

Our Community - A strong and connected community

In our City no one gets left behind; everyone has access to quality resources, services, programs, information and social infrastructure to fully participate in their community.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.
We provide excellence in customer experience by ensuring our customers are at the heart of everything we do.
Open and accountable governance.

Relevant statutory provisions are:

- Local Government Act 1999

Background

The week in between Christmas and New Years is traditionally a period of low demand for a range of Council services and therefore provides an opportunity for staff to utilise annual leave entitlements at a time that causes minimal impact on Council service delivery. Last year, following Council endorsement (refer CL 24/10/22, Item 6.102), the administration office at the Civic Centre was closed from 3pm Friday 23 December 2022 and reopened at 8.30am on Tuesday 3 January 2023.

The closure arrangements during the festive period remain consistent each year as follows:

- Council's administration offices, including all libraries, Contact Centre and Front Counter services at the Civic Centre cease operation from 3.00pm on the last business day prior to Christmas Day (i.e. 25 December).
- Council’s administration offices re-open on the first business day in the new calendar year.
- The Contact Centre (not Front Counter) operates between 8:30am-5pm on business days
  (i.e. non-public holidays) between the Christmas and New Year period to provide core customer service functionality by responding to telephone, webchat, email and social media contact.
- 3 of the 5 library branches (Findon, Ngutungka West Lakes and Civic library branches) open as per normal operating hours during business days (i.e. non-public holidays) between the Christmas and New Year period. These library branches are able to support customers with online payments via Council's website.
- All library branches resume in accordance with normal operating hours from the first business day of the new year.

Report

It is recognised based upon historical trends, that the week in between Christmas and News Years has traditionally been a period of low demand for a range of council services. This period therefore provides an opportunity for staff to utilised annual leave entitlements at a time that causes very minimal impact on the delivery of services. A review of the operational activities during this end of year period has been undertaken in considering the arrangements for the upcoming Christmas/New Year, with the following closures being proposed for 2023/24:

Council's administration offices, including all libraries, the Contact Centre and Front Counter at the Civic Centre will cease operation from 3.00pm Friday 22 December 2023. The Civic Centre will then resume regular operational hours from 8.30am Tuesday 2 January 2024.

During the non-designated public holidays throughout this period, Council's Customer Contact Centre (not Front Counter), will be operational to provide core customer service functionality by responding to telephone, webchat, email and social media contact and emergency response capability, between the core business hours of 8.30am to 5.00pm. The Library Service will assist customers via the online payments functionality available on Council's website. Council's after-hours service provider will continue to deliver telephone services on the designated public holidays, after business hours and from 3.00pm on Friday 22 December 2023.

Council's library branches will operate with reduced operational staff during the opening hours across the Christmas/New Year period. The library hours for the Christmas/New Year break will be as follows:

Monday 19 – Friday 22 December 2023	Current operating hours across all branches (9:30am to 5:00pm)
Friday 22 December 2023	All libraries to close at 3pm
Saturday 23 – Tuesday 26 December 2023	All branches closed
Wednesday 27 – Sunday 31 December 2023	Findon, Ngutungka West Lakes and Civic libraries will open as per current operating hours. Henley Beach and Hindmarsh Libraries will be closed.
Monday 1 January 2024	All branches closed
Tuesday 2 January 2024	All libraries open in accordance with current opening hours

The Mobile Library Service will cease operations from Saturday 16 December 2023 and will resume services to Aged Care facilities from Tuesday 2 January 2024 with full services returning from Monday 8 January 2024.

Council's community centres will officially close for the Christmas period from Wednesday 20 December 2023, and will reopen on Monday 8 January 2024. It is noted that many of the programs delivered from the centres will finish the week prior to the proposed closure period and will resume mid-January 2024 based upon the demand for services and provider availability. This proposal is in accordance with the practice utilised in previous years which has worked well.

Financial and Resource Implications

Effective management of staff leave entitlements over the Christmas/New Year period, with a base level of Customer Contact and Field Staff, ensures there are no unnecessary financial or resource implications over this period.

Customer Service and Community Implications

Rostering of relevant operational staff on duty over the Christmas/New Year period provides a base level of Customer Contact and Field Staff during the holiday period. Council will also have staff rostered on duty to provide emergency response service/s where required.

Environmental Implications

There are no environmental implications.

Community Engagement/Consultation (including with community, Council members and staff)

Council has historically managed the closure of Council's administrative services, Civic Centre and Libraries in the approach being recommended in this report for Council endorsement. A community information campaign to ensure our residents are well informed of the service options available to them is being prepared, together with a reminder to our elderly citizens about taking precautions against excessive heat wave conditions that may be experienced over this period.

Risk Management/Legislative Implications

Risk management and legislative obligations of Council will be effectively managed by the arrangements and processes in place over the Christmas/New Year period.

Conclusion

The Christmas and New Year operating arrangements proposed will effectively manage staff leave over this period whilst also ensuring a base level of service, including emergency response capability, will be provided to our community. The approach being recommended is in line with the approach implemented in previous years which has historically worked effectively.

6.107 DISCRETIONARY WARD ALLOWANCE – CONSIDERATION OF APPLICATIONS

TO Council

FROM: Return to Work Administrator - Sam Clark

DATE: 23 October 2023

Brief

Discretionary Ward Allowance grants are available to eligible, not for profit individuals, groups and organisations which are seeking funding support for programs, projects and activities that benefit the local community. This report is for Council to consider new applications that have been received and assessed.

Recommendation

1. **That the Discretionary Ward Allowance application for Hindmarsh Residents Association Community Archive Group Inc for $2,999.00 (no GST) be approved or not approved from Hindmarsh and Beverley Wards.**

2. **That the Discretionary Ward Allowance application for Western Adelaide Coastal Residents' Association Inc. for $3,000.00 (no GST) be approved or not approved from Woodville and West Woodville Wards.**

3. **That the Discretionary Ward Allowance application for St Clair Community Gardens for $3,000.00 (no GST) be approved or not approved from Woodville Ward.**

4. **That the Discretionary Ward Allowance application for Grange Surf Life Saving Club Inc for $3,000.00 (ex GST) be approved or not approved from Grange Ward.**

Status

This report relates to or impacts upon the following Community Plan Objectives 2020-2027.

Our Community - A strong and connected community

In our City no one gets left behind; everyone has access to quality resources, services, programs, information and social infrastructure to fully participate in their community.
Charles Sturt is made up of strong and vibrant communities; we celebrate our identity; heritage and cultural diversity. People feel a sense of belonging, inclusion and social connectedness.
Charles Sturt is a place where people feel safe in their homes, neighbourhoods and public places; they are resilient and manage shocks and stresses to build a stronger community.

Our Leadership - A leading & progressive Local Government organisation

Our values, leadership and collaborative approach are bold and courageous and enables us to deliver value for our Community and create a leading liveable City.
We provide excellence in customer experience by ensuring our customers are at the heart of everything we do.

Relevant Council policies are:

- Discretionary Ward Allowance Guideline

Relevant statutory provisions are:

- Nil

Background

Council provide discretionary funds to assist eligible, not-for-profit individuals, groups and organisations within the community who are seeking support for programs, projects and activities that address identified community priorities and which build local capacity, strengthen social diversity and enhance the health and wellbeing of residents in the City of Charles Sturt. The establishment and operation of the Discretionary Ward Allowance (DWA) is derived from Council's powers under Section 137 of the Local Government Act 1999.

Report

Four (4) applications were finalised following assessment during the period 3 October 2023 to 16 October 2023. The applications have been assessed for consistency and eligibility by the Grant Administrator against the DWA Guideline and program criteria.

A summary of the Application assessment notes in addition to any specific notes regarding identified eligibility concerns are contained in **Appendix 1** of this report.

Copies of finalised applications and their supporting documentation are available for perusal by Elected Members at the time the Council report is prepared by visiting the Elected Members Extranet "DWA Applications" folder. Alternatively, Elected Members may contact the DWA Administrator(s) to request a copy.

All applications approved, not approved, outstanding and yet to be considered for the 2023/24 financial year are detailed in **Appendix 2**

All applications that were approved for the 2022/23 financial year, including those still being processed and/or yet to be acquitted are detailed in **Appendix 3**.

Financial and Resource Implications

The approved budget for the DWA program is $176,000 for this financial year, for which each ward is allocated $22,000. The approved applications will be funded from this allocation and **Appendix 2** provides a summary of the funds currently available for each ward and the impact of the new applications.

Customer Service and Community Implications

There are no customer service or community implications.

Environmental Implications

There are no environmental implications.

Community Engagement/Consultation (including with community, Council members and staff)

Public advertisement of the DWA scheme to community groups and residents will occur at the commencement of the financial year and at other times throughout the year should the Council members determine this is necessary, in the interests of good probity practices.

Risk Management/Legislative Implications

The establishment and operation of the DWA is derived from Council's powers under Section 137 of the Local Government Act 1999.

Conclusion

Council is to review the DWA applications finalised for consideration during the period 3 October 2023 to 16 October 2023 and determine what funds, if any, shall be allocated to the applicants.

Appendices

#	Attachment
1	Appendix 1 - DWA Application Assessments - 23 October 2023
2	Appendix 2 - Discretionary Ward Allowance Applications - 2023-2024
3	Appendix 3 - Discretionary Ward Allowance Applications - 2022-2023

APPENDIX 1

2023/24 DISCRETIONARY WARD ALLOWANCE
APPLICATION ASSESSMENTS - FOR DECISION

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
Grange	Grange Surf Life Saving Club Inc - Subsidised replace IRB Motor	$22,000.00	$3,000.00	$3,000.00	$19,000.00

Assessment

- Application received 1 October 2023.
- Applicant organisation is based in Grange Ward
- Applicant is the owner of the property at 497 Esplanade, GRANGE
- Applicant is incorporated. Evidence of Incorporation obtained.
- Applicant ABN provided and checked.
- Applicant is registered with the Australian Charities and Not-for-profits Commission.
- Un/Audited Financial Statements for the financial year ended 24 June 2023 were provided.
- Annual Report 2022 -2023 were provided, including Chairman's, Treasurer's, and Director's reports.
- Applicant has provided 2 quote/s for items being requested for purchase by the grant funds, which is a requirement of the Guideline given the individual expense/s $3,000.00 or over ex GST.
- Applicant confirmed that any shortfall between costs and grant funding will be covered by the club.
- DWA funding received in the last 4 years:
    - **2022/23**: $5,269.00 - (Purchase of 2 new rescue boards)
    - **2019/20**: $5,500.00 - (Purchase of replacement motor for Inflatable Rescue Boat)
- Other council funding, subsidies or support received in the last 4 years:
    - **2020/21** $1,100.00 - COVID -19 Relief Grant
    - **2019/20** $550.00 - COVID -19 Relief Grant (Recovering clubs)
- Rate Rebate (Community Services)
    - 2023/24: $3,513.10 – 50%
    - 2022/23: $3,251.40 – 50%
    - 2021/22: $3,186.80 – 50%
    - 2020/21: $3,856.65 – 50%
    - 2019/20: $3,983.75 – 50%

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
Hindmarsh	Hindmarsh Residents Association Community Archive Group - Subsidised funding for Recollections Collections Book	$848.14	$848.14	$848.14	$0.00

Assessment

- Application received 27 September 2023
- Applicant organisation is based in Hindmarsh ward - Beverley Ward support shared funds
- Applicant is incorporated. Evidence of Incorporation obtained.
- Statement by a Supplier provided in lieu of ABN.
- Un/Audited Financial Statements for the financial year ended 30 June 2021 were provided.
- Chair report of Annual General Meeting 2022 held on November 2022 were provided.
- Financial year records for 2022-2023 are not available and AGM for 2023 has not been completed as yet. Documents have been provided for financial year 2021-2022.
- Applicant has provided 1 quote for items being requested for purchase by the grant funds, which is a requirement of the Guideline given the individual expense/s is over $1,000.00 ex GST
- Applicant amended proposed budget from $3,000.00 ex gst to $2,999.00 ex gst as only one publisher interested in this project unable to get a second quote.
- Applicant confirmed that any shortfall between costs and grant funding will be covered by the club.
- Grant expense budget was provided as per the Guideline
- DWA funding received in the last 4 years:
    - **2021/22:** $2,695.00 - Subsidised one-off support for professional services required for the delivery of an environment/social history exhibition.
- Other council funding, subsidies or support received in the last 4 years:
    - **Nil known.**

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
Beverley	Hindmarsh Residents Association Community Archive Group - Subsidised funding for Recollections Collections Book	$16,808.58	$2,150.86	$2,150.86	$14,657.72

Assessment

- Application received 27 September 2023
- Applicant organisation is based in Hindmarsh ward - Beverley Ward support shared funds
- Applicant is incorporated. Evidence of Incorporation obtained.
- Statement by a Supplier provided in lieu of ABN.
- Un/Audited Financial Statements for the financial year ended 30 June 2021 were provided.
- Chair report of Annual General Meeting 2022 held on November 2022 were provided.
- Financial year records for 2022-2023 are not available and AGM for 2023 has not been completed as yet. Documents have been provided for financial year 2021-2022.
- Applicant has provided 1 quote for items being requested for purchase by the grant funds, which is a requirement of the Guideline given the individual expense/s is over $1,000.00 ex GST
- Applicant amended proposed budget from $3,000.00 ex gst to $2,999.00 ex gst as only one publisher interested in this project unable to get a second quote.
- Applicant confirmed that any shortfall between costs and grant funding will be covered by the club.
- Grant expense budget was provided as per the Guideline
- DWA funding received in the last 4 years:
    - **2021/22:** $2,695.00 - Subsidised one-off support for professional services required for the delivery of an environment/social history exhibition.
- Other council funding, subsidies or support received in the last 4 years:
    - **Nil known.**

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
Woodville	St Clair Community Gardens - Purchase of 6 wicking garden beds	$10,503.57	$3,000.00	$3,000.00	$7503.57

Assessment

- Application received 3 October 2023.
- Applicant organisation is based in Woodville Ward
- Applicant is incorporated. Evidence of Incorporation obtained.
- New Garden - No Financial Statements for the financial year
- No Minutes of Annual General Meeting or Chairman's, Treasurer's and Director's reports.
- Provided Minutes of meeting from last meeting 28 September 2023
- Applicant has provided 2 quotes for items being requested for purchase by the grant funds, which is a requirement of the Guideline given the individual expense/s $3,000.00 or over ex GST.
- Applicant confirmed that any shortfall between costs and grant funding will be covered by the club.
- Grant expense budget was provided as per the Guideline
- DWA funding received in the last 4 years:
    - **Nil**
- Other council funding, subsidies or support received in the last 4 years:
    - **Nil**
- Other notes that can be added if relevant:
- Janet Willoughby form Open Space Community Planner is in support of this application and will assist in the procurement of the items.
- Garden has been established recently. Have completed all their Governance requirements and achieved their status as Incorporated Associations.
- Council have provided the same start up funding as with the other seven Community Gardens across the City - being fencing, shed, access to water, storage bays and some minor equipment to get them gardening and generally, we support these groups in their early stages.

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
Woodville	Western Adelaide Coastal Residents' Association Inc. - subsidised material expenses my tree Project	$7,503.57	$1,500.00	$1,500.00	$6003.57

Assessment

- Application received 4 October 2023.
- Applicant organisation is based in Woodville West and Woodville wards
- Applicant is incorporated. Evidence of Incorporation obtained.
- Un/Audited Financial Statements for the financial year ended 31 December 2022 were provided.
- Minutes of Annual General Meeting held on 2 March 2023 were provided, including Chairman's, Treasurer's and Director's reports.
- Applicant confirmed Any shortfall will be covered from the support we receive from Railcare SA and AAEE SA Chapter (subject to the DWA being approved).
- Applicant has provided Grant expense budget was provided as per the Guideline / was not required to be provided.
- DWA funding received in the last 4 years:
  - **Nil**
- Other council funding, subsidies or support received in the last 4 years:
  - N**ill**
- My Tree Project was awarded Community Event of the year 2023 (Charles Sturt Council) South Australia’s community event of the Year 2023

Ward	Project	Allowance Available	Application Amount Ex GST	Eligible Contribution Ex GST	Allowance Remaining
West Woodville	Western Adelaide Coastal Residents' Association Inc. - subsidised material expenses my tree Project	$9,000.00	$1,500.00	$1,500.00	$7,500.00

Assessment

- Application received 4 October 2023.
- Applicant organisation is based in Woodville West and Woodville wards
- Applicant is incorporated. Evidence of Incorporation obtained.
- Un/Audited Financial Statements for the financial year ended 31 December 2022 were provided.
- Minutes of Annual General Meeting held on 2 March 2023 were provided, including Chairman's, Treasurer's and Director's reports.
- Applicant confirmed Any shortfall will be covered from the support we receive from Railcare SA and AAEE SA Chapter (subject to the DWA being approved).
- Applicant has provided Grant expense budget was provided as per the Guideline / was not required to be provided.
- DWA funding received in the last 4 years:
    - **Nil**
- Other council funding, subsidies or support received in the last 4 years:
    - N**ill**
- My Tree Project was awarded Community Event of the year 2023 (Charles Sturt Council) South Australia's community event of the Year 2023

APPENDIX 2

Discretionary Ward Allowance applications and status - 2023/2024

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					SEMAPHORE PARK										
					Applicant	***Projects***	**$22,000**								
23/171398	29/07/23	Approved	CL 14/08/23, Item 6.84	23/08/23	Henley & Grange Baseball Club Inc (West Lakes Sports Club)	Subsidised pre-season training venue hire		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$19,000.00**		15/08 Applicant notified approved and payment voucher raised.24/08 Payment made via EFT. 29/08 funding letter sent.
23/181458	9/08/23	INELIGIBLE			Torrens Rowing Club	Subsidised purchase of 6 pairs of rowing shoes and 150 rowing seat wheels		$2,794.00	$0.00	$0.00	YES		**$19,000.00**		Applicant ineligible - has received grant funds for same project 3 times in past 4 years.
23/187777	16/08/23	Approved	CL 11/09/23, Item 6.89		Frederick Miller Community Garden	Subsidised puchase of irrigation and wicking beds		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$16,000.00**		12/09 Applicant notified approved and payment voucher raised. 21/09 Paymnet made via EFT. 25/9 Funding letter sent.
23/208925	10/09/23	Approved	CL 25/09/2023 Item 6.93		Rotary Club of Henley Beach	Purchase of audio PA system for club meeting presentations		$480.00	$480.00	$480.00	NO	$480.00	**$15,520.00**		26/09 Applicant notified approved and payment voucher raised.
								Total Spend to Date		***$6,480.00***			***$15,520.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					GRANGE										
					Applicant	***Projects***	**$22,000**								
23/227967	1/10/23	Decision	Up to Council 23/10/2023		Grange Surf Life Saving Club Inc	Preplace IRB Motor		$3,000.00	$3,000.00	$3,000.00	YES		**$19,000.00**		
								Total Spend to Date		***$6,000.00***			***$16,000.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Discretionary Ward Allowance applications and status - 2023/2024

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					HENLEY										
					Applicant	***Projects***	**$22,000**								
23/147169	4/07/23	Approved	CL 24/07/23, Item 6.80	11/08/23	Henley and Grange Arts Society Inc	Subsidised replacement of air conditioner, gravel driveway with concrete, and gutter.		$5,000.00	$5,000.00	$5,000.00	NO	$5,000.00	**$17,000.00**		25/07 Applicant notified approved and payment voucher raised.
23/173186	31/07/23	Approved	CL 14/08/23, Item 6.84	23/08/23	Henley South Tennis Club Inc	Subsidised irrigation to the club grounds		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$14,000.00**		15/08 Applicant notified approved and payment voucher raised. 24/08 Payment made via EFT. 29/08 funding letter sent.
23/171914	31/07/23	Acquitted	CL 14/08/23, Item 6.84	23/08/23	West Torrens District Cricket Club / Henley Football Club	Subsidised purchase of an industrial dishwasher		$3,000.00	$3,000.00	$3,000.00	YES	$3,300.00	**$11,000.00**	23/12278	15/08 Applicant notified approved and tax invoice requested. 17/08 Tax Invoice recevied and processed for payment. 23/08 Payment made via EFT and funding letter sent. 18/09 SOA finalised.
23/177376	4/08/23	Approved	CL 28/08/23, Item 6.86	6/09/23	Henley Surf Life Saving Club Inc	Subsidised purchase of freestanding benches for female change rooms		$3,000.00	$3,000.00	$3,000.00	YES	$3,300.00	**$8,000.00**		29/08 Applicant notified approved and tax invoice requested. 1/09
23/184050	12/08/23	Not approved	CL 11/09/23, Item 6.89		Our Lady of the Sacred Heart Church Henley Beach (Catholic Church Endowment Society Inc)	Subsidised replacement of damaged gutters and roofing on Church buildings		$3,000.00	$3,000.00	$0.00	YES	$0.00	**$8,000.00**		12/09 Applicant notified not approved.
								Total Spend to Date		***$14,000.00***		***$0.00***	***$8,000.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					WOODVILLE										
					Applicant	***Projects***	**$22,000**								
23/126020	9/06/23	Approved	CL 10/07/23, Item 6.75	20/07/23	Italian Benevolent Foundation (Bene Aged Care)	Purchase of fittings, fixtures and equipment for onsite hair salon		$4,992.85	$4,992.85	$2,496.43	YES	$2,746.07	**$19,503.57**		Approved by both Woodville ward and Beverley ward for 50/50 = $2,496.43 and $2,496.42. 12/07 Applicant notified approved and tax invoice requested. 17/07 Tax invoice received and processed for payment. 20/07 Payment made via EFT. 24/07 Funding letter sent.
23/100602	10/05/23	Approved - partial	CL 14/08/23. Item, 6.84	23/08/23	Club of Donauschwaben in SA	Exterior painting of front of clubrooms		$5,000.00	$5,000.00	$3,000.00	NO	$3,000.00	**$16,503.57**		12/07 Applicant notified deferred and 3rd quote requested. 21/07 Quote received and added to report. 16/08 Applicant notified partially approved and payment voucher raised. 23/08 Payment made via EFT. 29/08 Funding letter sent.
23/158973	14/07/23	Approved - partial	CL 14/08/23, Item 6.84	23/08/23	West Croydon Football Club	Purchase of Indigenous guernseys and specially designed footballs		$4,714.75	$4,714.75	$3,000.00	NO	$3,000.00	**$13,503.57**		16/08 Applicant notified partially approved and payment voucher raised. 23/08 Payment made via EFT. 29/08 Funding letter sent.
23/165052	22/07/23	Approved - partial	CL 14/08/23, Item 6.84	30/08/23	Athol Park Community Garden Inc	Purchase of 10 wicking garden beds		$5,000.00	$5,000.00	$3,000.00	NO	$3,000.00	**$10,503.57**		16/08 Applicant notified partially approved and New Creditor raised. 22/08 Payment voucher raised. 1/09 Payment made via EFT and funding letter sent.
23/228446	3/10/23	Decision	Up to Council 23/10/2023		St Clair Community Gardens	Purchase of 6 wicking garden beds		$3,000.00	$3,000.00	$3,000.00	NO		**$7,503.57**		11/10 request for new creator
23/230318	4/10/23	Decision	Up to Council 23/10/2023		Western Adelaide Coastal Residents' Association Inc.	subsidised material expenses my tree Project		$1,500.00	$1,500.00	$1,500.00	NO		**$6,003.57**		
								Total Spend to Date		***$15,996.43***		***$0.00***	***$6,003.57***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					WEST WOODVILLE										
					Applicant	***Projects***	**$22,000**								
23/80023	15/04/23	Approved - partial	CL 10/07/23, Item 6.75 and	20/7/23	Madonna Dei Martiri Molfetta Club Inc	Subsidised purchase of new stove for clubroom		$5,000.00	$5,000.00	$2,500.00	NO	$2,500.00	**$19,500.00**		12/07 Applicant notified partially approved and payment voucher raised. 20/07 Payment made via EFT. 24/07 funding letter sent.
		Approved - amended	CL 24/07/23, Item 7.06							$2,500.00	NO	$2,500.00	**$17,000.00**		26/07 Applicant notified amended and approved and payment voucher raised.
23/90001	28/04/23	Approved - partial	CL 10/07/23, Item 6.75 and	14/08/23	Italian Home Delivered Meals and Services Inc (Nonna's Cucina)	Subsidised purchase of Planetary Mixer for kitchen		$5,000.00	$5,000.00	$2,500.00	YES	$2,750.00	**$14,500.00**	23/209269	13/07 Applicant notified partially approved and tax invoice requested.
		Acquitted	CL 24/07/23, Item 7.06	14/08/23						$2,500.00	YES	$2,750.00	**$12,000.00**		26/07 Applicant notified amended and approved and tax invoice requsted. 2/08 Tax invoice received and processed for payment.
23/171543	30/07/23	Approved	CL 28/08/23, Item 6.86	6/9/23	Woodville District Cricket Club	Subsidised replacement of aging tables and chairs within the clubrooms		$3,000.00	$3,000.00	$3,000.00	YES	$3,300.00	**$9,000.00**		29/08 Applicant notified approved and tax invoice requested. 1/09 Invoice received and processed for payment. 6/09 Payment made via EFT and funding lettr sent.
23/230318	4/10/23	Decision	Up to Council 23/10/2023		Western Adelaide Coastal Residents' Association Inc.	subsidised material expenses my tree Project		$1,500.00	$1,500.00	$1,500.00	NO		**$7,500.00**		
								Total Spend to Date		***$14,500.00***			***$7,500.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Discretionary Ward Allowance applications and status - 2023/2024

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					FINDON										
					Applicant	***Projects***	**$22,000**								
23/112961	24/05/23	Acquitted	CL 10/07/23, Item 6.75	20/07/23	Volleyball SA	Subsidised purchase of office furniture for 'Pathway' team to assist with community programs		$2,999.00	$2,999.00	$2,999.00	YES	$3,289.90	**$19,001.00**	23/203823	12/07 Applicant notified approved and tax invoice requested. 14/07 Tax invoice received and processed for payment. 20/07 Payment made via EFT. 24/07 funding letter sent.
23/80240	16/04/23	Approved	CL 14/08/23, Item 6.84	17/08/23	Findon Skid Kids	Subsidised purchase and installation of 3 grandstands		$5,000.00	$5,000.00	$5,000.00	NO	$5,000.00	**$14,001.00**		15/08 Applicant notified approved and payment voucher raised. 17/08 Payment made via EFT and funding letter sent.
23/177691	5/08/23	Acquitted	CL 28/08/23, Item 6.86	8/09/23	Fulham United Football Club	Purchase of portable goals for training		$1,120.00	$1,120.00	$1,120.00	YES	$1,232.00	**$12,881.00**	23/216107	30/08 Invoice received and processed for payment. 6/09 Payment made via EFT and funding letter sent.18/09 SOA finalised.
23/190495	19/08/23	Approved	CL 11/09/23, Item 6.89		Loretta Fighera for Cooke Street Green	Purchase of 2 gabion bench seats and sand for pathways for Cooke Street Green		$2,986.10	$2,986.10	$2,986.10	NO	$2,986.10	**$9,894.90**		12/09 Applicant notified approved and new creditor raised. 18/09 Payment voucher raised. 27/09 payment via EFT. 28/9 Funding letter sent
								Total Spend to Date		***$12,105.10***			***$9,894.90***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					HINDMARSH										
					Applicant	***Projects***	**$22,000**								
23/97905	8/05/23	Approved	CL 10/07/23, Item 6.75	27/07/23	SA Circus Centre (Cirkidz Inc)	Subsidised purchase of a new Teeterboard		$5,000.00	$5,000.00	$5,000.00	YES	$5,500.00	**$17,000.00**		12/07 Applicant notified approved and tax invoice requested. 15/07 Invoice received and processed for payment. 27/07 Payment made via EFT and funding letter sent.
23/101587	11/05/23	Approved	CL 10/07/23, Item 6.75	20/07/23	West Croydon and Kilkenny RSL	Subsidised replacement air conditioner units		$5,000.00	$5,000.00	$5,000.00	NO	$5,000.00	**$12,000.00**		13/07 Applicant notified approved and payment voucher raised. 20/07 Payment made via EFT and funding letter sent.
23/138883	23/06/23	Approved	CL 10/07/23, Item 6.75	20/07/23	Sustainable Communities SA Inc (Bowden Brompton Repair Café)	Purchases for the set-up of Bowden Brompton Repair Café at 19 On Green		$3,237.86	$3,237.86	$3,237.86	NO	$3,237.86	**$8,762.14**		13/07 Applicant notified approved and payment voucher raised. 20/07 Payment made via EFT. 24/07 funding letter sent.
23/130578	14/06/23	Approved	CL 24/07/23, Item 6.80	3/08/23	Multicultural Community Centre SA Incorporated	Purchase of a sound system for community activities		$4,990.00	$4,990.00	$4,990.00	NO	$4,990.00	**$3,772.14**	23/225493	25/07 Applicant notified approved. 31/07 new creditor done and payment voucher raised. 4/08 Payment made via EFT and funding letter sent.
23/193637	23/08/23	Approved	CL 11/09/23, Item 6.89	20/09/23	Brompton Community Garden	Purchase of a greenhouse		$2,924.00	$2,924.00	$2,924.00	NO	$2,924.00	**$848.14**		12/09 Applicant notified approved and payment voucher raised. 20/09 Payment made via EFT and funding letter sent.
23/226509	27/09/23	Decision	Up to Council 23/10/2023		Hindmarsh Residents Association Community Archive Group Inc	Subsidised funding for Recollections Collections Book		$848.14	$848.14	$848.14	NO		**$0.00**		28/9 Insufficient funds in Hindmarsh Ward, Beverley Councillors contacted to support remainder of funds - $3000 (NO GST) for $848.14 from the Hindmarsh Ward, $2150.86 from the Beverley Ward.
								Total Spend to Date		***$22,000.00***			***$0.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					BEVERLEY										
					Applicant	***Projects***	**$22,000**								
23/126020	9/06/23	Approved	CL 10/07/23, Item 6.75	20/07/23	Italian Benevolent Foundation (Bene Aged Care)	Purchase of fittings, fixtures and equipment for onsite hair salon		$4,992.85	$4,992.85	$2,496.42	YES	$2,746.07	**$19,503.58**		Approved by both Woodville ward and Beverley ward for 50/50 = $2,496.43 and $2,496.42.
23/159805	17/07/23	Approved	CL 14/08/23, Item 6.84	30/08/23	Lesvos Mytilinian Brotherhood of SA	Subsidised purchase of roller blinds and door and window graphics		$2,695.00	$2,695.00	$2,695.00	YES	$2,964.50	**$16,808.58**		15/08 Applicant notified approved and tax invoice requested. 22/08 Tax invoice received and processed for payment. 1/09 Payment made via EFT and funding letter sent.
23/226509	27/09/23	Decision	Up to Council 23/10/2023		Hindmarsh Residents Association Community Archive Group Inc	Subsidised funding for Recollections Collections Book		$2,150.86	$2,150.86	$2,150.86	NO		**$14,657.72**		28/9 Insufficient funds in Hindmarsh Ward, Beverley Councillors contacted to support remainder of funds - $3000 (NO GST) for $848.14 from the Hindmarsh Ward, $2150.86 from the Beverley Ward.
								Total Spend to Date		***$9,908.28***			***$12,091.72***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

APPENDIX 3

Discretionary Ward Allowance applications and status - 2022/2023

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					SEMAPHORE PARK										
					Applicant	***Projects***	**$17,250**								
22/263466	20/11/22	INELIGIBLE			Semaphore Park Community Garden Inc	Installation of off grid power supply and sleepers for garden beds		$4,768.43	$0.00	$0.00		$0.00	**$17,250.00**		Applicant ineligible - has received grant funds for same project 3 times in past 4 years.
22/267711	24/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/22	Torrens Rowing Club Inc	Purchase of rowing shoes, rowing seats, oars, and seat slides		$3,768.00	$3,768.00	$3,768.00	YES	$4,144.80	**$13,482.00**	23/44542	13/12 applicant notified approved and tax invoice requested. 15/12 Tax invoice received and processed for payment. 21/12 Payment made by EFT and funding letter sent. 2/03 SOA finalised.
23/8401	12/01/23	Acquitted	CL 13/02/23, Item 6.24	28/02/23	West Lakes Sports Club Inc	Purchase of a Smart TV		$1,395.00	$1,395.00	$1,395.00	YES	$1,534.50	**$12,087.00**	23/88893	14/02 Applicant notified approved and tax invoice requested. 15/02 Tax invoice received and processed for payment. 28/02 Payment made via EFT and funding letter sent. 27/04 SoA finalised.
23/11265	17/01/23	Acquitted	CL 13/02/23, Item 6.24	24/02/23	The Henley & Grange Baseball Club Inc (West Lakes Sports Club)	Subsidised purchase of lawnmower for volunteer grounds crew		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$9,087.00**	23/122223	14/02 Applicant notified approved and payment voucher raised. 24/02 Payment made via EFT and funding letter sent. 6/06 SOA finalised.
23/18436	29/01/23	WITHDRAWN	Development approval required		West Lakes Bowling Club Inc (Club West Lakes)	Subsidised installation of footing, wiring and erection of light pole		$4,100.00	$4,100.00		NO				13/02 Application has been put on hold due to development approval being required.
23/21753	1/02/23	Acquitted	CL 14/03/23, Item 6.34	23/03/23	Lakes Sports & Community Club (Club West Lakes)	Purchase of a pie warmer and a kitchen trolley		$1,087.00	$1,087.00	$1,087.00	YES	$1,195.70	**$8,000.00**	23/152784	16/03 Applicant notified approved and tax invoice requested. 23/03 Payment made via EFT and funding letter sent.
23/49426	8/03/23	Acquitted	CL 27/03/23, Item 6.38	5/04/23	(Canoe SA trading as) Paddle SA	Purchase of office furniture		$2,102.25	$2,102.25	$2,102.25	YES	$2,312.47	**$5,897.75**	23/169413	28/03 Applicant notified approved and tax invoice requested. 30/03 Tax invoice received and processed for payment. 5/04 Payment made via Eft and funding letter sent. 18/07 Invoice sent for unspent grant funds. 20/07 Payment received for $210.22 unspent funds ($191.11 ex GST).
23/50251	8/03/23	Acquitted	CL 27/03/23, Item 6.38	5/04/23	North West Junior Soccer Association	Purchase of 2 line marking machines		$4,730.00	$4,730.00	$4,730.00	NO	$4,730.00	**$1,167.75**	23/157964	28/03 Applicant notified approved and payment voucher raised. 5/04 Payment made via EFT and funding letter sent. 14/07 SOA finalised.
								Total Spend to Date		***$16,082.25***			***$1,167.75***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION***	

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					GRANGE										
					Applicant	***Projects***	**$17,250**								
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$16,750.00**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
23/61011	22/03/23	Acquitted	CL 11/04/23, Item 6.43	25/04/23	The Charles Sturt Memorial Museum Trust Inc	Subsidised electrical upgrade at the State Heritage Listed "The Grange" to make the building electrically compliant		$5,000.00	$5,000.00	$5,000.00	YES	$5,500.00	**$11,750.00**	23/136299	17/04 Applicant notified approved and tax invoice requested. 19/04 Tax invoice received and processed for payment. 25/04 Payment made via EFT and funding letter sent. 21/06 SOA finalised.
23/75303	9/04/23	INELIGIBLE			Grange Surf Life Saving Club Inc	Subsidised purchase of an All-Terrain Vehicle		$5,000.00	$0.00						Application is for the reimbursement for items already purchased. Retrospective funding is ineligible under the Guidelines.
23/87015	25/04/23	INELIGIBLE			Seaton Ramblers Football & Sports Club	Recovery of expenses to replace 3 light globes and 2 glass covers on oval light towers		$4,185.78	$0.00						Application is for the reimbursement for items already purchased. Retrospective funding is ineligible under the Guidelines.
23/94857	3/05/23	Acquitted	CL 22/05/23, Item 6.60	8/06/23	Grange Surf Life Saving Club Inc	Purchase of 2 new rescue boards		$4,790.00	$4,790.00	$4,790.00	YES	$5,269.00	**$6,960.00**	23/215848	24/05 Applicant notified approved and tax invoice requested. 29/05 Tax invoice received and processed for payment. 8/06 Payment made via EFT and funding letter sent. 18/09 SOA finalised.
								Total Spend to Date		***$10,290.00***			***$6,960.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Discretionary Ward Allowance applications and status - 2022/2023

Checklist TRIM Ref.	Date initial application received	Status	Council Approval Date & Item No.	Payment Date	Applicant Name	Project	Allocation	Application Amount ex GST	Eligible Amount ex GST	Amount Approved ex GST	GST applicable	Payment Amount	Balance	Final CM Ref.	Status / Notes
					HENLEY										
					Applicant	***Projects***	**$17,250**								
23/31782	14/02/23	Acquitted	CL 14/03/23, Item 6.34	23/03/23	The Rotary Club of Charles Sturt Grange Inc - The Toy Boys	Subsidised purchase of replacement radial arm saw		$5,000.00	$5,000.00	$5,000.00	NO	$5,000.00	**$12,250.00**	23/146565	16/03 Applicant notified approved and payment voucher raised. 23/03 payment made via EFT and funding letter sent. 3/07 SOA finalised.
23/70461	3/04/23	Acquitted	CL 24/04/23, Item 6.50	25/05/23	West Beach Surf Lifesaving Club	Subsidised purchase of rescue training boards		$5,000.00	$5,000.00	$5,000.00	YES	$5,500.00	**$7,250.00**	23/197369	26/04 Applicant notified approved and tax invoice requested. 8/05 Tax invoice received and processed for payment. 25/05 Payment made via EFT and funding letter sent. 28/08 SOA finalised.
23/81572	18/04/23	Approved	CL 22/05/23, Item 6.60	8/06/23	Marine Discovery Centre	Purchase of digital signage for the Marine Discovery Centre		$2,595.00	$2,595.00	$2,595.00	YES	$2,854.50	**$4,655.00**		24/05 Applicant notified approved and tax invoice requested. 30/05 Tax invoice received and processed for payment. 08/06 Payment made via EFT and Funding letter sent
								Total Spend to Date		***$12,595.00***	***$0.00***		***$4,655.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

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					WOODVILLE										
					Applicant	***Projects***	**$17,250**								
22/263838	21/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Vietnamese Community in Australia, SA Chapter Inc	Greening project - Water tanks, shade sails, wicking beds, trees and plantings		$5,000.00	$5,000.00	$5,000.00	YES	$5,500.00	**$12,250.00**	23/88408	13/12 Applicant notified approved and tax invoice requested. Finance to update bank details. 14/12 Invoice received and processed for payment. 21/12 Payment made by EFT and funding letter sent.
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$11,750.00**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
22/274026	2/12/22	Acquitted	CL 23/01/23, Item 6.15	22/2/23	Meals on Wheels SA partnership with St Margaret's Kindergarten	Intergenerational Playgroup Program		$3,589.20	$3,589.20	$3,589.20	YES	$3,948.12	**$8,160.80**	23/188472	24/01 Applicant notified approved and tax invoice requested. 13/02 Tax invoice received and processed for payment. 24/02 Payment made via EFT and funding letter sent. 17/08 SOA finalised.
23/7011	11/01/23	Acquitted	CL 23/01/23, Item 6.15	31/01/23	Elizabeth Williamson Cheltenham Stobie Pole Group	Stobie Pole Art Works in Cheltenham		$2,901.83	$2,901.83	$2,901.83	NO	$2,901.83	**$5,258.97**	23/135875	24/01 Applicant notified approved and new creditor requested. 31/01 Payment made via EFT and funding letter sent. 20/06 SOA finalised.
23/34965	17/02/23	Acquitted	CL 14/03/23, Item 6.34	23/03/23	Woodville District and German Table Tennis Clubs	Subsidised purchase of court dividers to be located at the Woodville Table Tennis Centre		$5,000.00	$5,000.00	$5,000.00	NO	$5,000.00	**$258.97**	23/128728	16/03 Applicant notified approved and payment voucher raised. 27/03 Payment made via EFT and funding letter sent. 13/06 SOA finalised.
								Total Spend to Date		***$16,991.03***	***$0.00***		***$258.97***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

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					WEST WOODVILLE										
					Applicant	***Projects***	**$17,250**								
22/115781	29/05/22	Acquitted	CL 12/12/22, Item 6.128	21/12/22	Woodville City Soccer Club (Western Strikers)	Purchase of 10 round foldable tables and a trolley		$4,021.88	$4,021.88	$4,021.88	YES	$4,424.07	**$13,228.12**	23/136367	13/12 applicant notified approved and tax invoice requested. Tax invoice received and processed for payment. 21/12 Payment made by EFT and funding letter sent.
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/22	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$12,728.12**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
22/111263	23/05/22	Acquitted	CL 23/01/23, Item 6.15	8/02/23	Woodville Orion Tennis Club Inc	Provision and installation of Public Address system at the club		$5,723.30	$5,723.30	$5,723.30	NO	$5,723.30	**$7,004.82**	23/104715	24/01 Applicant notified approved and payment voucher raised. 10/02 Payment made via EFT and funding letter sent. 15/05 SOA finalised.
23/11595	18/01/23	Acquitted	CL 13/02/23, Item 6.24	22/2/23	Kats 'n Jammers Ukulele Group	Purchase of 8 mobile folding flip top tables		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$4,004.82**	23/67622	14/02 Applicant notified approved and New Creditor requested. 15/02 Payment voucher raised. 22/2 Payment made via EFT and funding letter sent. 29/03 SOA finalised.
23/80023	15/04/23	Moved to July spreadsheet	Did not provide further information requested		Madonna Dei Martiri Molfetta Club Inc	Subsidised purchase of new stove for clubroom							**$4,004.82**		
23/89123	27/04/23	Acquitted	CL 22/05/23, Item 6.60	8/06/23	Woodville Bowling Club	Purchase of 3 tables and 24 chairs to furnish new verandah space at the club		$5,000.00	$5,000.00	$4,004.82	YES	$4,405.30	**-$995.18**	23/219064	$4,004.82 approved for West Woodville Ward and $991.18 approved by Findon Ward. 25/05 Applicant notified approved and tax invoice requested. 30/05 Tax invoice received and processed for payment. 8/06 Payment made via EFT and funding letter sent. 20/09 SOA finalised.
								Total Spend to Da		***$17,250.00***	***$17,250.00***		***$0.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

Discretionary Ward Allowance applications and status - 2022/2023

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					FINDON										
					Applicant	***Projects***	**$17,250**								
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$16,750.00**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
23/21862	1/02/23	Acquitted	CL 27/02/23, Item 6.32	8/03/23	Fulham Cricket Club Inc	Purchase of marquees, scoreboards and catching bats		$4,813.00	$4,813.00	$4,813.00	NO	$4,813.00	**$11,937.00**	23/87747	2/03 applicant notified approved and payment voucher raised. 8/03 Payment made via EFT and funding letter sent. 26/04 SoA finalised.
23/55878	15/03/23	Acquitted	CL 11/04/23, Item 6.43	19/04/23	Orange Tree Quilters	Purchase of cotton fabrics, electrical equipment and ironing mats		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$8,937.00**	23/140660	17/04 Applicant notified approved and payment voucher raised. 19/04 Payment made via EFT and funding letter sent. 26/06 SOA finalised.
23/80240	16/04/23	Moved to July spreadsheet	Development approvals required.		Findon Skid Kids	Subsidised purchase and installation of 3 grandstands		$5,000.00	$5,000.00		NO				21/04 Application has been put on hold due to development approvals being required.
23/93295	2/05/23	Approved	CL 22/05/23, Item 6.60	15/06/23	The Scout Association of Australia SA Branch - Kidman Park Scout Group	Purchase of one air conditioner, service two others and acknowledgment plaque within the Scout Hall		$4,167.41	$4,167.41	$4,167.41	YES	$4,584.15	**$4,769.59**		25/05 Applicant notified approved and tax invoice requested. 7/06 Tax Invoice received and processed for payment. 16/06 Payment made via EFT and funding letter sent.
23/89123	27/04/23	Approved	CL 22/05/23, Item 6.60	8/06/23	Woodville Bowling Club	Purchase of 3 tables and 24 chairs to furnish new verandah space at the club		$5,000.00	$995.18	$995.18	YES	$1,096.69	**$3,774.41**	23/219064	$4,004.82 approved from West Woodville Ward and $991.18 approved from Findon Ward. 25/05 Applicant notified approved and tax invoice requested. 8/06 Payment made via EFT and funding letter sent.
								Total Spend to Date		***$13,475.59***			***$3,774.41***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

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					HINDMARSH										
					Applicant	***Projects***	**$17,250**								
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$16,750.00**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
23/41765	27/02/23	Acquitted	CL 27/03/23, Item 6.38	5/04/23	St Barnabas Anglican Church Croydon	Purchase and installation of new gas heaters		$3,000.00	$3,000.00	$3,000.00	NO	$3,000.00	**$13,750.00**	23/151668	28/03 Applicant notified approved and payment voucher raised. 5/04 Payment made via EFT and funding letter sent.
23/53010	12/03/23	WITHDRAWN			Hindmarsh Residents Association Community Archive Group	Once off engagement of professional services to assist in historical recordings		$2,997.50							Application updated with clarity around event. 27/03 Applicantion withdrawn by applicant due to volunter offering services.
23/87018	25/04/23	Acquitted	CL 22/05/23, Item 6.60	8/06/23	Fitzroy Community Club Inc	Subsidised removal and replacement of concrete pavers under club verandah		$5,000.00	$5,000.00	$5,000.00	YES	$5,500.00	**$8,750.00**		24/05 Applicant notified approved and tax invoice requested. 29/05 Tax invoice received and processed for payment. 8/06 Payment made via EFT and funding letter sent. 19/07 SOA finalised.
23/94408	3/05/23	Approved	CL 22/05/23, Item 6.60	15/06/23	Adelaide Bike Kitchen	Upgrade of tools and accessories for public bike mechanics workshop and printing advertising material costs		$2,559.00	$2,559.00	$2,559.00	NO	$2,559.00	**$6,191.00**		24/05 Applicant notified approved and payment voucher raised. 16/06 Payment made via EFT and funding letter sent.
23/92711	6/05/23	Approved	CL 22/05/23, Item 6.60	8/06/23	The Croatian Club Adelaide Inc	Purchase of a photocopier		$4,995.00	$4,995.00	$4,995.00	YES	$5,494.50	**$1,196.00**		24/05 Applicant notified approved and tax invoice requested. 29/05 Tax invoice received and processed for payment. 8/06 payment made via EFT and funding letter sent.
								Total Spend to Date		***$16,054.00***			***$1,196.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

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					BEVERLEY										
					Applicant	***Projects***	**$17,250**								
22/266576	23/11/22	Acquitted	CL 12/12/22, Item 6.128	21/12/23	Ginger Ninja Animal Rescue	Subsidised cat desexing, microchipping, vaccination and re-homing program		$3,000.00	$3,000.00	$500.00	NO	$500.00	**$16,750.00**	23/104743	Application of $3,000.00 was divided between Hindmarsh, Grange, Findon, Beverley,Woodville and West Woodville wards at $500.00 each. 13/12 Applicant notified approved and payment voucher raised. 21/12 Payment made by EFT and funding letter sent. 15/05 SOA finalised.
23/13670	20/01/23	Acquitted	CL 27/02/23, Item 6.32	16/03/23	Ankit Chaudhary	Purchase and installation of mat at cricket practice nets at Langman Reserve		$2,941.00	$2,941.00	$2,941.00	NO	$2,201.00	**$13,809.00**	23/146109	28/02 Applicant notified approved and new creditor requested. 7/03 payment voucher raised. 16/03 payment made via EFT and funding letter sent. 26/06 Invoice raised for $740 unspent funds. 3/07 SOA finalised.
								Total Spend to Date		***$3,441.00***			***$13,809.00***	***BALANCE REMAINING (PENDING APPLICATIONS SUBMITTED FOR CONSIDERATION BY COUNCIL APPROVED)***	

7. MOTIONS ON NOTICE

7.12 MOTION ON NOTICE - ROAD SAFETY CONCERNS - SEAVIEW ROAD HENLEY BEACH

TO Council

FROM: Governance Officer - Aaron Galanti

DATE: 23 October 2023

Brief

A Motion on Notice has been received from Councillor Merlindie Fardone for Council to note previous and ongoing action relating to hoon and anti-social driver behaviour on Seaview Road, and to write to the Minister for Police and Minister for Transport seeking support to prioritise driver enforcement and road safety improvements along the Seaview Road corridor.

Recommendation

1. **That Council note that Seaview Road between Grange Road and Burbridge Road is owned by the Department for Infrastructure and Transport.**

2. **That Council note staff have approached SA Police in the past seeking assistance with enforcement of hoon and anti-social driver behaviour on Seaview Road near Henley Square.**

3. **That Council note staff have approached the Department for Infrastructure and Transport in the past seeking improvements to road safety on Seaview Road near Henley Square.**

4. **That Council note the following changes have been made to Seaview Road in the last 10 years to improve road safety;**
    1. **Reduction of the speed limit on Seaview Road between North Street and South Street to 40km/h in 2014.**
    2. **Improvements to the pedestrian crossing adjacent Henley Square in 2015.**
    3. **New zebra pedestrian crossing installed north of the square in 2017.**
    4. **Closure of left turn into Main Street in 2018.**

5. **That Council note that discussions are continuing with DIT to investigate options to amend the design of Seaview Road between Henley Beach Road and the River Torrens to improve road safety for all road users.**

6. **That due to ongoing community concerns about hoon driving and road safety on Seaview Road, the Mayor write to the Minister for Police and the Minister for Transport seeking support to prioritise driver enforcement and road safety improvements along this corridor.**

Preamble

The following preamble has been provided by Councillor Fardone:

I have received a number of emails from residents and the local community concerned with the safety of motorists and pedestrians within the Henley Beach area.

An increasing number of traffic related incidents and accidents along Seaview Road in recent weeks have raised significant concerns about the state of road infrastructure and its ability to ensure the safety of both motorists and pedestrians, this along with the noise from hoon driving within the square, needs immediate attention.

CEO COMMENTS: (Acting Manager Engineering Strategy and Assets)

Seaview Road between Grange Road and Burbridge Road is owned by the Department for Infrastructure and Transport (DIT). In response to community concerns regarding unsafe behaviour on Seaview Road staff have advocated and worked with other relevant government departments on an ongoing bases for road safety improvements to Seaview Road (in particular adjacent to Henley Square).

Over the last 10 years staff have worked with the DIT to implement a low speed environment (40km/h) on Seaview Road between North Street and South street, improved pedestrian connectivity and safety across seaview road and restricted vehicles from Main Street between Seaview Road and Military Road.

In May 2023 staff also requested that DIT consider extending the existing 40km/h speed limit further along Seaview Road, however this was declined by the department.

7.13 MOTION ON NOTICE - FURTHER DETAILS ON THE CRM PROJECT

TO Council

FROM: Governance Officer - Aaron Galanti

DATE: 23 October 2023

Brief

A Motion on Notice has been received from Councillor Nicole Mazeika for a report to be presented to Council at its meeting on 13 November 2023 to answer queries regarding the CRM Project.

Recommendation

That a report is presented to Council at the 13 November 2023 Council meeting on the CRM project that includes the following:

- **What is the current spend, including resources, on the CRM?;**
- **What is the estimated future spend including resourcing?;**
- **What is the estimated implementation date?;**
- **What is the procedure to let our residents know that the access to their information has changed?;**
- **Has there or is there going to be any consultation with our residents on this amendment?;**
- **Confirmation that the security across both Councils is adequate to ensure residents information is safe;**
- **Confirmation that both the Cities of Charles Sturt and Port Adelaide Enfield's Privacy Policies align;**
- **What Councils in SA have implemented a CRM salesforce System and what are their findings on successes and outcomes?**

Preamble

The following preamble has been provided by Councillor Mazeika:

Following on from the Council Member workshop Data Security and Privacy Policy on 18 September 2023 I requested that a report is presented to Council on the CRM Project and this Notice of Motion is to ensure the following information is included in the report.

CEO COMMENTS: (General Manager Corporate Services)
A report is scheduled to be presented to Council at the meeting of 13 November 2023 providing an update on the CRM Project. This report will include a status report on the project, consideration of feedback provided to Council staff at the last workshop on our Privacy Policy and responses to all of the questions put forward by Councillor Mazeika and other Council Members.

8. QUESTIONS ON NOTICE

Nil

9. MOTIONS WITHOUT NOTICE

[As previously identified and agreed by the Presiding Member]

10. QUESTIONS WITHOUT NOTICE

11. BUSINESS - PART 11 - CONFIDENTIAL ITEMS

11.08 CONFIDENTIAL COVER REPORT - AGENT ENGAGEMENT PROCESS AND REVISED VALUE ESTIMATES REGARDING DISPOSAL OF 318 SEAVIEW ROAD, HENLEY BEACH

Recommendation - Exclusion of the Public

That

a. **pursuant to Section 90(2) of the Local Government Act 1999 Council hereby orders that the public be excluded from attendance at this meeting with the exception of the Chief Executive Officer and staff (insert staff) currently in attendance at the meeting in order to consider ITEM 11.08 AGENT ENGAGEMENT PROCESS AND REVISED VALUE ESTIMATES REGARDING DISPOSAL OF 318 SEAVIEW ROAD, HENLEY BEACH in confidence.**

b. **in accordance with Section 90(3) of the Local Government Act 1999 Council is satisfied that it is necessary that the public be excluded to consider the information contained in report ITEM 11.08 AGENT ENGAGEMENT PROCESS AND REVISED VALUE ESTIMATES REGARDING DISPOSAL OF 318 SEAVIEW ROAD, HENLEY BEACH on the following grounds:**

Confidential Legislation

d. commercial information of a confidential nature (not being a trade secret) the disclosure of which - (i) could reasonably be expected to prejudice the commercial position of the person who supplied the information, or to confer a commercial advantage on a third party;
and (ii) would, on balance, be contrary to public interest.

Recommended Action

c. **accordingly, on this basis the principle that meetings of the Council should be conducted in a place open to the public has been outweighed by the need to keep the information or discussion confiden al.**

11.08 AGENT ENGAGEMENT PROCESS AND REVISED VALUE ESTIMATES REGARDING DISPOSAL OF 318 SEAVIEW ROAD, HENLEY BEACH

CONFIDENTIAL

Brief

The property known as 318 Seaview Road, Henley Beach has been held in the City of Charles Sturt Property Services commercial portfolio as a tenanted interest and more recently a site office for the Military and Main St upgrades.

The property was resolved to be sold as part of the resolution dated 14 June 2022 Item 6.43 - Ngutungka Henley Project.

This report will inform the purposed next steps in the process to dispose of the asset.

12. REPORTS OF COMMITTEES - PART 11 - CONFIDENTIAL ITEMS

Nil

13. MEETING CLOSURE