

GREENING GREATER HORSHAM

A MUNICIPAL
TREE STRATEGY

2021 - 2031



Horsham Rural City
Council urban rural balance

DRAFT V8
20 SEPT 2021

The Horsham Rural City Council acknowledges the five Traditional Owner groups of this land – the Wotjobaluk, Wergaia (Were-guy-ya), Jupagalk, Jaadwa and Jadawadjali people. We recognise the important and ongoing place that all Indigenous people hold in our community

This document has been prepared by Horsham Rural City Council in partnership with Urban Forest Consulting



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INTRODUCTION

A COMMITMENT TO ADDRESSING CLIMATE CHANGE

Horsham Rural City Council (Council) understands that we need to protect and enhance our tree population to assist in addressing climate change and the urban heat effect. The Wimmera region has already become warmer and drier – a climate trend likely to continue into the future. Getting climate ready involves understanding how the climate is likely to affect our region and working out ways to mitigate and adapt. We recognise that by increasing tree cover and improving tree health across our urban areas we can better adapt our townships to climate change, improve the health of our natural environment and residents, and protect the future liveability of our City.

Our urban and rural trees are invaluable contributors to our region. Not only do they help our region adapt to and mitigate the increasing effects of climate change and contribute to our community's health and wellbeing, they also cool and shade our townships, intercept stormwater, provide habitat for wildlife, create green inviting spaces for our community to enjoy and add to our sense of place and local character.

While we recognise that trees are a valuable asset to our community, we still do not have a complete picture of the extent and diversity of our trees, including trees on private land

which make up a significant proportion of the tree population and canopy cover across urban Horsham. We know that our overall tree canopy cover is relatively low at 12.8% for the whole Municipality and 13% for the urban area of Horsham and Haven. A lack of species diversity is also an issue for our street trees. This problem has been exacerbated by an absence of forward planning provided by a strategic framework for our tree management program, exposing us to potential risks. We recognise there are significant opportunities for us to improve the way we manage our trees to address the challenges of climate change and the community's perception of trees and risk.

This Strategy commits us to better managing our tree assets so we can maximise their benefits and our return on investment in them. We understand the need to better care for our existing trees to improve their overall health, as well as the need to plant more trees across our townships. This strategy also explores the role that private trees play towards climate change adaptation and community health and explores ways for us to better protect and enhance them.

Our Vision is that our trees will be healthy, vibrant and valued assets of the municipality's infrastructure. Using integrated, sustainable management practices, Council will create a



welcoming landscape with a canopy cover that supports biodiversity and climate resilience and contributes to the community's physical and mental well-being.

To help us meet our vision, we have set some targets to improve the tree canopy cover over our urban areas, streets and roads, the Central Activity District, and parklands. We will also seek to undertake better planning for trees in growth areas and future growth areas that are yet to be developed as well as better managing significant trees on private land. To help guide us towards meeting these targets, we are committing to a range of actions, in particular:

- Understanding the extent and quality of our existing urban and rural trees
- Building a proactive tree maintenance program to improve the quality, health and viability of existing trees
- Continuing to plant and renew trees in areas of need using best practice planning and planting methods

- Identifying opportunities to increase canopy in areas where increased amenity and connectivity are needed as identified in other strategic documents
- Engaging, educating and collaborating with our community and regional partners
- Ensuring that our upcoming Planning Scheme Review reflects the issues identified in this Tree Strategy, particularly the role that private trees play and how we can better protect and enhance them.

By committing to our vision, targets and actions, we are confident that we can improve the overall liveability of our townships, improve health and wellbeing and help our region adapt to climate change.

The best time to plant a tree was 20 years ago.
The next best time is NOW.



TREE CANOPY TARGETS

We are committing to a suite of tree canopy targets that will help guide our tree protection and planting on Council lands. These targets will provide the impetus to implement best practice tree protection, proactive care and maintenance of our existing trees and a tree planting program targeted at areas where canopy cover is needed.

Council will commit to the following by 2040:

1. Tree canopy cover over our **urban and rural road reserves** will be increased from 20% to 25%
2. Tree canopy cover over the **urban area of Horsham** (inclusive of private land) will be increased from 15.3% to 20%
3. Tree Canopy cover over the **public areas of the Central Activity District** will be increased from 9.9% to 15%
4. Tree Canopy cover over **parklands** will be increased from 16% to 25%

Further analysis will be undertaken to establish trends of change in tree canopy across these various land types so as to determine the most appropriate courses of action and responsibilities. A tree inventory will be established to allow closer monitoring of individual trees, their overall health and diversity and their contribution to tree canopy.

Without burdening property owners, measures will be explored that seek to minimise the loss of tree canopy on private land that occur through removal and development.. This will assist in reaching the second of the four canopy targets and to increase that target into the future. Measures to explore include the introduction of a Local Law that requires a permit for the removal of larger trees, as well as identifying Significant Trees on private land that would be given a level of planning protection.



SCOPE AND PURPOSE

This strategy provides the background context, current situation and desired outcomes for Horsham Rural City Council’s urban street, park and rural roadside trees. This includes trees within

Horsham township, along rural roads and within smaller townships throughout the municipality. The strategy also flags further investigations and work for trees on private land.

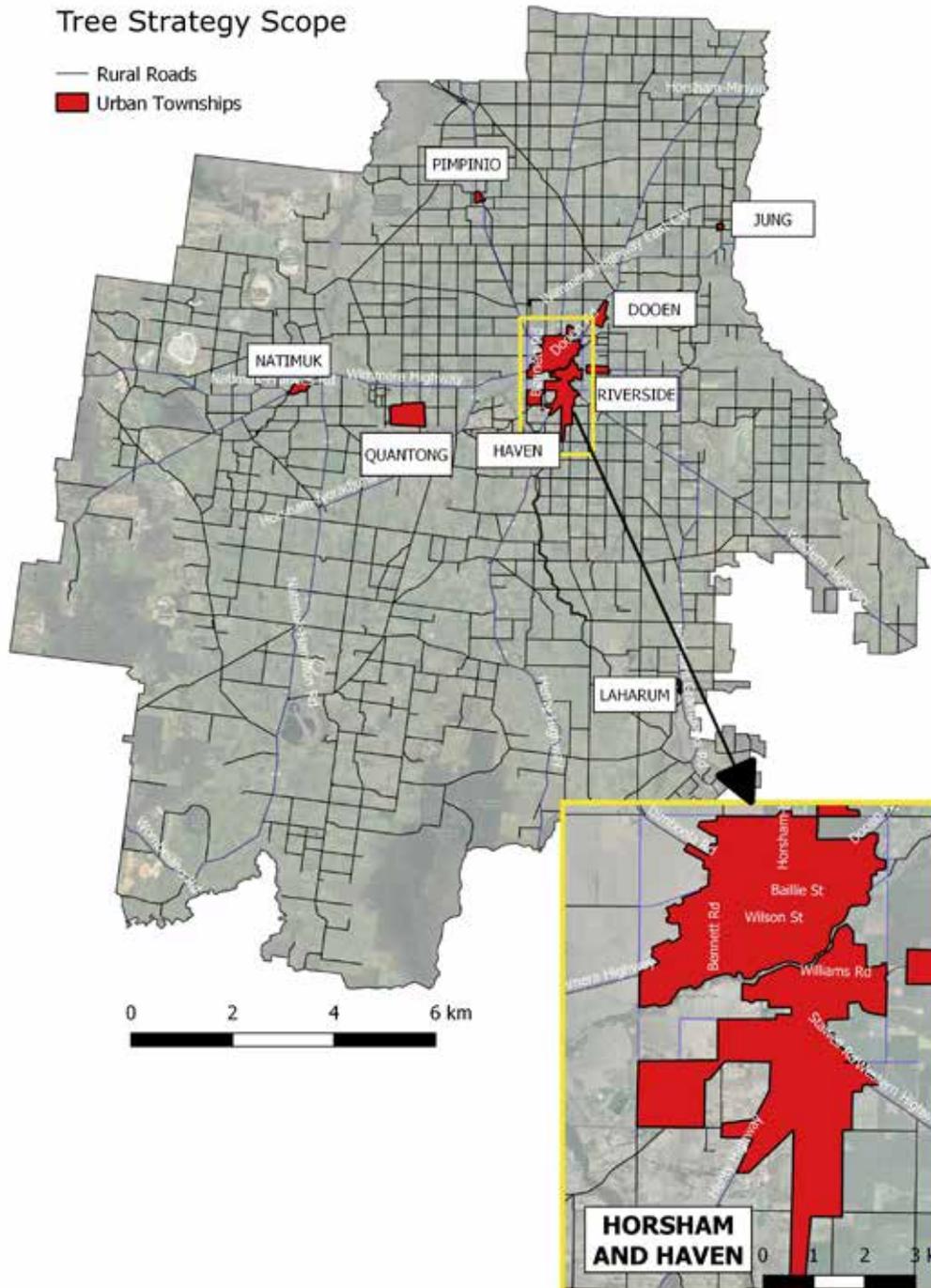


Image 1: This Tree Strategy will focus on the management of street and park trees in urban centres, rural roadsides and townships. Townships included in the map are those with pop. > 150 people Note: This map shows the current township boundaries which existing canopy cover has been calculated. Private land, growth areas and future growth areas outside of this boundary will contribute to meeting the canopy cover targets set in this strategy, as future development progresses and is approved through the Planning Scheme. (See Image 16 for more detail).

Council recognises the large array of benefits our urban and rural roadside trees provide our community and the environment. Through this Strategy, we are committed to maximising these benefits.

We will manage our trees to help our region adapt to climate change, improve health and wellbeing, cool and shade our townships, improve landscape amenity and enhance our region's biodiversity.

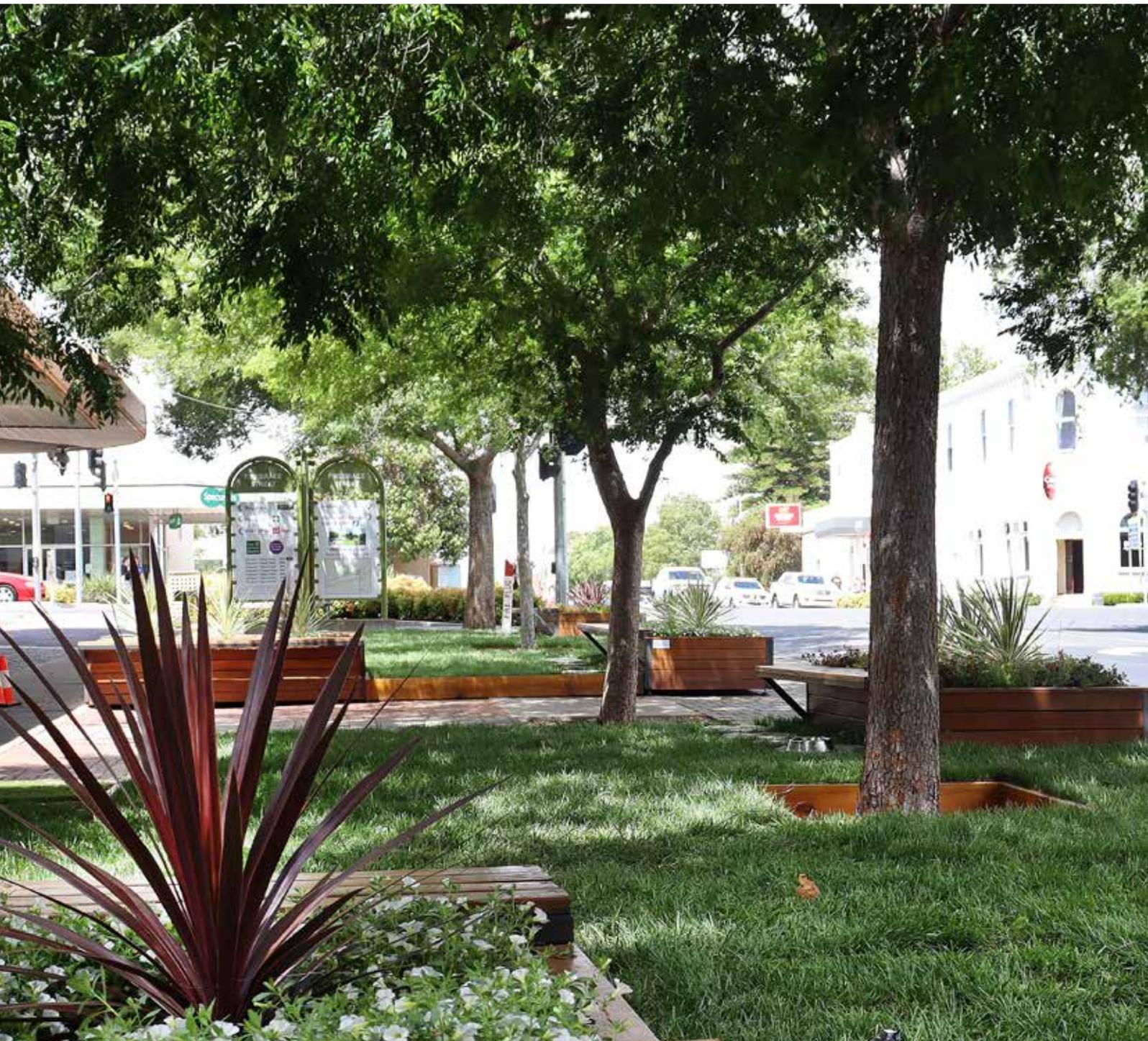


Image 2: Our street trees cool and shade our townships

VISION

Trees will be healthy, vibrant and valued assets of the municipality's infrastructure. Using integrated, sustainable management practices, Council will create a welcoming landscape with a canopy cover

that supports biodiversity and climate resilience, contributes to the community's physical and mental well-being and raises awareness of the importance of culturally significant trees.



Image 3: Council will create a welcoming landscape with a canopy cover that supports biodiversity and climate resilience

KEY OBJECTIVES

This Strategy seeks to embed the following objectives into Council's everyday business:

1. Protect and enhance existing public trees

Ensure existing trees are protected from unnecessary removal or damage and that they are cared for to ensure longevity, optimum health and minimisation of risk.

2. Increase tree canopy cover

Improve the cover of natural shade in our townships to create attractive and walkable streets.

3. Improve streetscape character and biodiversity linkages of Horsham and townships including river frontage

Utilise tree planting to improve the look and feel of our streetscapes and to increase connectivity and habitat for biodiversity.

4. Educate and engage with the community

Raise awareness within our community about the importance of urban trees, including on private land and increase participation in decision making.

5. Deliver a best practice tree management program

Ensure the care of our trees is based on industry best practice of urban tree management techniques and methods.

6. Celebrate cultural heritage

Plan for the City's landscape to help define its character, culture and image and reinforce the value placed on culturally and historically significant trees.



BENEFITS OF URBAN TREES

Trees and other vegetation in cities and regional centres around the world are now regarded as providing critical “living” infrastructure – being as important as roads or public transport to how a city, town or region functions.

The benefits of urban trees span **environmental, economic, social and cultural domains**. These benefits are often interrelated, supporting resilient and sustainable urban and rural landscapes.

SOCIAL

- Provide shade & cooling, reducing urban heat
- Improve amenity and aesthetics
- Provide recreation opportunities
- Encourage social cohesion
- Promote health & well-being through reduced stress and increased active living
- Provide wind breaks

ENVIRONMENTAL

- Filter pollution & provide clean air
- Rainfall interception & reduced stormwater runoff
- Improve water quality
- Habitat connectivity & biodiversity maintenance
- Carbon sequestration
- Improve soil health
- Ameliorate climate change impacts
- Thermal insulation and temperature modification

ECONOMIC

- Increased property values
- Increased business patronage & productivity
- Increased tourism opportunities
- Reduced costs of stormwater infrastructure
- Reduced public health costs
- Energy use savings
- Lower GHG emissions

CULTURAL

- Creation of local identity
- Marketing the town
- Connecting to the past

Image 4: Quadruple bottom line benefits of urban trees

ENVIRONMENTAL BENEFITS

- **Provide shade and cool our townships**
An increase in tree canopy and greening can reduce air and surface temperatures by 3 to 20°C. (Gil et al 2007)
- **Reduce storm water flows, pollution and nutrient loads**
Tree canopies and root systems reduce storm water flows and nutrient runoff into our waterways. Streets with higher vegetation cover are three to six times more effective in managing storm water than conventional methods (Norton et al, 2013)
- **Provide habitat and enhance levels of biodiversity**
Urban and rural roadside trees support a wide range of species, even endangered animals and other species of high conservation value. (Kendal et al, 2016)

SOCIAL BENEFITS

- **Encouraging outdoor activity**
Well-vegetated parks, gardens and streets encourage the use of open spaces, with health benefits such as reduced obesity and increased physical activity levels and promote more sustainable forms of transportation. (van Dillan, 2012)
- **Reducing sun exposure**
The prevalence of skin cancer and other illnesses due to sun exposure identify the need for protection from sunlight's UV rays is vital. Tree shade can reduce overall exposure to UV radiation by up to 75 per cent. (Mullaney et al., 2015)
- **Improving mental wellbeing**
Access to, and views of, green spaces and trees have positive effects on people's wellbeing. (Karden, 2016)



ECONOMIC BENEFITS

- **Reducing energy costs**
Energy saving benefits come through shading and sheltering buildings from the sun in summer and allowing sunlight in winter. (Simpson, 1996)
- **Increasing property values**
Trees in streets enhance neighbourhood aesthetics and increase property values. Properties in tree-lined streets are valued approximately 30% higher than those in streets without trees. (Plant, 2017)
- **Increased retail activity**
Shoppers spend longer and more money in retail areas where the area is landscaped and trees provide shade and amenity. (Wolf, 2005)
- **Return on investment**
Cities across the world have demonstrated that trees create a positive return on investment. It has been calculated that for every dollar spent on a tree, \$5.60 worth of benefits were returned. (US Forest Service, 2020)

CULTURAL BENEFITS

- **Creation of local identity**
A city's landscape helps define its character. Trees and vegetation can physically define a place. Trees provide landscape amenity and integrate nature into the urban environment..
- **Marketing the City**
Green spaces play a role in defining the culture and image of a city. A city is more competitive with an expanded political and economic influence when the built and natural urban environment is attractive and welcoming.
- **Reinforcing First Nations status**
Culturally significant trees are a vital and tangible link to the continuous connection to place for First Nations people. Culturally significant trees are clear evidence of Indigenous community's existence on this land for thousands of years, prior to colonial settlement. Culturally significant trees are important sentinels to interpret and connect to the landscape and a cultural marker to pass valuable cultural knowledge to subsequent generations.





Image 5: Research shows that shoppers spend longer and more money in well treed and landscaped retail precincts. These pop-up parks in Horsham CAD have been a huge success with the community utilising the new spaces.

HISTORY OF HORSHAM'S TREES

Horsham Rural City has a rich and ongoing history of Aboriginal culture, recognised in 2005 with a successful native title claim by First Nations peoples of lands along the Wimmera River. There are five First Nations of the land: the Jaadwa, Jadawadjali, Jupagulk, Wergaia and Wotjobaluk peoples.

Before settlement, the First Nations people had long occupied the Horsham area and drew on a rich food supply, especially along the Wimmera River, where they cut bark from the River Red Gums to make canoes. (Note: input into this section is being sought from BGLC and will be re-edited once this input is provided)



Image 6: Sketch of the Wimmera River, 1845, unknown artist (National Library of Australia)

POST SETTLEMENT GREENING

Since European settlement, agriculture has become the mainstay industry of the region. Broad acre cropping of cereals, pulses and oilseeds are now the predominant land use and main economic drivers of rural land use in the Wimmera. Much of the pre-settlement

vegetation has been cleared with many of the original vegetation communities now recognised as being endangered. Much of these vegetation communities are found on private land and along our rural roadsides. Rural roads play a critical role in protecting remnant trees.

In 1855, the initial town planning for Horsham placed the town centre some distance from the river, with the placement likely because of the risks of riverine flooding. The town siting enabled the retention of areas of native vegetation along the river frontage with other areas of the river front used for public recreational and utility purposes.

In the period of rapid growth through the 1870s and 1880s there were significant street tree plantings championed by Councillor Thomas Young. The site of the Botanic Gardens was also reserved in 1878. Early street tree plantings during this time included Silver Poplars in Firebrace Street in the 1870s, Elms in Bowden Street in the 1880s and Sugar Gums planted in Stawell Road (Western Highway) near Green Park. Property owners were responsible for the care of the tree outside their property.

Later in the 19th century, Councillor John Langlands donated the trees that were planted along Natimuk Road. The management of the street trees became the responsibility of Thomas Brown, curator of the Botanic Gardens. In 1897, the issue of species preferences was raised with disparaging reports appearing in the local newspaper regarding the planting of silver poplars along some of the main thoroughfares.

In 1904, Curator Brown recognised the benefits of this early tree planting noting the healthy growth and pleasing appearance of trees in the principal streets of Horsham. Brown also indicated that tree planting should continue more extensively than it had in the past.

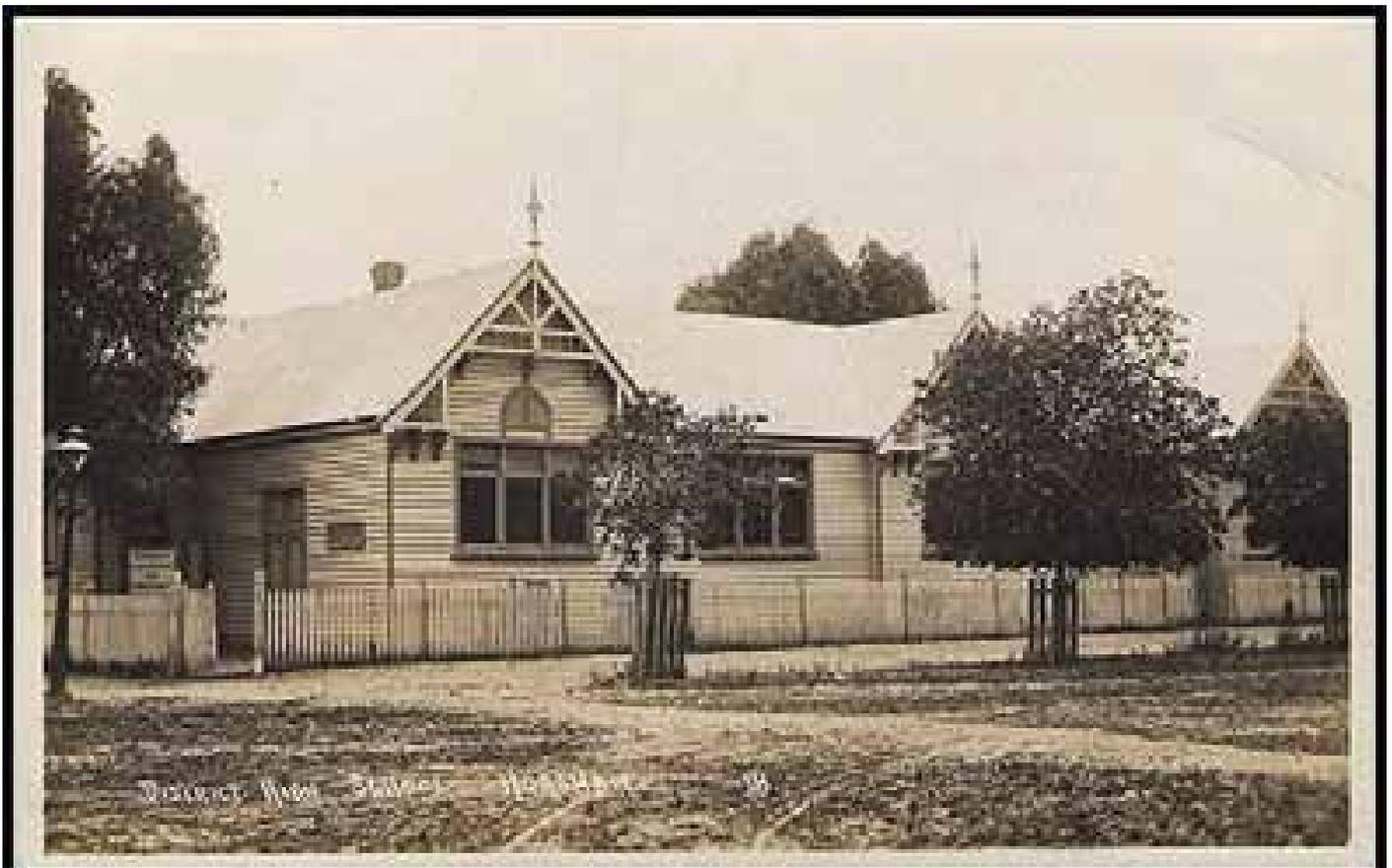


Image 7: Street trees outside Horsham District High School, c.1912 (State Library of Victoria) Corner of Roberts Avenue and Urquhart Street.

HORSHAM BOTANIC GARDENS

The Horsham Botanic Gardens is located on part of what was previously the Horsham Police Paddock. An early tree planting of an Araucaria bidwilli (a Bunya pine) at the Gardens' entrance, was grown from seed provided by Baron von Mueller. In 1881 the Gardens were elaborately remodelled under a plan by William Guilfoyle.

Guilfoyle was renowned for his scientific, education

and picturesque approach to Botanical gardens and his use of exotic plants.

A secondary layer of significance relates to the period of Ernest E. Lord, an early and important figure in the movement for growing Australian species. Lord developed a large area of the Gardens with native plantings in the late 1930s and 1940s.



Image 8 and 9: The ornamental Bark Hut amidst mature plantings, Horsham Botanic Gardens, c.1925 and the Avenue of Canary Island Date Palms (*Phoenix canariensis*), Horsham Botanic Gardens (State Library of Victoria)

AVENUES OF HONOUR

There are two Avenues of Honour in Horsham.

World War 1 and 2 were originally commemorated in McPherson St through the planting of gum trees, however most of the trees either died and were not replaced or were removed for a road widening project, however a few trees from the original avenue are still in situ on McPherson Street. The memorials were then shifted to Memorial Drive in 2006 and a new avenue of *Pinus halepensis* (Alleppo pines) were planted. In addition, a planting also exists behind the Horsham Basketball Stadium, though the status of this plantation is not rated highly.

The Boer War Avenue of Honour exists along Roberts Avenue. It was originally planted with *Quercus robur* (English oaks), but these were removed due to poor health and risk potential. A row of *Ulmus parvifolia* (Chinese elms) replaced the removed Oaks in 2017.

There is also a significant avenue plantation on Kalkee Rd between Rasmussen Rd and Gatehouse Rd, which is in honour of Rotary Exchange students.

STRATEGIC CONTEXT

The management of street, park and rural roadside trees is governed by the following Council documents. The management of private trees are not currently included in any Council planning or operating documents so the gaps have been highlighted.

LEGISLATED PLANS

1. Council Plan 2020-2024

- Goal 4 Asset Management: Priority 3.1.08 Develop improved park and street policy as an Urban Forest Plan (or Tree Strategy)
- Goal 5 Natural and Built Environments: Tree Strategy will support promotion of sustainability and sound environmental practice

2. Health and Wellbeing Plan 2017-2021

- Priority 1 Increasing healthy eating and active living:
- Action 6 Develop and maintain footpaths and walking and bike trails with particular focus on key precinct linkages to promote active living options and supporting infrastructure such as seats, signage, water, lighting and shade

3. Horsham Planning Scheme (Victorian Planning Provisions)

- Clause 13.01 – Climate Change Impacts
- Clause 13.01-1s – Natural Hazards and Climate Change

INFLUENCING STRATEGIES

4. Environment Sustainability Strategy 2010

Principal 2 Protect what we value: Ensure that Council-controlled land is managed in ways that protect and enhance native flora, fauna, natural habitat and indigenous cultural values

5. Horsham Framework for Managing Growth 2013

The Horsham Framework for Managing Growth was adopted by Council in November 2013. It provides clear and consistent direction for decision makers, landowners, developers and the community on the location of future housing (e.g. growth areas, infill opportunity sites) to meet the future demand over a 20-to-30-year horizon.

6. Open Space Strategy 2019

Provides Council with strategic directions to determine priorities for the planning, provision and development of open space across the municipality

7. Municipal Bike and Shared Path Plan 2012-2015

This report details the recommended bicycle route strategy for the Rural City of Horsham. This has been flagged to be updated.

8. Horsham Urban Transport Plan 2020

Sets the directions and priorities for developing our transport system in a way that supports the goals of our community, our economy and environment.

9. CAD Revitalisation Streetscape Strategy 2017

Focuses on guidance for infrastructure and Council-asset improvements that will form the core of the CAD revitalisation programme

10. Horsham North Urban Design Framework 2013

Focuses on the physical interventions and outcomes, including streets and public spaces, buildings and landscape, and the potential of urban design to support and facilitate economic, social and environmental outcomes in Horsham North. This includes key pedestrian and cycle routes.

11. Roadside Vegetation Management Plan

Provides the framework for Council's protection of high value roadside vegetation and Council's responsibilities under the Road Management Plan. Both plans are under review and will be updated before the end of 2021.

12. Electrical Line Clearance Management Plan 2020

Details the practices of risk assessment and maintenance works associated with ensuring safety of powerlines within the declared area.

CURRENT WORK

13. Tree Management Policy 2021

This document will be prepared in conjunction with the Strategy and will clearly articulate Council's position regarding elements of tree management e.g. tree protection, removal, planting and establishment, trees and development etc. Again, this will meet an identified policy gap and will ensure that there is a consistent and best practice platform for Council to make decisions regarding trees. This policy will replace the 2010 Tree Policy which will no longer have effect.



14. Horsham North Local Area Plan

The Horsham North *Local Area Plan* Project is based on a review of the Horsham North Urban Design Framework (UDF) and an assessment of the directions, strategies and actions contained in that document, in order to identify opportunities from which to create a new piece of work with an expanded scope and study area. The project aims to identify current issues under a series of themes such as Connectivity and Place Making and will provide a series of actions through an implementation plan.

15. Horsham CAD & Streetscape Plan

UrbanFold have been engaged by Council to undertake the CAD Revitalisation project, which will involve an urban design analysis of the CAD followed by the creation of a streetscape plan that identifies public realm capital works projects to be undertaken by Council in the future. The Plan will focus on improving connectivity within the public realm at key locations throughout the CAD and is part of the overall City to River project. Trees will form an important component of the delivery work.

FUTURE PLANS

16. Horsham Urban Renewal Plan

The Urban Renewal Project is intended to promote and facilitate new development in three distinct areas that are located between the main commercial area of Horsham (the CAD) and the river to the south. The aim is to transform and revitalise parts of the city to make them more attractive places to live, work, visit and invest in. This forms part of a suite of strategic projects being undertaken concurrently by Council with a view to creating a brighter future for Horsham over the coming decades.

The recently completed Horsham: City to River Vision & Masterplan sets out a long-term Vision and Masterplan for central Horsham and will be used to guide the revitalisation of the area over the next 20 to 30 years. The Urban Renewal Project will undertake site analysis and feasibility studies to develop indicative masterplans for the subject sites to facilitate future private development.

17. Horsham South Structure Plan

The Structure Plan will provide a clear vision and framework for the coordinated land use and development of Horsham South for future residential, commercial and industrial activities and the timely and coordinated delivery of infrastructure to meet the needs of the growing community. It will also support the creation of stronger physical connections with the Wimmera River corridor and the Horsham Central Activities District (CAD) to the north by various modes of transport, access and amenity such as trees.

18. Housing Affordability and Diversity Strategy

A Housing Strategy will be developed that will provide Council decision makers a strong and clear planning policy framework for ensuring new development contributes to more affordable and sustainable outcomes in the longer term, including curbing urban sprawl, responding to changes in housing needs and sensitively planning for the impact of urban consolidation by improving design, protecting heritage and contributing to the preferred character of the area.

19. Neighbourhood Character Assessment and Guidelines

A Neighbourhood Character Study will be undertaken to identify areas of special and/or consistent neighbourhood character in Horsham and to recommend areas where the character should be preserved and respected. The assessment and subsequent guidelines may also set out a preferred future character for some areas to ensure that new development contributes to the overall character of Horsham. As trees can make important contributions to neighbourhood character, this work will further strengthen the evidence base for strong tree protection measures.



HORSHAM'S TREES TODAY

Council's urban and rural roadside trees are an important part of the landscape and provide amenity and character within the townships. Tree canopy mapping and a sample tree audit provide some insight into how much shade we have, and the types of species planted in Horsham township. A comprehensive tree audit and tree inventory, yet to be completed, will provide much greater understanding of the quality, diversity and overall health of our existing trees.

TREE CANOPY COVER

Tree canopy cover is the amount of tree biomass that covers an area of land. It is a useful measure of our tree population, as it reveals the extent of shade cover provided by trees.

Using a method of point sampling aerial imagery (I-Tree Canopy), land use cover percentages were calculated for different land tenures across the municipality.

Land Tenure	Tree cover	Impervious Cover	Shrub Cover	Grass Cover	Gravel/ Bare earth Cover	Other/ Water Cover
MUNICIPAL						
Whole	12.8%	0.8%	1.3%	81.9%	1.3%	1.9%
Private	6.6%	0.5%	0.8%	90.6%	1.0%	0.5%
Public	48.7%	1.6%	8.0%	29.7%	5.6%	6.4%
Road	20.4%	6.9%	1.4%	57.2%	13.5%	0.6%

Table 1: Land use cover results for Council, determining percent tree canopy cover Source: I Tree Canopy land use cover assessment, April 2021

Total tree canopy cover, which is all vegetation over 3m in height, for the municipal area of Horsham Rural City, and included both public and private land is 12.8%. This is considered relatively low given research indicates that optimum tree canopy cover for an urban area is somewhere between 30 - 40%. The results are not unexpected given the predominant agricultural land use of the area.

Public-only land within the municipality includes rural roadside vegetation and areas of state managed forests/reserves and has a much higher level of tree canopy at 48.7%.

Farmland records only 6.6% tree canopy cover.

Road reserves throughout the municipality are covered by 20.4% of tree canopy. This highlights the key role our urban and rural roads play in providing vegetation cover.

HORSHAM AND HAVEN TOWNSHIP TREE CANOPY COVER

High resolution vegetation cover mapping produced by Nearmap© was procured for the

Horsham / Haven urban boundary and was used to determine the exact tree canopy cover for the area.

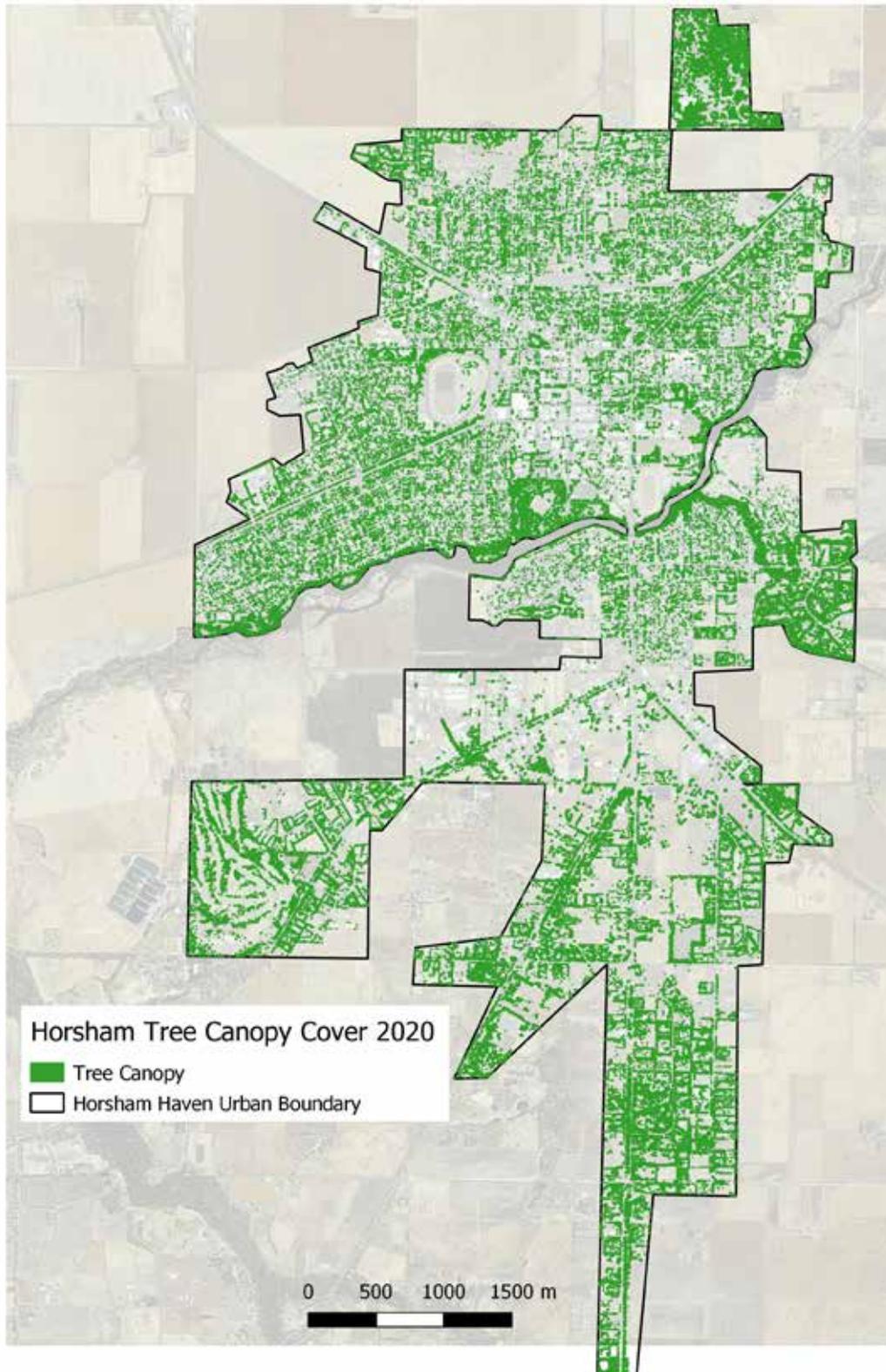


Image 10: High resolution tree canopy cover over Horsham and Haven urban area. Source: Nearmaps ©, 2020.

Image 10 reveals there is a greater density of tree cover following the river, compared to sparser cover over Horsham north. There is also sparser cover over the CAD and across Haven. The Haven area includes large paddocks used for agriculture.

Measurements of the high-resolution tree cover were taken from the Nearthmaps© data for different geographic areas in 2014 and 2020 to measure the change in tree canopy.

Geographic area	2014	2021	Net Gain / Loss
Horsham and Haven Urban boundary	11.40%	13%	1.60%
Horsham urban roads	14.8%	15.1%	0.3%
Open Space	14.2%	16.1%	1.9%
Central Activity District	6.10%	6.04%	-0.10%
North Horsham	9.70%	9.50%	-0.20%

Table 2: Tree Canopy cover comparisons between 2014 and 2020 across various land use boundaries

Horsham and Haven’s combined urban tree canopy cover in 2020 was 13%, an increase of 1.6% since 2014.

A canopy cover of 13% for an urban area is considered low, however is comparable to some other regional Victorian LGAs and metropolitan Melbourne.

- Echuca urban area – 11%
- Geelong urban area - 14%
- Ballarat urban area – 17%
- Bendigo urban area – 20%
- Metropolitan Melbourne - 13.4%

The Central Activity District and Horsham North both have the lowest measure of tree cover. Both areas also lost tree canopy cover over the six-year period 2014-2020 over both public and private land.

A detailed look at the change of canopy (Image 11) between 2014 and 2020 reveals what is referred to as the “canopy churn” over a period of time i.e. the individual canopy losses and growth that contribute to the overall cumulative tree canopy change results.

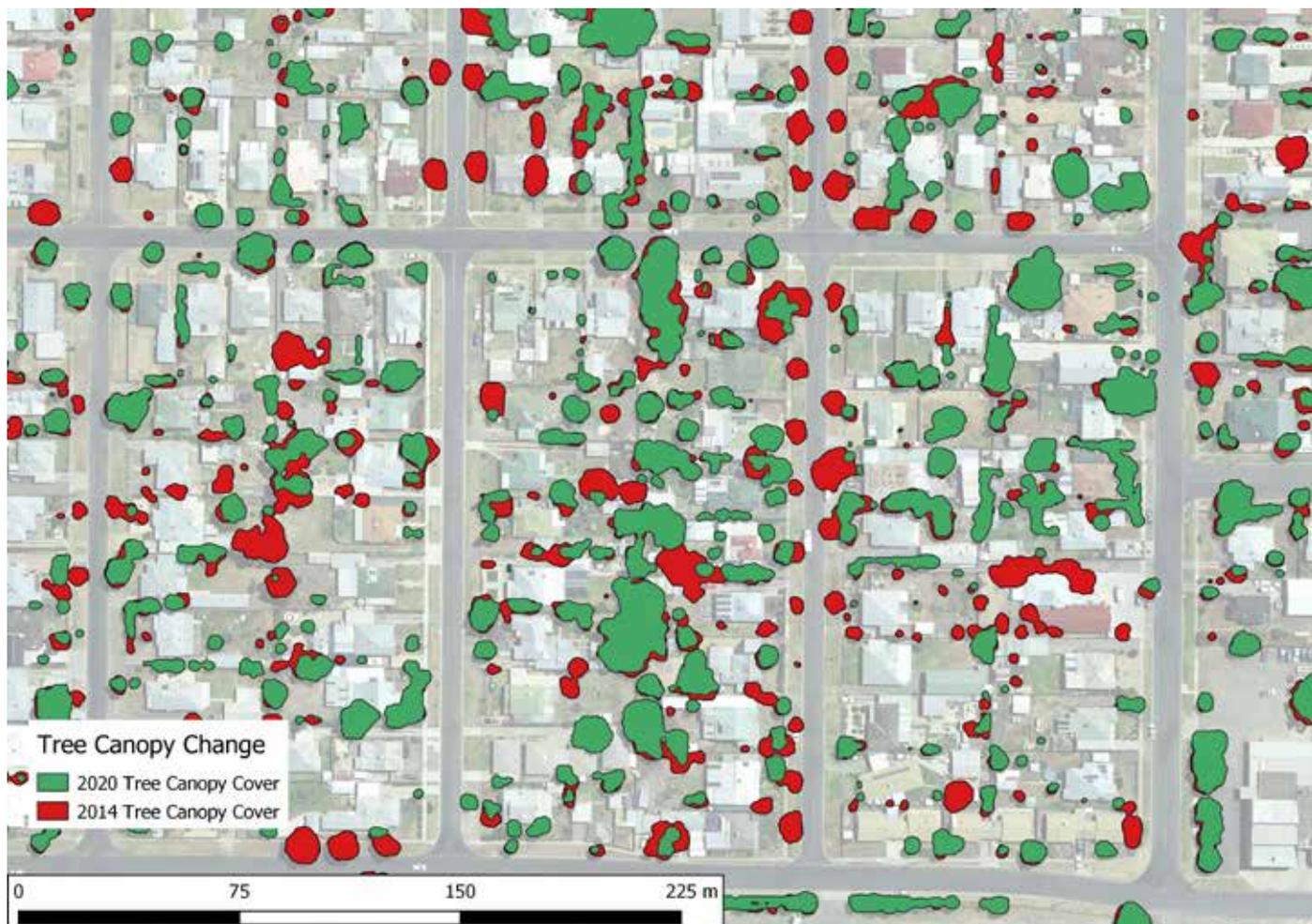


Image 11: Change in tree canopy over Horsham North. Source: Nearmaps, 2021.

Image 11 provides detail of a section of Horsham North where there has been both significant tree removal since 2014 (as shown in red) but also canopy growth (sections of green over red). Large canopies have been removed on private land (i.e. within the blocks of residential housing) but not along the street. Although Council has removed trees from streets, many have been replaced as part of a future strategic planting plan. Because the trees are young and small they have not appeared on the mapping. Trees removed

from private property currently have no mandate to be replaced. A further detailed assessment would help understand the reasons behind these removals, whether it is for development, ageing trees that need to be removed or just personal preferences of residents.

This image reveals how the decision making for individual trees can impact on the cumulative tree canopy cover for an area.

Existing canopy cover for the CAD is very low at 6.04% and has been decreasing since 2014.

It is likely that tree removals were for development or to mitigate risk factors, however the exact

reasons for the loss still need to be analysed and understood. Canopy cover over the CAD's public roads is higher at 9.9%.

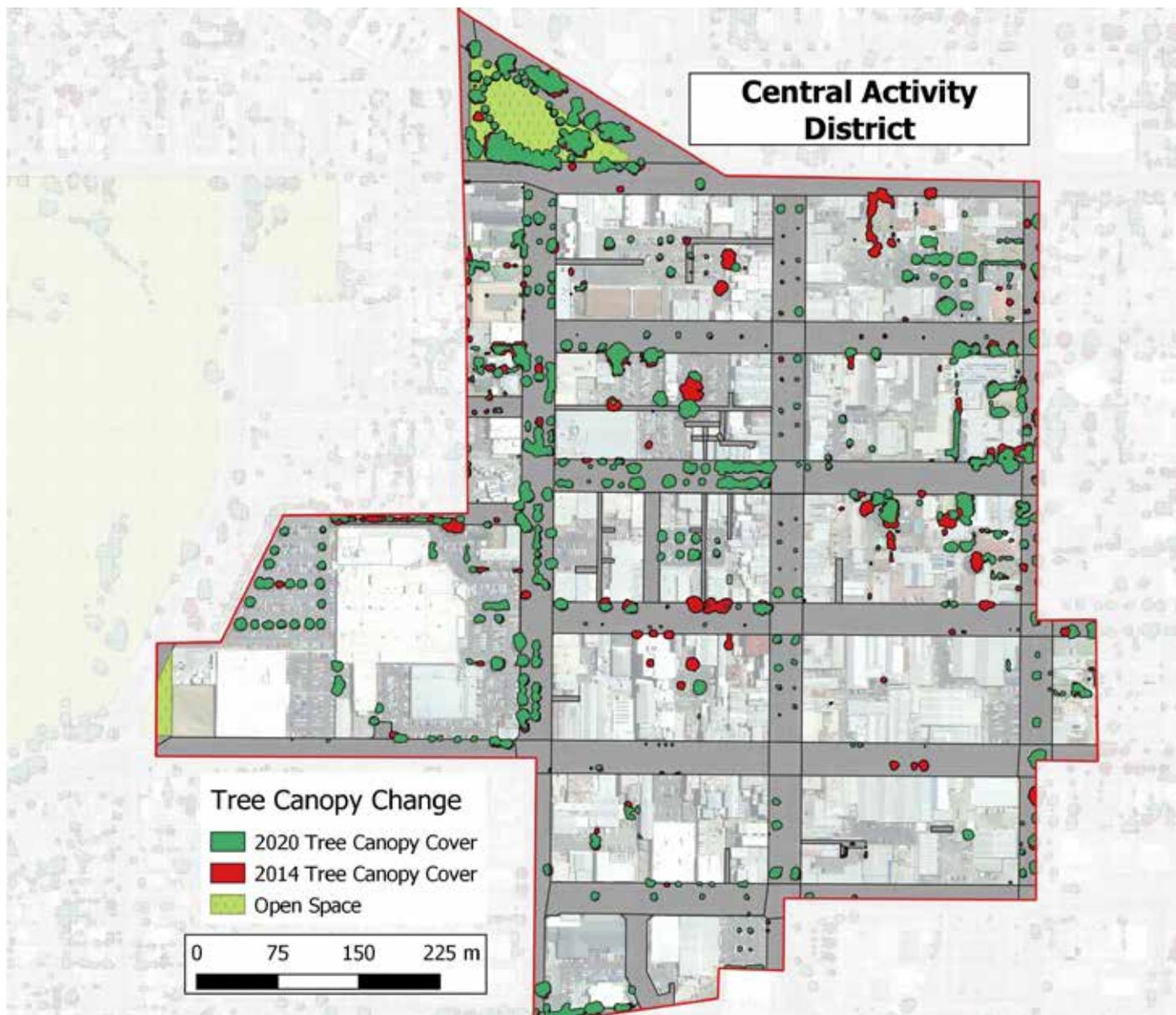


Image 12: Tree canopy cover change over Horsham's Central Activity District. Source: Nearmaps 2021.

Much of the existing canopy cover within the CAD is within public road reserves, over carparks or in May Park. The loss of canopy in the CAD from 2014 to 2020 can be seen by the canopies coloured in red which occur in both street areas and on private land.

Carparks and roads are significant sources of stored heat during summer and during periods of extreme heat pose significant health and wellbeing risks. Additional planting in these areas will reverse the trend in canopy decline in the CAD, increase natural shade in the urban area and reduce heat stored during hot weather, helping the city adapt to climate change.

STREET TREES

There are an estimated 15,000 street trees within Horsham township, and an unknown amount in the other townships within the municipality.

The number of trees along rural roadsides is also unknown.

Approximately one third of Horsham’s 15,000 street trees have been audited and data recorded on them. Of these trees:

- 4,798 have been spatially mapped and genus and species recorded
- 1,198 vacant tree planting sites have been mapped.

20 Most Common Street Trees

Species	Common Name	No of trees	% of pop
<i>Pyrus calleryana</i>	Chanticleer	420	8.8%
<i>Eucalyptus camaldulensis</i>	River Red Gum	395	8.2%
<i>Eucalyptus microcarpa</i>	Grey Box	269	5.6%
<i>Lagerstroemia indica</i>	Crepe Myrtle	215	4.5%
<i>Ulmus parvifolia</i>	Chinese Elm Todd	214	4.5%
<i>Pistacia chinensis</i>	Chinese Pistachio	208	4.3%
<i>Pyrus calleryana</i>	Bradford Pear	205	4.3%
<i>Syzygium australe</i>	Pinnacle	155	3.2%
<i>Eucalyptus sideroxylon</i>	Red Ironbark	153	3.2%
<i>Eucalyptus torquate</i>	Coral Gum	148	3.1%
<i>Fraxinus angustifolia</i>	Desert Ash	138	2.9%
<i>Gleditsia triacanthos</i>	Honey Locust	137	2.9%
<i>Callistemon viminalis</i>	Weeping Bottlebrush	126	2.6%
<i>Eucalyptus cladocalyx</i>	Sugar Gum	123	2.6%
<i>Corymbia citriodora</i>	Lemon Scented Gum	121	2.5%
<i>Agonis flexuosa</i>	Willow Myrtle	106	2.2%
<i>Eucalyptus largiflorens</i>	Black Box	95	2.0%
<i>Eucalyptus leucoxydon</i>	Yellow Gum	88	1.8%
<i>Callistemon "Kings Park Special"</i>	Kings Park Bottlebrush	83	1.7%
<i>Pyrus calleryana</i>	Manchurian Pear	79	1.6%

Table 3: 20 most common street trees in Horsham

Research suggests that no single species should represent more than between 5-10% of an urban tree population, depending on the geographic region, rainfall and predominant land use types. This is to ensure adequate diversity to minimise the risks associated with monocultures or low diversity.

Of the 4,798 street trees with species recorded, the most commonly planted in streetscapes is *Pyrus calleryana*, the Chanticleer Ornamental Pear. There are multiple sub-types of this species planted throughout streetscapes representing a combined total of 14.5% of the audited tree population.

The top 20 species make up almost 75% of the tree population. Subject to information collected when the remaining two-thirds of trees are audited, the available data suggests there may be issues with species diversity.

The selection of the *Pyrus* species is a common occurrence in many regional Victorian cities and is due to a number of reasons:

1. *Pyrus calleryana* and their sub species are proven to be highly desirable street trees. They have good structure, canopies are not too large, they are deciduous (shade in summer and allow sunlight in during winter) and are fairly robust under extreme weather conditions,

2. Community members and developers often prefer their autumnal colours and deciduous nature over natives,
3. They are readily available in nurseries and in large quantities making purchasing easy

As a result, an over-dominance of this species has been observed, particularly in new developments around regional and rural townships in Victoria, where whole subdivisions have been planted with only the one species.

This increases the risk of detrimental landscape impacts if events such as pest and disease incursions, extreme weather or wholesale tree structure defects occur. Usually, the trees are also all of the same age, increasing the risk of landscape impact when large areas of trees age and need to be replaced at the same time.



Image 13: Distribution of *Pyrus* trees (Ornamental Pears) across West Horsham

As seen in Image 13, Council's distribution of Ornamental Pears over Horsham West covers entire street/road lengths (blue dots).

TREE PLANTING SITES

A total of 5,698 street tree planting sites have been identified for possible planting (Image 14).

Council has assessed 1,198 of these sites (in orange) and the sites are ready to be planted. The remaining 4,500 sites (in red) have been identified through a desktop study using aerial imagery but need to be verified to determine the feasibility of planting.

Haven's tree planting sites have only been identified along the major roads. There are likely to be more sites along Haven's secondary roads. Horsham North contains approximately 1,158

vacant tree sites and has previously been identified as an area of declining tree canopy cover. As a result, in 2020, Council began planting street trees in Horsham North to address this shortfall. A low provision of open space has also contributed to a low presence of trees in Horsham North and Horsham West, (as evidenced in Image 13)

These figures suggest there is significant scope to plant more trees within the urban area of Horsham and validates the recent targeting of this area for Council's tree planting program. The tree inventory audit will be able to geo-locate exactly where these new trees have been planted.

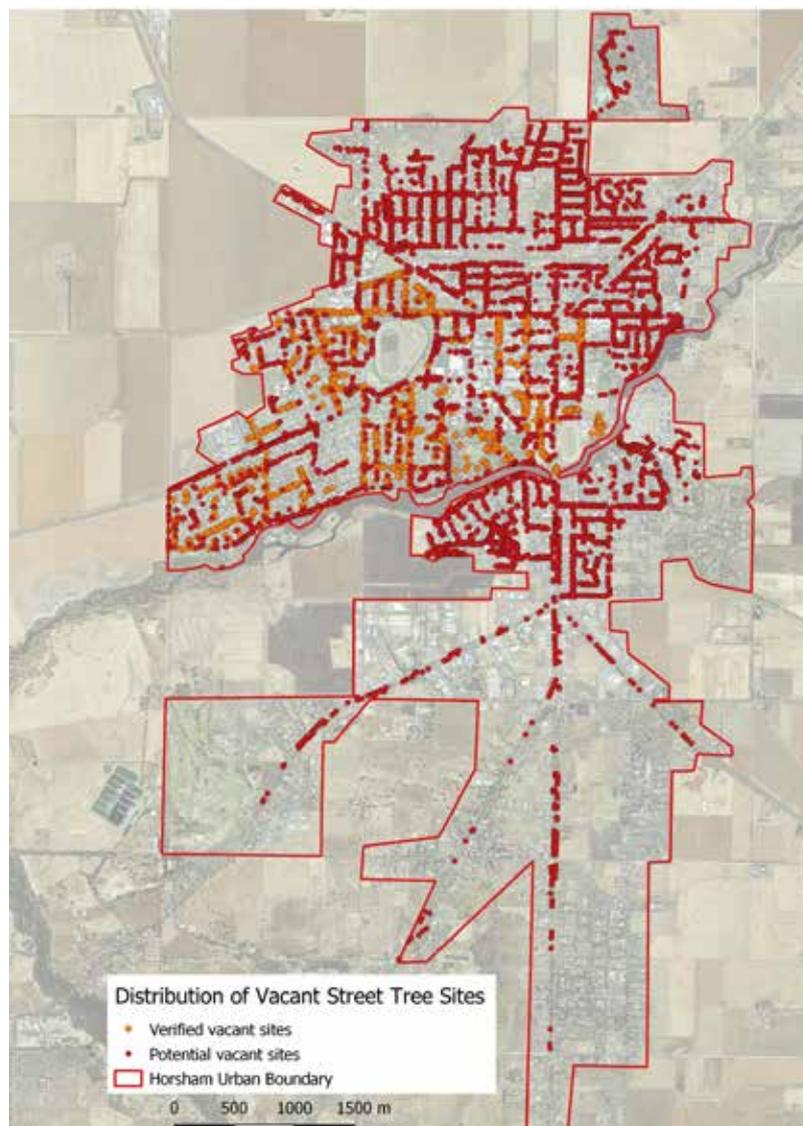


Image 14: Distribution of vacant street tree planting sites across Horsham

REVIEW

OF COUNCILS' TREE MANAGEMENT PROGRAM

Trees are managed by the Council's Operations' team through both in-house works crews and contractors.

Council is currently in the process of developing a Tree Management Policy that will provide a framework for consistent decision making regarding tree planting, tree management and tree removal.

TREE PLANTING AND SPECIES SELECTION

Council plants 700-1000 urban trees per year in streets and parks and takes on approximately 100 street trees from developers each year. Species are usually selected based on stock availability in nurseries. Species are chosen to suit the identified planting sites and meet the required landscape function or value such as pedestrian walkways or biodiversity corridors.

Procuring quality stock is a challenge, due to the lack of local suppliers.

The annual tree planting plan, in part, is based on known vacant sites and customer requests. Council has been on a pathway to achieving change and has been undertaking whole street tree renewals by removing poorly performing species, especially those under powerlines and replanting the whole street to create avenues. Approximately six streets each year are completed through this whole of street approach.

To improve tree planting and species selection Council will:

- continue to plant trees through a two-year rolling tree planting and renewal program that considers:
 - a. Appropriate species selection for the site and future climate viability, including trialling of new species, seeking to diversify away from the use of Pyrus
 - b. Contract growing these trees to improve access to quality nursery stock
 - c. Improving the underground growing conditions e.g. passive infiltration of stormwater, trenching, mulching, access to adequate soil volumes where possible
 - d. Aligning and integrating with infrastructure planning works
 - e. Formal establishment program including formative pruning
 - f. Reducing the number of vacant sites to zero by 2031 by planting 560 more trees per year than are removed
 - g. Enhancing biodiversity outcomes along waterway corridors by focussing on indigenous species
 - h. Targeting areas that have been prioritised for tree planting
- Audit tree stock delivered from nursery so that it conforms to AS2303 - Tree Stock for Landscape Use

TREE PROTECTION

Public trees are protected where possible during Council infrastructure works such as road upgrades, footpath repairs and drainage works. Some trees are damaged by pests and disease, including damage done by corellas. Council's arborists provide advice regarding root pruning, tree protection, tree removal and tree replanting.

Council trees are subject to tree protection during private development works but trees in subdivision developments can be damaged by contractors when new housing is built. Damaged trees are removed but not always replaced, depending on whether it is specified in the landscape plan. Council does not currently place a monetary or asset value on its trees nor use protection bonds as an incentive to protect trees during development. There is also a lack of resources that prevents tree protection measures from being enforced properly.

To improve overall tree protection Council will:

- Develop a Tree Management Policy that outlines protection measures to be taken
- Seek to develop and endorse a tree valuation method for Horsham.
- Enhance protection of street trees through the implementation of a bond over street or park trees that may be impacted by private development
- Seek additional resourcing to enforce the protection of Council trees from development works
- Prepare a Conservation Management Plan for the Botanical Gardens and apply the heritage overlay to ensure its protection

TREES IN NEW DEVELOPMENTS

Development over time is likely to have resulted in impacts to tree canopy cover in Horsham. Improved landscape design for new developments and greater availability of resources for developers can support increased tree canopy cover for emerging neighbourhoods and intensifying areas. Preserving existing trees where possible and planting new trees in new developments increases a development's attractiveness, monetary value and marketability by providing aesthetic and functional values.

To improve canopy cover in new developments Council will:

- Provide education, guidance, incentives and best practice material for builders and developers to retain and protect existing trees in new developments, including early engagement at the concept stage.
- Develop landscape and /or subdivision design guidelines that become a key resource for developers who need to submit a landscape plan with a planning application. This will provide information and guidance on what needs to be submitted and landscape requirements, including tree protection and planting, which are in accordance with accepted industry and best practice standards. The guidelines should be tailored to the local climate and conditions and will also become a guide for Council staff on specifications that Council is willing to accept and/or approve at handover.
- Ensure permit applications for new developments are referred to all relevant units including Engineering, Recreation & Open Space, Statutory Planning and Strategic Planning.

TREE ESTABLISHMENT

Newly planted trees are watered for three-years until established. Some formative pruning occurs but is not conducted on a scheduled, proactive basis. This means some trees are likely to develop structural issues requiring ongoing maintenance.

To improve tree establishment Council will:

- Develop and deliver rotational proactive tree maintenance program that includes formative pruning and establishment

TREE REMOVAL

Council removes approximately 100 trees per year. This is in response to community requests but is also part of an approach to remove undesirable species, in particular under power lines. There is currently no clear guideline or policy identifying a tree removal protocol and as a result, tree removal occurs on an ad-hoc basis.

To improve tree removal Council will:

- Develop a Tree Management policy with clear tree protection measures and guidelines for tree removal requests from the public and Council tree removals.

TREE MAINTENANCE

Maintenance of Horsham's street and park trees has historically occurred as a result of customer requests or through Council's annual inspection program of trees in high pedestrian or traffic areas. With no commensurate increase in the maintenance budget to reflect increased tree plantings, tree maintenance is based on customer requests and is reactive in nature. This exposes Council to risks of not proactively managing its assets.

Requests for rural roadside tree pruning are increasing, also without a commensurate increase in resources or funding. Farm machinery is increasing in size, requiring clearances along rural roads to be enlarged.

To improve tree maintenance Council will:

- Develop and deliver rotational proactive tree maintenance program that includes formative pruning and establishment
- Review and update the Roadside Vegetation Management Plan



POWERLINE CLEARANCE

Under the Electricity Safety (Electric Line Clearance) Regulations 2020 (Vic), Council is obligated to ensure that tree pruning provides adequate clearance for the safe operation of powerlines.

Council undertakes inspections and pruning works in the declared area of Horsham township. Council has also been undertaking a program of tree removals of inappropriate trees under powerlines and replacing trees with more appropriate species that will not conflict with the powerlines.

To improve powerline clearance outcomes Council will:

- Continue to select the right species for each location
- Continue to remove and replace inappropriate species underneath powerlines

TREES AS ASSETS

Council does not currently apply a financial value to each tree asset.

Many other Council's including Bendigo, Geelong, Shepparton and Wodonga utilise an amenity and/or environmental value to accurately inform costs for removal and replacement of trees. By attributing a dollar value to each tree asset, trees can form part of the cost benefit analysis for works designs and planning. A bond system can also be introduced as an incentive to protect trees during development or construction works.

To improve recognition that trees are assets Council will:

- Seek to develop and endorse a tree valuation method for Horsham
- Implement the use of a bond over street or park trees to protect from development
- Include the tree inventory on Council's asset management system

TREE DATA

Only about a third of trees in the Horsham township are listed on a spatial tree inventory and of those, only some contain any specific data about the trees. As a result, Council does not have a comprehensive understanding of the extent or quality of its tree assets. A proactive maintenance program will only be possible when a full audit of trees has occurred.

To improve the quality of tree data Council will:

- Undertake a tree inventory for all street and park trees in Horsham, Haven and Natimuk by a suitably qualified arborist



WATER

Very few of Council's street and park trees are irrigated. There is capacity to improve conditions for trees, particularly in the Central Activity District by introducing irrigation and making better use of rainfall where it occurs, (e.g. through permeable pavement and local stormwater harvesting).

A variety of water options are available to support tree health and viability.

Some open spaces are irrigated using water stored in the network of wetlands located within the open spaces. This water storage has capacity to irrigate other areas. Extensions of Council's existing stormwater reuse systems should be included in Council's City to River planning, including extending an irrigation supply along Firebrace St.

GWM Water operates a recycled water facility but currently this is not connected to the Horsham township.

Council is licensed to extract water from the river and is currently not using the full water entitlement. These entitlements are subject to seasonal variability and drought. Water quality from the Wimmera River can also be problematic, with high salinity a factor that limits utilisation of this source in some years.

To improve availability of irrigation water for trees Council will:

- Explore use of alternative water sources (stormwater, river or recycled water) to irrigate high profile open space and associated trees

CAPITAL AND ASSET INFRASTRUCTURE WORKS

Council's Capital Works and Road Renewal teams consider tree protection during their works. If an opportunity to remove and replace poor tree specimens exists, the Operations Team will undertake the work.

Council projects are guided by an Infrastructure Design Manual that provides specifications for the construction of roads, footpaths, drainage works, and other works. Existing manuals do not provide guidance regarding the placement and installation of street trees or water sensitive urban design as part of the infrastructure works.

To improve capital and infrastructure works Council will:

- Develop technical drawings for tree planting typologies relevant to Horsham, including water sensitive urban design reflecting Horsham's climate
- Review Council Infrastructure Design Manual and seek to update HRCC standard drawings to include space and consideration for street trees
- Ensure tree canopy targets are embedded in capital works and infrastructure renewal works

BIODIVERSITY PLANTINGS

Tree plantings for biodiversity occur along the river corridor and as part of Landcare revegetation activities on rural lands.

A significant level of work has been undertaken by the Wimmera River Improvement Committee, which is affiliated with Landcare. This volunteer group has undertaken many tree and understorey plantings along the Wimmera River frontage and the Police Paddock.

There is a significant opportunity to identify exact sites (e.g. open spaces and road networks) that could act as biodiversity corridors to support existing biodiversity areas such as the Wimmera River. The Wimmera Catchment Management Authority, (WCMA) Department of Environment, Land, Water and Planning (DELWP) as well as the significant Habitat 141 project all have capacity to partner and collaborate with Council to identify sites where biodiversity plantings could be prioritised.

To improve biodiversity outcomes Council will:

- Identify potential sites within townships and along rural roads that could be planted with indigenous species to support the outcomes of the Habitat 141 project. These should then feed into the two-year rolling tree planting program
- Collaborate with Wimmera CMA for revegetation projects along waterways (Wimmera River) and include appropriate site preparation and irrigation of trees to improve tree survival and biodiversity connectivity.



TREE REMOVAL, PROTECTION AND PLANTING ON PRIVATE LAND

Council currently does not impose any regulation or Local Laws to protect trees or require the planting of trees on private property.



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It is important to identify ways we can protect and enhance our private trees, especially those large healthy canopy trees that have taken decades to establish.

As a community we can assist Council in achieving canopy targets by:

- Protecting and caring for existing trees,
- Planting new trees.

The regulation of tree protection and tree planting on private land has not been a focus for Council and we will need to explore a range of options if we are to address climate change and improve the amenity and liveability of our community.

Council recognises that private land contributes a significant proportion of tree canopy cover across the urban areas of Horsham and its townships and therefore contributes to the targets we have set. Aerial imagery reveals that canopy cover has been decreasing, particularly over private land.



2021

Council has a role in undertaking various analytical and strategic pieces of work to determine the best way forward for protecting and enhancing our private urban trees.

Potential mechanisms for Council to explore include:

1. Protecting canopy and significant trees

We recognise the huge contribution that our larger, healthy trees make to the landscape, particularly those that also provide scientific, social, historical and aesthetic benefits. Many other Victorian Councils have defined these Canopy and Significant Trees, identified their location on a register and sought to protect them through Local Laws or planning overlays.

2. Documenting Neighbourhood and Landscape Character

Trees and vegetation contribute to neighbourhood character values within the urban areas of Horsham. Tree canopy along streetscapes within the front and rear yards of properties makes a significant contribution to the amenity of neighbourhoods.

Council is about to undertake the development of a Housing Strategy, under which a Neighbourhood Character study will be undertaken. These documents will identify the current and future contribution that trees and canopy cover will make to neighbourhood character, and in doing so, provide an evidence base for planning changes to the protection and enhancement of trees in certain areas.

3. Tree Planting regulations in New Development and Subdivisions

New development and subdivisions present opportunities and challenges for trees in terms of their retention and protection, but also their replacement or introduction. There are already some requirements in the planning scheme requiring the retention or provision of trees in new development proposals, however there are opportunities to be more precise about canopy targets, reducing urban heat impacts associated with an increase in impervious surfaces and balancing built development with open public space requirements.

Horsham is experiencing relatively strong demand for new residential development, and this is expected to continue in the medium term. The Horsham Planning Scheme is currently being reviewed to identify gaps such as subdivision design and Environmentally Sustainable Design

(ESD), particularly as a response to the increasing impacts of climate change.

Increased best practice tree planting in developments can be addressed through the following sections of the Horsham Planning Scheme, for example:

- Subdivision Design
- Environmentally Sustainable Design – yet to be implemented by state government
- Neighbourhood Character
- Schedules to the Residential Zones
- Tree protection overlays such as the Environmental Significance Overlay, the Vegetation Protection Overlay and the Significant Landscape Overlay which all currently apply to some areas of Horsham.

Many Councils have modified their planning schedules to residential zones to specify a number of requirements in relation to landscaping, canopy tree provision, permeability, soil volume, etc. which assist in ensuring adequate tree retention and provision when development occurs.

In determining Council's commitment to progressing tree protection and enhancement in the private realm, it is acknowledged that the on-ground implementation of this Strategy and associated policy will focus on public land owned or managed by Council.

This Strategy however provides the basic platform to raise these issues and explore further work reviewing the appropriate mechanisms (e.g. Local Laws and the Horsham Planning Scheme) to address tree canopy retention and protections on private land.

The work will be undertaken by Council's Strategic Planning Team. The work will assist the municipality to not only meet tree canopy targets more quickly but also more fully realise the potential public health, wellbeing, environmental, social and economic benefits from a holistic approach to Council's urban tree canopy targets.



Council will explore the protection and enhancement of trees on private land by:

- Further analysing the high-resolution tree canopy data to quantify the losses of tree cover on private land and seek to understand the main causes and solutions
- Encouraging private landholders to protect existing trees and plant new ones on their land
- Developing an appropriate policy to address the protection of significant and canopy trees on private land and explore appropriate regulatory mechanisms to enforce the policy
- Exploring the feasibility of creating a Significant Tree Register and associated protections
- Undertaking strategic work such as the Neighbourhood Character Assessment
- Investigating as part of the Planning Scheme Review the shortfalls of the Planning Scheme in terms of tree provision and protection and undertake the strategic work to inform local planning policy and planning scheme requirements to ensure new developments protect existing large trees and where lacking establish new canopy trees, strengthening the tree canopy provision in the private realm.
- Developing a suite of education, guidance and best practice material for builders and developers to retain and protect existing trees in new developments, including early engagement at the concept stage



CULTURALLY SIGNIFICANT TREES

Horsham is home to an array of culturally significant trees. There is currently insufficient information regarding their location, health status and the absence of a framework to adequately protect trees of significance.

To improve outcomes for culturally significant trees Council will:

- Map culturally significant trees on Council owned land for planning and internal purposes. This work would need to be undertaken in consultation with BGLC ensuring cultural sensitivity is respected and maintained and to ensure greater protection and management practices are implemented in Horsham's Planning Scheme.
- Where appropriate, include these trees in a Significant Tree Register that is protected through appropriate regulation that ensures protection.
- Partner with BGLC for tree planning along waterways, an area of sensitivity for Traditional Owners, and around other key sites

(Note: input into this section is being sought from BGLC and will be re-edited once this input is provided)

CHALLENGES AND OPPORTUNITIES

Council has identified some key challenges facing its urban and rural roadside trees and the way in which they are currently managed. To achieve our vision and targets, we need to understand and overcome these challenges.

CLIMATE CHANGE

Climate change will impact on the health and wellbeing of Horsham's community, and the health of our urban and rural roadside trees in a number of ways. Annual average temperatures will increase, the frequency of heatwaves will increase, and there will be more extreme weather events and lower average rainfall.

The impacts of climate change on our urban and rural roadside trees include:

- The susceptibility of vegetation to increasing and emerging pests and diseases, challenging their ability to withstand and recover from these outbreaks,
- Extreme weather events such as storms, drought, bushfire and floods, leading to a reduction and overall decline in health of canopy cover,
- Lower rainfall will increase the frequency of tree death in many species and contribute to overall tree health decline,

- A number of the existing species that have been planted may not be tolerant of increased heat and will die or fail to thrive e.g. some of the exotic species planted in the Botanic Gardens.

Species selection for a changing climate will be critical to ensure the ongoing health and viability of urban trees so they maximise their benefits into the future. Council is already trialling new species that are likely to thrive under climate change and will continue to adapt its planting palette to ensure only resilient species are planted.

This list will continue to be utilised by Council, developers, other government agencies and community groups.

To overcome the challenges of climate change, Council will:

- Ensure appropriate species selection for each site and future climate viability, including trialling of new species
- Improve the underground growing conditions for newly planted trees where possible e.g. passive infiltration of stormwater, trenching, mulching, access to adequate soil volumes
- Develop technical drawings for tree planting typologies relevant to Horsham, including water sensitive urban design
- Consider Water Sensitive Urban Design (WSUD) treatments as standard practice



Image 15: Some of the mature specimens in the Horsham Botanic Gardens were planted last century and are showing signs of stress and senescence such as the mature stand of Elm trees. Climate change requires Council to choose species which will be suitable for replanting into the future while acknowledging the existing aesthetic and character of high value species

URBAN HEAT

The urban heat island effect increases the overall temperature of urban areas that have an abundance of hard surfaces. The effect is exacerbated during heat waves when night-time temperatures remain high and hard surfaces cannot cool down. Trees and vegetation mitigate this effect by cooling the urban environment through a process called evapotranspiration. Supplying water to vegetation increases their cooling potential, especially for trees.

Planting more trees and vegetation across the urban areas of Horsham and irrigating through either alternative sources or passive stormwater infiltration will provide a cooler urban environment, particularly during summer. This canopy shade should be prioritised for areas of need where social vulnerability to heat is greatest.

Horsham's township is expected to grow over time, increasing impervious surfaces such as buildings, roads and other infrastructure and increasing urban heat impacts. It is essential that we consider stronger development requirements for the retention of established trees and the provision of new trees to help mitigate this heat and reduce the impact on liveability and human health.

DATA AND IT ISSUES

To overcome the challenges of urban heat impacts Council will:

- Explore use of alternative water sources (stormwater, river or recycled water) to irrigate high profile open space and associated trees
- Increase supplementary irrigation to CAD trees to improve overall health and growth
- Collaborate with WCMA for revegetation projects along waterways (Wimmera River) and other areas and irrigate the trees to improve biodiversity connectivity
- Develop technical drawings for tree planting typologies relevant to Horsham, including water sensitive urban design
- Continue to plant trees through a two-year rolling tree planting and renewal program
- Educate the community and encourage property owners to plant trees in order to increase the overall canopy cover of Horsham
- Advocate for changes to Clause 56 to ensure climate responsive landscape design to support the provision of canopy trees and help reduce the impact of urban heat in the public realm



Council does not have a comprehensive tree inventory nor a fit for purpose tree asset database system. The absence of data and an effective electronic management system prevents the opportunity to view trees as an asset, appropriately manage their risk profile, place a value on trees or adequately budget for their sustainable management. Investing in an evidence-based tree asset dataset and housing it within a functional database system will enable new data capture, analysis of existing data, recording works and integrating activity relating to trees and their management across different work areas.

Tree data could also be integrated with other Council asset data and programming to help prioritise areas for tree planting, tree protection and maintenance.



To overcome data and IT issues Council will:

- Undertake a tree inventory for all street and park trees in Horsham, Haven and Natimuk
- Explore an alternative tree asset database system that is fit for purpose
- Develop cost benefit analysis for street and park trees and include in asset planning. Showcase the value of trees as an appreciating asset
- Ensure tree planning to align with road reconstruction works

REACTIVE ASSET MANAGEMENT

Because of the volume of customer requests and existing budgets and resources, the tree maintenance program is largely reactive. The Local Government Act (2020) requires Local Government Authorities (LGAs) to develop an Asset Management Plan documenting information specifying the activities, resources and timescales required for an individual asset or a grouping of assets. Council does not currently treat trees as assets and hence, does not have a tree asset management plan.

In 2011, the Municipal Association of Victoria's (MAV) insurance arm reviewed the status of Horsham Rural City Council's tree management program. The MAV concluded that Council should, at a minimum:

1. Formalise the reactive (customer request) maintenance program
2. Review the street tree policy and include a detailed ongoing strategy for programmed maintenance, planting and allocation of resources with consideration of risk.
3. Prioritise proactive inspections and maintenance
4. Develop a tree inventory

As of mid-2021, none of the MAV recommendations have been implemented.

Coroners' inquests into tree related deaths reinforce the need for LGAs to have an appropriate understanding and management of risk in relation to their tree assets.

While there is no legal requirement to do so, a transition towards a proactive tree management program that better manages risk as well as improving the overall health, vigour and structure of the tree population will bring a wealth of benefits including better management of asset risk while reducing the amount and cost of reactive maintenance over time.

To overcome reactive management issues Council will:

- Analyse the tree inventory, once captured, to identify the extent of maintenance works required to minimise known risks
- Develop and deliver a rotational proactive tree maintenance program that includes formative pruning and establishment. This will require an increase in resources and budget however the outcome of this initial investment will be a strategically and proactively managed tree asset requiring less ongoing maintenance and reduced budget over the lifetime of each tree.
- Implement a formal establishment program including formative pruning as part of the tree planting program

PERCEPTION OF TREES

Interaction with the community on tree matters is varied and highly emotive.

From vandalism of young trees and culturally significant trees through to backlash about the removal of large trees, concerns regarding trees generate a significant number of complaints from the community to Council. There is an acknowledgement that Council could improve its communication regarding plans for large tree removals and replacements.

Council also has an opportunity to improve the understanding and awareness within the community about the benefits of our trees.

A range of communication methods, materials and protocols can be adopted to raise awareness of the benefits of urban trees. They could also identify appropriate species for the Horsham region, describe how to look after newly planted trees and detail the processes for tree protection and tree removal, including enforcement measures. Improved communication strategies could be used within Council and the wider community and be available to developers and contractors.

Community engagement methods being used by other Councils include:

- Tree tags on newly planted trees explaining the role of the individual tree in contributing to the broader tree population.
- Developing precinct plans in collaboration with the community to identify where and what species of tree should be planted over a 10-year period.
- Developing an open-source data platform for the community to see the tree and canopy cover data relevant to their area
- Community tree planting days and tree giveaways.



To increase positive perceptions of trees Council will:

- Develop a community engagement program to increase access to knowledge and information in partnership with BGLC
- Run community tree planting days with youth and community groups
- Explore the possibility of reinstating the Walking Trees tour developed by the community.
- Develop clear messaging about the benefits of tree assets and provide this information to work crews who interact with the community
- Develop and make available best practice guides and case studies for developers

INFRASTRUCTURE CONFLICT

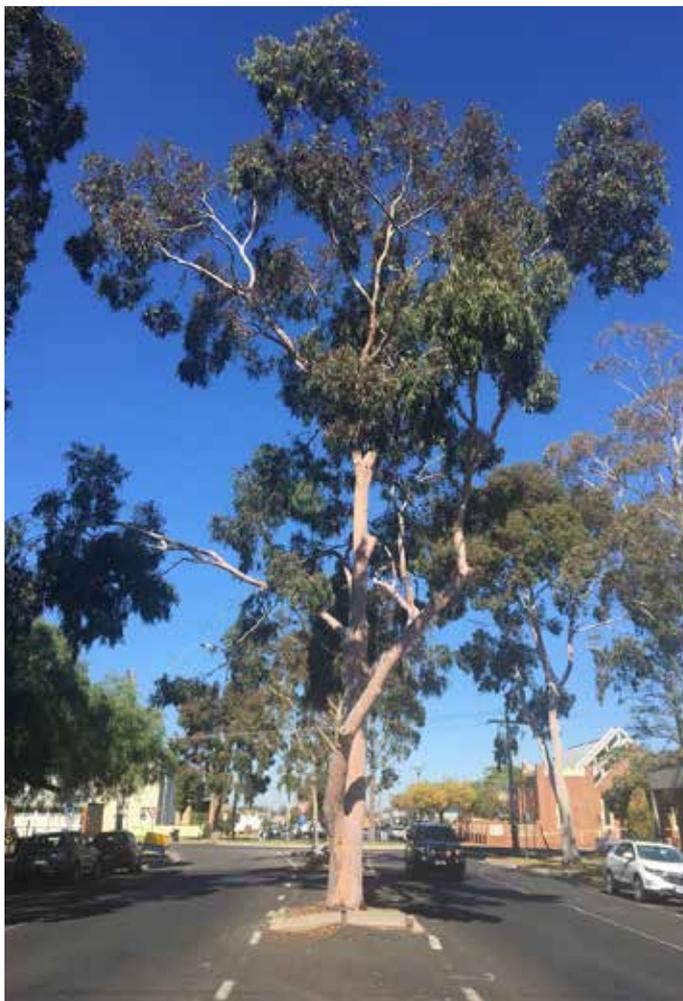
As a result of historical poor species selection and traditional streetscape design, Horsham is managing a legacy of conflicts between infrastructure and trees.

Powerline clearance requirements and the physical impact on drainage and road infrastructure leads to tree removals and infrastructure repair and reconstruction. Trees are replaced where possible, but because of existing infrastructure issues, replacement of trees is not consistent.

As the need increases for our public realm to provide many functions, engineered and designed solutions for dealing with these conflicts are increasingly being developed and applied.

Integrated streetscape design solutions can improve the below and above ground conditions for healthy tree growth and can limit conflict between trees and grey infrastructure such as roads, footpaths, kerb and channel, drainage, buildings etc. Solutions include permeable paving, water sensitive urban design, structural cells, structural soils, trenching and passively irrigated kerb outstands amongst others.

Utilising contemporary industry knowledge to trial relevant solutions for Horsham will significantly improve tree health, stormwater quality and reduce urban heat.



A row of tall lemon-scented gums have been planted in Urquhart Street in Horsham's Central Activity District. However, the road cut outs are inadequately small with asphalt almost to the trunk of the trees. The tree roots are lifting the asphalt and remediation work will soon be required.

By implementing innovative and integrated solutions, the asphalted medium could be pulled up, gravel trenching laid between each tree and then covered either in a vegetated median or permeable paving. This would direct the roots along the trench and away from the roadway, reduce the amount of heat storing asphalt, improve the amenity of the street and most importantly retain these majestic trees.

Image 16: Existing conflicts between the road surface and these beautiful healthy lemon scented gum trees should be prioritised for urban design solutions e.g. creation of a median strip with underground trenching to direct stormwater and tree roots

To overcome infrastructure conflict issues Council will:

- Develop technical drawings for tree planting typologies relevant to Horsham, including water sensitive urban design
- Develop pilot projects within the CAD Revitalisation project that showcase use of innovative design solutions e.g. trenching, water sensitive urban design, permeable paving
- Develop a framework for resolving claims of tree damage to private infrastructure
- Identify all opportunities to plant trees in road reserve instead of back of kerb
- Utilise masterplans, streetscape plans, structure plans or urban design frameworks, to ensure canopy trees are strategically planted to increase shade and amenity along walking routes and identified public spaces
- Engage with servicing authorities at the concept stage and planning permit stage of new developments to plan for the consolidation of existing / planned assets that will enable sufficient space for the planting of canopy trees in new subdivisions.



INTEGRATED PLANNING AND DEVELOPMENT

Urban regeneration and development create change that not only impacts on existing trees but also creates opportunities to increase greening and liveability.

Currently in Horsham, trees are generally not viewed as integral elements of the urban landscape, leading to lost opportunities for creating shade and improving the urban character.

Trees need to be regarded as a fundamental and valuable public asset, as roads and footpaths are, to be considered and incorporated into the planning stages for all works undertaken by Council or resulting from development or major infrastructure projects. This involves incorporating trees into Council's asset register with trees being valued according to their contribution to the landscape and to community health and wellbeing. Trees must also be recognised as an appreciating asset that delivers multi-functional environmental, social and economic benefits that increase in value over time.

To overcome the lack of integrated planning Council will:

- Review Council Infrastructure Design Manual and seek to update Council's standard drawings to include space and consideration for street trees
- Engage early with developers at the concept stage to encourage tree planting and the integration of existing trees in new subdivisions
- Develop Council landscape guidelines that address street trees, lineal paths, public open space and urban forests

in new development and ensure these guidelines are adopted and actively used by the relevant Council units.

- Provide education and guidance for builders and developers to retain and protect existing trees in new developments
- Seek opportunities for Water Sensitive Urban Design (WSUD) to passively irrigate trees within the context of Horsham's climate
- Develop guidelines for developers to provide the detail on how trees should be selected, planted and maintained in subdivisions. Implementation should include:
 - o Street Tree Planting process and species list
 - o Maintenance Standards and Responsibility,
 - o Public Open Space landscape standards
 - o Tree Protection standards
- Ensure any Council led work whether plans, capital works or development projects embed and support the tree canopy targets
- Develop cost benefit analysis for street and park trees and include in asset planning.
- Ensure tree planting is an integral component of road reconstruction works
- Establish internal processes for responding to planning referrals that should be directed to Recreation & Open Space and Infrastructure Services.

STRATEGICALLY PLANTING TREES IN AREAS OF NEED

Currently, trees are planted as a result of customer requests, in line with the road rehabilitation program or where Council has undertaken strategic re-planting, e.g. removal of inappropriate species under power lines.

While whole street plantings make maintenance more efficient and streamlined, there are areas of Horsham where priority tree plantings are needed to improve shade cover for pedestrians, local amenity, reduce urban heat impacts and buffer areas of biodiverse value. With more than 5,600 vacant tree planting sites currently available and Council's current capacity limited to planting approximately 700-900 trees each year, it is important to prioritise tree planting.

Without comprehensive and accurate data available, it is difficult to develop an evidence-based tree planting plan. Council is currently developing a number of documents and projects that will inform priority tree planting locations. When these are finalised and priority locations are identified, the plans will directly inform the rolling two-year tree planting plan.

Using the spatial mapping provided via analytical tools (Nearmap), consultation with Council staff currently developing urban design frameworks and precinct plans, and advice from external agencies including the Wimmera Catchment Management Authority, the following areas of Horsham have been identified as broad priority areas for tree planting:

1. Horsham North (currently already the target area for the tree planting program)
2. Open space/parks generally
3. Streets leading to open space
4. Gateway roads
5. Central Activity District
6. River Corridor

The development of a detailed tree inventory and associated data sets such as social census-based social vulnerability data or biodiversity information along with further strategic work will further inform future priority planting locations throughout the municipality.



To plant strategically Council will:

- Assess existing vacant sites and identify tree planting sites in all smaller townships such as Natimuk, Pimpinio, Jung, Dooen, Haven, Quantong, Riverside and Laharum
- Continue to plant trees through a two-year rolling tree planting and renewal program that considers:
 - a. Appropriate species selection for the site and future climate viability, including trialling of new species. Seeking to diversify away from the over-use of Pyrus
 - b. Contract growing these trees to improve access to quality nursery stock
 - c. Improving the underground growing conditions e.g. passive infiltration of stormwater, trenching, mulching, access to adequate soil volumes where possible
 - d. Aligning and integrating with infrastructure planning works
 - e. Formal establishment program including formative pruning
 - f. Reducing the number of vacant sites to zero by 2031 by planting 560 more trees per year than are removed
 - g. Enhancing biodiversity outcomes along waterway corridors by focussing on indigenous species
 - h. Targeting areas that have been prioritised for tree planting
 - i. Allocating additional resources to ensure delivery of this program

- Continue to identify priority tree planting areas such as walking and cycling routes as and when strategic work is developed
- Utilise masterplans, streetscape plans, structure plans or urban design frameworks, to ensure canopy trees are strategically planted to increase shade and amenity along walking routes and identified public spaces.
- Ensure the CAD Revitalisation project prioritises the planting of trees in high pedestrian areas based on an urban design analysis of the study area
- Explore opportunities to plant trees within Horsham North railway reserve, adjacent streets and public realm, including those areas near the current underpasses



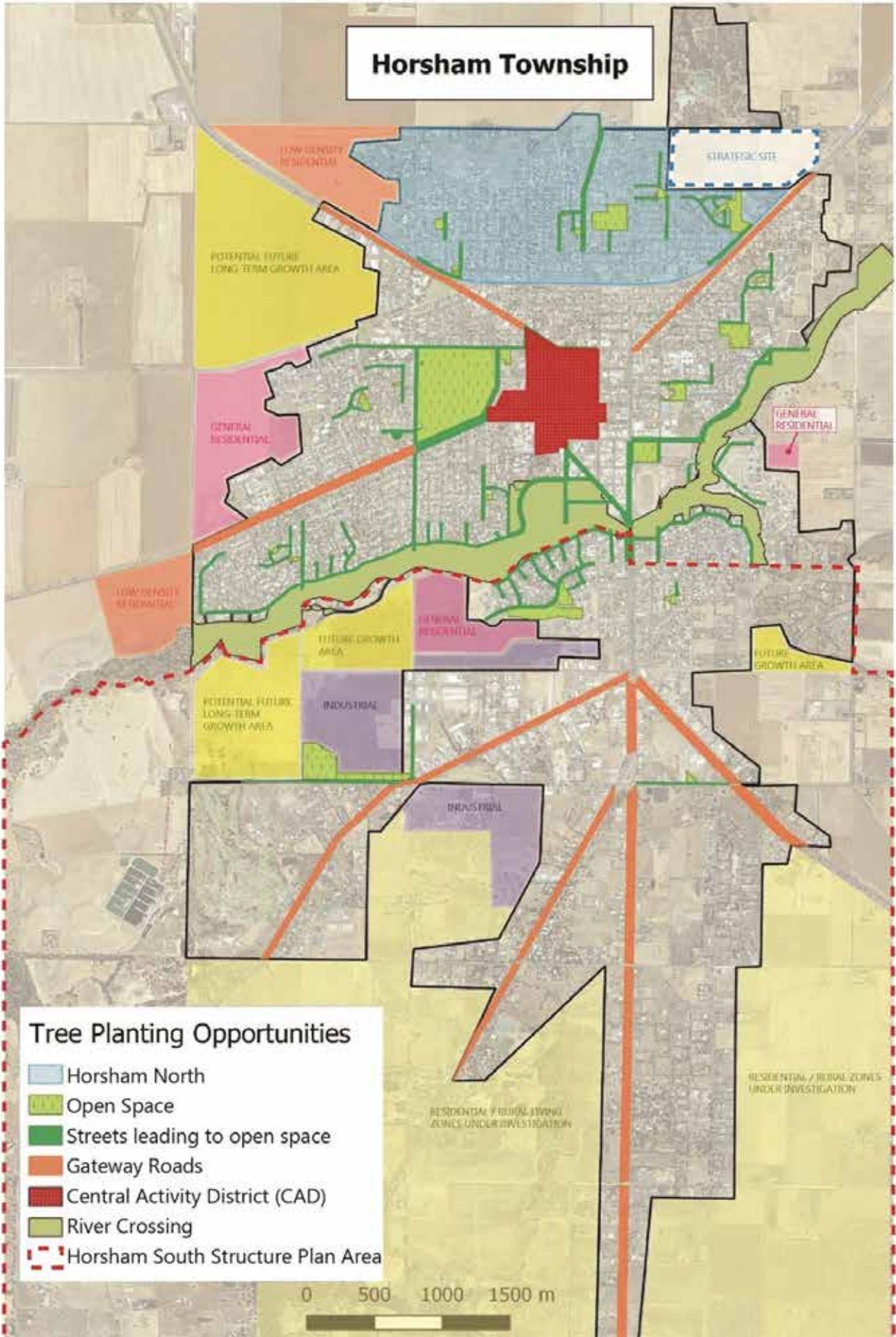


Image 17: Priority areas to consider for the annual tree planting program

IMPLEMENTATION

A series of actions, including six headline actions have been identified to guide investment in Council's trees. These actions reflect the key objectives of our tree management program:

1. Protect and Enhance
2. Increase Tree Canopy
3. Improve character and biodiversity
4. Educate and engage
5. Deliver best practice
6. Celebrate cultural heritage

HEADLINE ACTIONS

1. Undertake a detailed inventory of all street and park trees within Horsham, Haven and Natimuk.
2. Develop a 5-year program of proactive tree maintenance work that seeks to improve the overall health, structure and viability of all existing trees.
3. Continue to plant trees through a two-year rolling tree planting and renewal program that considers:
 - a. Appropriate species selection for the site and future climate viability, including trialling of new species. Seeking to diversify away from the use of Pyrus,
 - b. Contract growing these trees to improve access to quality nursery stock,
 - c. Improving the underground growing conditions e.g. passive infiltration of stormwater, trenching, mulching, access to adequate soil volumes where possible,

- d. Aligning and integrating with infrastructure planning works,
 - e. Formal establishment program including formative pruning,
 - f. Reducing the number of vacant sites to zero by 2031 by planting 560 more trees per year than are removed,
 - g. Enhancing biodiversity outcomes along waterway corridors by focussing on indigenous species,
 - h. Targeting areas that have been prioritised for tree planting.
4. Improve the way in which Council interacts with the community regarding trees: improve access to knowledge and information, improve transparency of programs, collaborate with groups seeking to be involved and encourage private landholders to care for and plant more trees on their own land
 5. Ensure that the upcoming Planning Scheme Review reflects the issues identified in the Tree Strategy, particularly the role that private trees play and how we can better protect and enhance them:
 - a. Explore the development of a Significant Tree Register, identify Council trees that require enhanced protection and identify the most appropriate regulatory mechanism for their protection,
 - b. Investigate measures to protect trees on private land from unnecessary removal and ensure that trees are planted (or replaced) during the appropriate stages of subdivision and/or development,

- c. Require that additional trees are planted in new developments to enhance neighbourhood character and contribute to a more abundant canopy cover in the future,
- d. Investigate the river corridor and ensure that appropriate planning controls protect trees and vegetation along the river corridor, and
- e. Ensure that areas of significant vegetation and biodiversity are protected under the Planning Scheme.



IMPLEMENTATION ACTIONS

Objective		Outcome	Timeframe	Budget	Responsibility	
1. Protect and Enhance	1.1	Undertake tree inventory for all street and park trees in Horsham, Haven and Natimuk	Detailed data on the tree asset	Short	\$\$\$	Parks and Gardens, Rec and Open Space
	1.2	Develop Tree Management policy with clear tree protection measures and guidelines for tree removal from customer requests, development and Council works	Better protected trees	Short	\$	Parks and Gardens, Rec and Open Space
	1.3	Develop and deliver rotational proactive tree maintenance program that includes formative pruning and establishment	Increased health, ULE and structure of tree asset	Short/Medium	\$\$\$	Parks and Gardens
	1.4	Review and update the Roadside Vegetation Management Plan	Documented protocols	Short/Medium	\$	Parks and Gardens
	1.5	Review nature strip guidelines and seek to remove landscape types that hinder street tree growth	Better growing conditions for street trees	Short/Medium	\$	Parks and Gardens
	1.6	Explore the creation of a Significant Tree Register that seeks to protect trees of identified significance and consider the most appropriate regulatory protection mechanisms. Utilise tree inventory results to identify significant trees on public land	Significant Tree Register	Short/Medium	\$	Strategic Planning/ Parks and Gardens
	1.7	Seek to develop and endorse a street and park tree valuation method for Horsham	Trees are given financial values	Medium	\$	Assets/ Finance
	1.8	Enhance protection of street trees through the implementation of a bond over street or park trees that may be impacted by private development	Trees are valued assets	Medium	\$\$	Statutory Planning
	1.9	Seek additional resourcing to enforce the protection of trees and the planting of trees on development sites and new subdivisions.	Trees are protected	Short	\$\$	Parks and Gardens and Asset Management Team

1.10	Develop a protocol for the timing of tree planting and ongoing protection of subdivision trees during construction. Explore the use of construction management and/or landscape plans.	Better survival rates for trees in development	Short	\$\$	Parks and Gardens /Strategic Planning
1.11	Provide education and guidance for builders and developers to retain and protect existing trees in new developments (including early engagement at the concept stage)	Trees better considered in developments	Short	\$	Strategic Planning/Stat Planning/Infrastructure services/ Rec and Open Space
1.12	Develop Council landscape/ subdivision guidelines that address subdivision design, trees on private land, street trees and vegetation, lineal paths, public open space and water sensitive urban design in new development in accordance with the Infrastructure Design Manual. Educate staff on its application.	Consistency of advice for trees in development	Short-Medium	\$	Rec and Open Space /Strategic Planning/Infrastructure Services/Statutory Planning
1.13	Ensure planning conditions reflect tree planting requirements in accordance with the landscape/ subdivision guidelines.	Better outcomes in development	Short-Medium	Nil	Statutory Planning
1.14	Develop an internal process for referring planning applications and landscape plans to the Strategic Planning and Urban Design; Recreation and Open Space and Infrastructure Services units.	Stronger inter-departmental collaboration.	Short	Nil	Rec and Open Space /Strategic Planning/Infrastructure Services/Statutory Planning
1.15	Develop an appropriate policy to address the protection of significant and canopy trees on private land and explore appropriate regulatory mechanisms to enforce the policy	Significant trees and canopy trees are recognised	Short	Nil	Strategic Planning
1.16	Further analyse the high-resolution tree canopy data to quantify the losses of tree cover on private land and seek to understand the main causes and solutions	Build the evidence base for planning reform	Medium	Nil	Strategic planning
1.17	Investigate as part of the Planning Scheme Review the shortfalls of the Planning Scheme in terms of tree provision and protection and undertake the strategic work to inform local planning policy and planning scheme requirements to ensure new developments protect existing large trees and where lacking establish new canopy trees, strengthening the tree canopy provision in the private realm.	Build the evidence base for planning reform	Short-Medium	\$\$	Strategic Planning

1.18	Advocate for changes to Clause 56 to ensure climate responsive landscape design to support the provision of canopy trees and help reduce the impact of urban heat in the public realm	Strengthen Horsham Planning Scheme	Medium	\$\$	Strategic Planning
1.19	Engage with servicing authorities at the concept stage and planning permit stage of new developments to plan for the consolidation of existing / planned assets that will enable sufficient space for the planting of canopy trees in new subdivisions.	Improved collaboration for the planning of trees.	Short	Nil	External partners & stakeholders
1.20	Prepare a Conservation Management Plan for the Botanical Gardens and apply the heritage overlay to ensure its protection	Protection for Botanical Gardens	Short	\$\$	Parks & Gardens/Strategic Planning
1.21	Seek funding opportunities to restore / enhance avenues of honour.	Renewal of heritage landscapes	Medium	\$\$ (grant)	Parks & Gardens/Strategic Planning
1.22	Consider planning mechanisms best suited for the protection and retention of existing woodland trees in Haven that contribute to the liveability and character of the area	Significant trees and canopy trees are recognised	Medium	Nil	Strategic Planning
2.1	Ground truth existing vacant sites and identify tree planting sites in all smaller townships such as Natimuk, Pimpinio, Jung, Dooen, Haven, Quantong, Riverside and Laharum	Tree planting opportunities identified	Short	Existing	Parks and Gardens
2.2	Continue to identify priority tree planting areas such as walking and cycling routes as and when strategic work is developed	Priority tree planting sites identified	Short	\$\$	Rec and Open Space / Statutory Planning
2.3	Develop a 2-year rolling tree planting and renewal program	Trees planted and renewed for the next 10 years	Ongoing	Existing	Parks and Gardens
2.4	Utilise masterplans, streetscape plans, structure plans and/or urban design frameworks to ensure canopy trees are strategically planted to increase shade and amenity along walking routes and identified public spaces	Increased shade	Short/Medium	Included in project works	Rec and Open Space / Parks and Gardens
2. Increase tree canopy cover					

2.5	Ensure CAD revitalisation prioritises the planting of trees in high pedestrian areas and seeks to increase supplementary irrigation to newly planted trees in streets	More tree shade in the CAD	Short/Medium	Existing	Rec and Open Space / Parks and Gardens
2.6	Explore opportunities to plant trees within North Horsham railway reserve	Increase open space tree canopy	Medium	\$	Strategic Planning / Parks and Gardens
2.7	Identify all opportunities to plant trees in road reserve instead of back of kerb	Reduced infrastructure conflicts	Ongoing	Existing	Parks and Gardens / Infrastructure
2.8	Improve the underground growing conditions for newly planted trees where possible e.g. passive infiltration of stormwater, trenching, mulching, access to adequate soil volumes	Improved growing conditions	Ongoing	Existing	Parks and Gardens
2.9	Explore use of alternative water sources (stormwater, river or recycled water) to irrigate high profile open space and associated trees	Trees that have access to soil moisture	Short/Medium	\$\$\$	Parks and Gardens / Infrastructure
2.10	Develop guidelines for developers to provide the detail on how trees should be selected, planted and maintained in subdivisions.	More trees in new developments	Ongoing	Existing	Strategic Planning
2.11	Planners to ensure that adequate space is defined for new trees in developments by requiring adequate information to accompany permit applications (landscape plans that detail tree planting schedules).	Space provision for trees in new developments	Ongoing	Existing	Strategic Planning / Statutory Planning
2.12	Contract grow and negotiate with local nurseries for tree planting program	High quality tree stock	Ongoing	\$	Parks and Gardens
2.13	Encourage private landholders to protect existing trees and plant new ones on their land	More trees on privately owned land	Ongoing	\$	Strategic Planning / Rec and Open Space
3.1	Ensure Precinct Planning for Horsham North includes objectives for increased tree canopy cover, including around the Dudley Cornell reserve, identified walking and cycling routes, and public realm opportunities close to the rail corridor.	More trees in areas of need	Short/Medium	Existing	Rec and Open Space
3. Improve character and biodiversity					

3.2	Ensure any climate change, environmental or sustainability strategy or planning work identifies the clear climate change adaptation benefits of trees and provides implementation actions for tree planting to increase canopy cover.	Integrated, multi-outcome Council strategy	Short/Medium	Existing	Waste & Sustainability						
3.3	Develop pilot projects within the CAD Revitalisation project that showcase use of innovative design solutions e.g. trenching, water sensitive urban design, permeable paving	Trial sites	Short	\$\$	Urban design consultants / Parks and Gardens / Infrastructure						
3.4	Seek to increase supplementary irrigation to CAD trees to improve overall health and growth	Healthier CAD trees, cooler environment	Short/Medium	\$\$	Urban Design consultants / Infrastructure						
3.5	Seek to map culturally significant trees on Council owned land for planning and internal purposes. This work would need to be undertaken in consultation with BGLC ensuring cultural sensitivity is respected and maintained and to ensure greater protection and management practices are implemented in Horsham's Planning Scheme, where appropriate	Culturally significant trees register	Medium	\$	Strategic Planning						
3.6	Collaborate with WCMA and /or BGLC for revegetation projects along waterways (Wimmera River) and irrigate the trees to improve biodiversity connectivity	Collaborative revegetation projects	Short/Medium	\$\$	Rec and Open Space						
3.7	Identify potential sites within townships and along rural roads that could be planted with indigenous species to support the outcomes of the Habitat 141 project	Enhancement of biodiversity corridors	Short/Medium	Existing	Rec and Open Space / Parks and Gardens						
4.1	Develop a community engagement program to increase access to knowledge and information with input from BGLC	A more informed community	Ongoing	\$	Parks and Gardens, / Rec and Open Space						
4.2	Run community tree planting days with youth and community groups	Greater stewardship by community	Ongoing	\$	Parks and Gardens / Rec and Open Space						
4.3	Develop community engagement standard protocol including messaging and touch points for all parks works	Defined community messaging, greater awareness	Short	\$	Parks and Gardens						
4. Educate and engage											

4.4	Apply for appropriate government grants to help fund the tree management program	Additional funding	Ongoing	Existing	Rec and Open Space
4.5	Continue to work with Powercor and VicRoads on ways to better protect trees and plant suitable ones on land managed by these agencies	Partner with other State agencies and utility providers	Ongoing	Existing	Parks and Gardens, / Rec and Open Space
4.6	Explore the possibility of reinstating the Walking Trees tour developed for Art Wimmera	Educational community engagement tool	Medium	\$	Rec and Open Space
4.7	Develop clear messaging about the benefits of the tree assets and provide to works crews who interact with the community	Clear community messaging for use in all Council works/ programs	Short	Existing	Parks and Gardens / Rec and Open Space
4.8	Communicate with the community about annual tree planting and maintenance programs	Transparency around Council's tree programs	Ongoing	Existing	Parks and Gardens / Rec and Open Space
4.9	Educate the community and encourage property owners to plant trees in order to increase the overall canopy cover of Horsham	More trees on privately owned land	Ongoing	Existing	Parks and Gardens / Rec and Open Space
4.10	Utilise the Precinct Plans engagement process to include community preferences for trees, shade and improved landscape amenity	Community understanding the importance of trees	Ongoing	Existing	Rec and Open Space
4.11	Utilise the City to River masterplan engagement process to raise awareness and understanding about the importance of trees for shade and amenity	Community understanding the importance of trees	Short/Medium	Existing	Rec and Open Space
4.12	Continue to engage with State Government regarding investment in blue green infrastructure and biodiversity	Opportunities for co-funded projects	Ongoing	Existing	Parks and Gardens

5. Deliver best practice	5.1	Develop technical drawings for tree planting typologies relevant to Horsham, including water sensitive urban design	Increase staff knowledge and capacity	Short	\$	Infrastructure / Parks and Gardens
	5.2	Review Council Infrastructure Design Manual and seek to update COUNCIL standard drawings to include space and consideration for street trees	Integrated standard drawings that include considerations for street trees	Short	\$\$	Infrastructure
	5.3	Analyse the tree inventory once captured to identify the extent of maintenance works required to minimise known risk	Evidence based maintenance schedule	Short	\$	Parks and Gardens
	5.4	Implement a formal establishment program including formative pruning as part of the tree planting program	Establishment program	Short	\$	Parks and Gardens
	5.5	Ensure tree canopy targets are embedded in capital works and infrastructure renewal works	Strong incentive to plant trees as part of other works	Short	Existing	Infrastructure
	5.6	Develop cost benefit analysis for street and park trees and include in asset planning. Showcase the value of trees as appreciating asset	Trees are valued assets	Short	Existing	Parks and Gardens / Infrastructure
	5.7	Develop clear guidelines for Tree Removal	Tree Removal Policy	Short	\$	Rec and Open Space
	5.8	Tree planning to align with road reconstruction works	integrated asset and tree planning	Short	Existing	Parks and Gardens / Infrastructure
	5.9	Explore alternative tree asset database system that is fit for purpose	Tree asset system that integrates with other Council systems	Short	Existing	Parks and Gardens / Operations / Asset Management
	5.10	Include the tree inventory onto Council's asset management system	Trees documented as a Council asset	Medium	Existing	Assets

5.11	Audit tree stock delivered from nursery so that it conforms to AS2303 - Tree Stock for Landscape Use	Tree stock that is fit for purpose	Short	Existing	Parks and Gardens
5.12	Measure tree canopy cover every 5 years to determine progress towards canopy targets	Evaluation of progress towards canopy targets	Ongoing	\$	Rec and Open Space
5.13	Evaluate status of actions within this Strategy every 2 years to determine progress towards vision, objectives and targets	Evaluation of Strategy progress	Ongoing	Existing	Parks and Gardens / Rec and Open Space
6.1	Seek to internally map culturally significant trees on Council managed land to ensure greater protection and management practices and include in a separate register that is protected through appropriate regulation	Culturally significant trees identified and protected	Short	Existing	Strategic Planning
6.2	Partner with BGLC for tree planning along waterways	Building partnerships	Medium	\$	Parks and Gardens / Strategic Planning
6. Celebrating cultural heritage					

*Budget:

\$ = up to \$10,000

\$\$ = up to \$100,000

\$\$\$ = over \$100,000

GLOSSARY

Biodiversity - the variety of plant and animal life in the world or in a particular habitat

Climate change adaptation - taking deliberate and considered actions to avoid, manage or reduce the consequences of a hotter, drier and more extreme climate and to take advantage of the opportunities that such changes may generate.

Climate resilience - the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate

Culturally significant trees – are commonly the last vestiges of former natural and cultural landscapes. These trees retain exceptional values in terms of their contribution to our urban environment. They have a recognisable range of values– natural, cultural, aesthetic, visual, social and historic. These trees can be symbols of great spiritual power, they may have associations with individual people and communities or tell stories of other times and places, or the historic development of a place, trade routes, connections and communications. Significant trees often visually dominate a place by their sheer size, scale and visual impact. Remnant trees from former natural ecological communities may retain valuable habitat and faunal corridors for other endangered and dependent species. These trees also offer a valuable gene pool for future scientific research, conservation and restoration.

Urban Tree Canopy Cover - refers to the layer of tree leaves, branches, and stems that provide tree coverage of the ground when viewed from above

Water Sensitive Urban Design - uses better urban planning and design to reuse stormwater, stopping it from reaching our waterways by mimicking the natural water cycle as closely as possible.

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