WHERE WILL ALL THE TREES BE?

The 2020 update of green cover benchmarking
in our cities and suburbs

GREENER SPACES   BETTER PLACES

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and pay our respects to the Gadigal People of the Eora Nation, where the Greener Spaces Better Places team is located and to the people of the Woiwarrung and Boowarung language groups of the Eastern Kulin Nation, where RMIT University and Melbourne University are located. We pay our respects to elders past, present and emerging. We also acknowledge that all cities are on Indigenous Country that has not been ceded, and that as urban researchers and professionals, it is our responsibility to support processes of reconciliation, treaty making, and land repatriation.
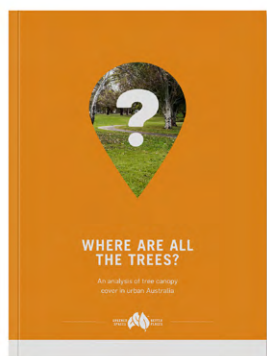
WHAT IS THIS REPORT?

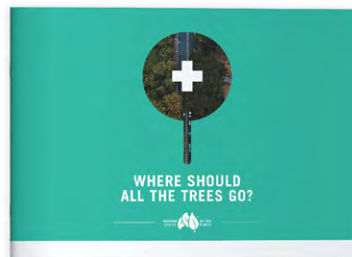'Where Will all the Trees Be?' is the third installment in a series running since 2013

2013

Where Are all the Trees?

Australia's first ever national benchmark of urban canopy, across our cities and suburbs.

2017

Where Should all the Trees Go?

This updated report also measured vulnerability of places based on heat mapping and socio-demographic data.

2020

Where Will all the Trees Be?

This latest update looks at changes over time as well as which places will be most and least challenged to grow and maintain green cover in the future.

GREEN IS GREAT

Green makes a place cooler in summer, stunning in spring and autumn and provides places to sun ourselves in winter. Green is where we exercise, relax and take time to breathe.

GREEN COVER* IS

Trees + **Shrubs**

Trees typically over 3m

Shrubs typically under 3m

GREEN COVER CREATES

Shade & cooling

Places to ride, run & relax

Wildlife habitat

Aesthetics

Property value

LIVING IN A PLACE WITH GREEN COVER CAN MAKE YOU**

Happier

Healthier

Smarter

More productive

Zzz Sleep better

*Green cover is the urban forest

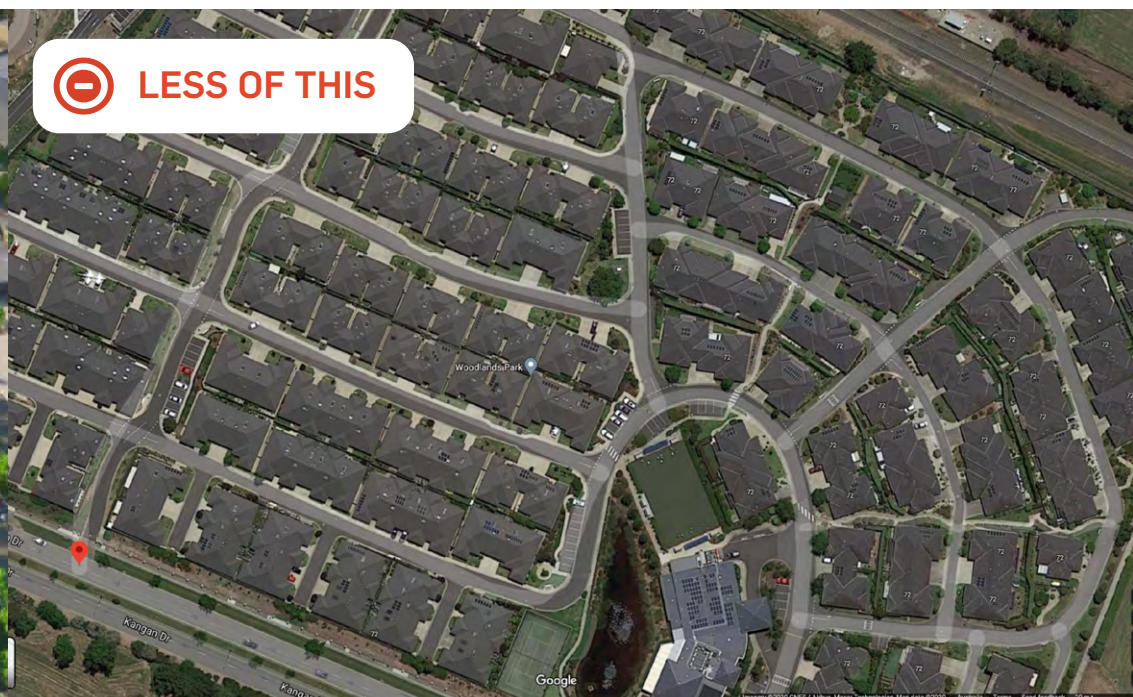**See for yourself: Refer to the last page of this document

THE CHALLENGE

As our cities and suburbs grow, green cover comes under pressure.
After all, there is only so much land to go around.

SO HOW DO WE MAKE SURE THAT AS OUR CITIES AND SUBURBS GROW,
OUR GREEN COVER GROWS WITH THEM AND EVERYONE ENJOYS THE BENEFITS?
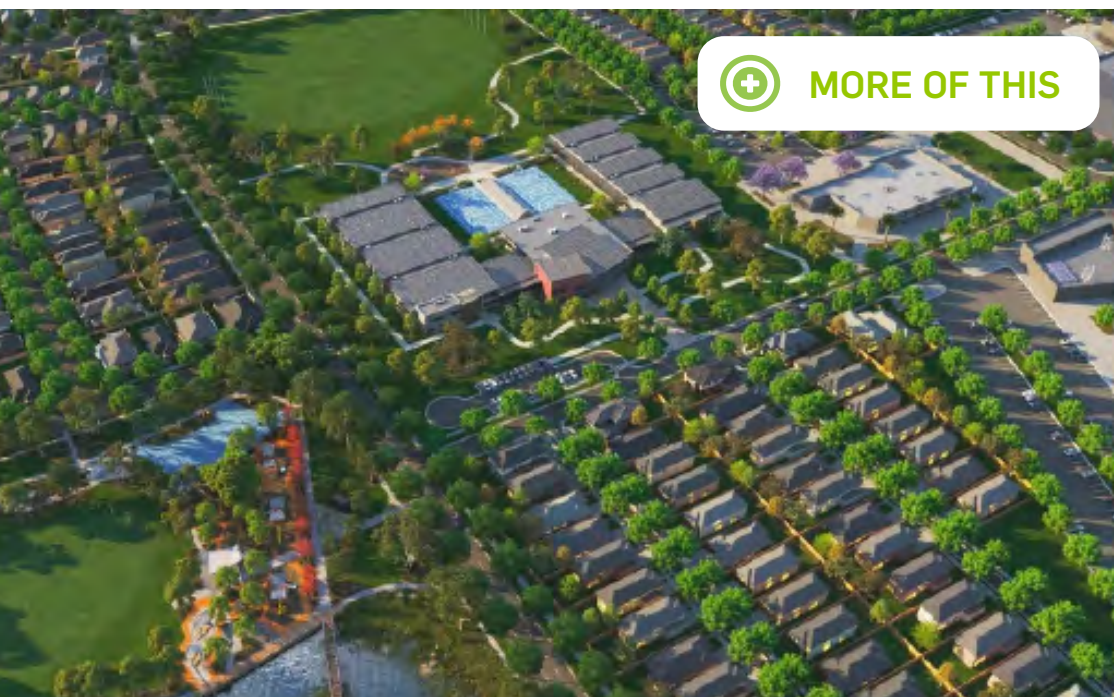
⊕ MORE OF THIS   ⊖ LESS OF THIS

Render of Frasers' 6 Star Green Star Community
Mambourin development in Western Melbourne.
Source: Frasers Property

Retirement village in outer suburbs of Melbourne.

TO ANSWER THIS QUESTION, WE SET OUT TO DISCOVER...

Which places* have the most green cover?

Which are gaining and which are losing?

How the rest can learn from the best?

*By place, we mean Local Government Area (LGA). Our study is limited to urban and peri-urban LGAs (our cities and suburbs). There are 131 LGAs in this study. The scope of coverage was set by the earlier studies in the research series (see page 2). It covers all the major urban areas and many of the second tier urban areas.

— **PART ONE** —

WHAT'S GROWING ON?

THE GOOD NEWS 👍

THE BAD NEWS 👎

62%

of our urban places now have **more** green cover than in 2016.

69%

of our urban places still have **less** green cover than in 2013.

Change in green cover 2016-2020
(the shorter term trend)

81 — **131** PLACES — **49**

INCREASED THEIR GREEN COVER

DECREASED THEIR GREEN COVER

ONE STAYED THE SAME

Change in green cover 2013-2020
(the long term trend)

41 — **131** PLACES — **90**

INCREASED THEIR GREEN COVER

DECREASED THEIR GREEN COVER

So, while recent trends are good, we're still making up for long term loss in green cover.

GREEN COVER VARIES WILDLY BY PLACE

Cairns Regional Council (QLD) has Australia's highest recorded level of green cover, with **82.9%**. Wyndham City Council (VIC) has Australia's lowest recorded level of green cover with **5.4%**. Cairns has higher than average rainfall and contains large areas of native forest, contributing to its high green cover. Wyndham contains large areas of grassland and agricultural land, limiting opportunities for urban greening. Before we dive into these results, however, it's important to note that **context matters.** The research shows that different places record very different results because of their context.

MOST GREEN COVER
2020

|	Place (LGA)	State	Green Cover
1	Cairns Regional Council	QLD	82.9%
2	Yarra Ranges Council	VIC	78.6%
3	Hornsby Shire Council	NSW	78.6%
4	Kingborough Council	TAS	73.9%
5	Sutherland Shire Council	NSW	72.6%
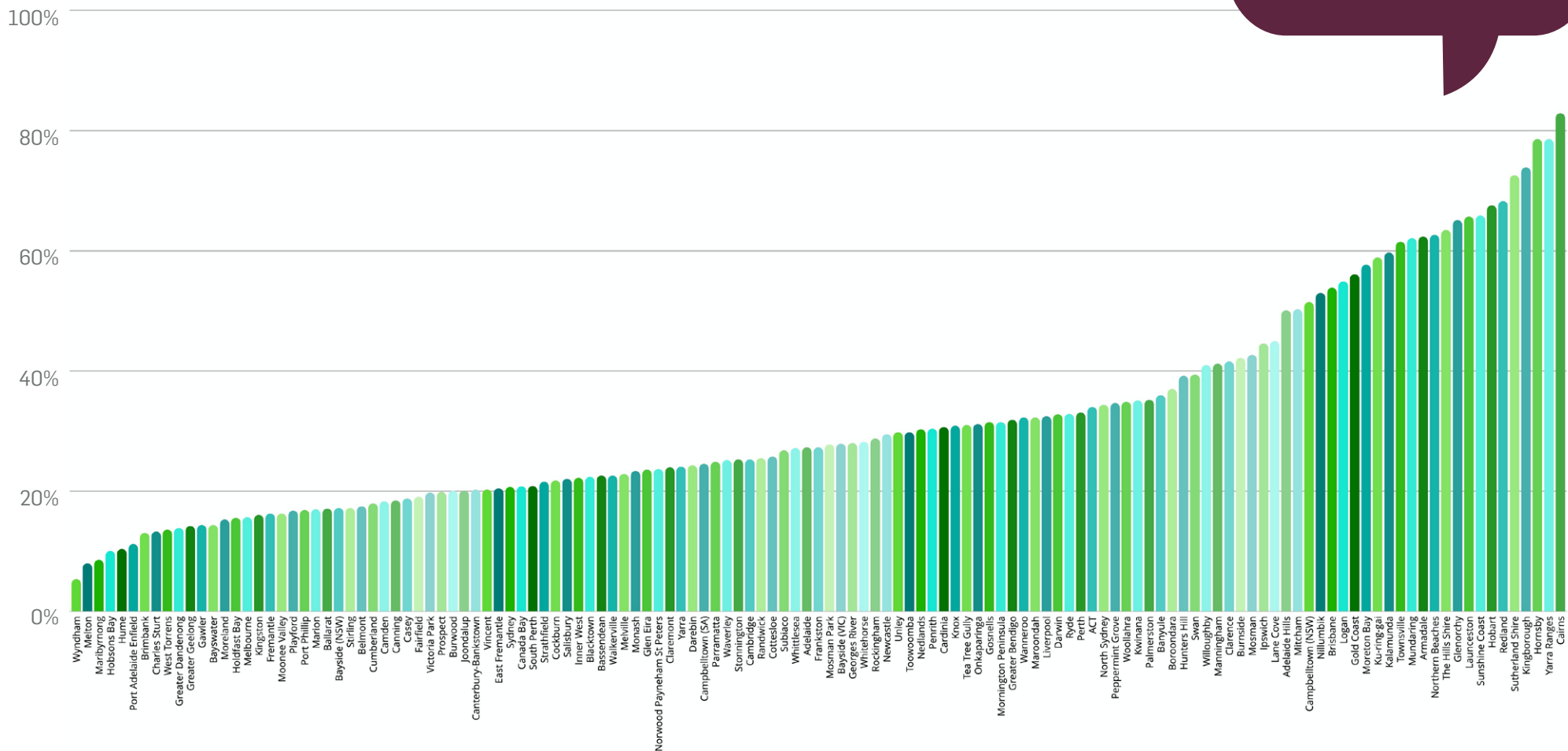
It is worth noting that many of our greenest places also house significant amounts of non-urban forest.
With this in mind, we segment this data into six place kinds later in this document.

GREEN COVER IS GROWING

Between 2016-2020, **63%** of places increased their green cover.
City of Launceston (TAS) increased the most: **9.5%**. In the same period,
green cover in City of Palmerston (NT) decreased by **8.5%**. Part of this
can be explained by how bushfire can affect green cover loss and regrowth.

MOST GROWTH IN GREEN COVER
2016 - 2020

|	Place (LGA)	State	Increase
1	City of Launceston	TAS	9.5%
2	Sunshine Coast Council	QLD	8.4%
3	Sutherland Shire Council	NSW	8.2%
4	City of Kwinana	WA	7.9%
5	Glenorchy City Council	TAS	7.1%
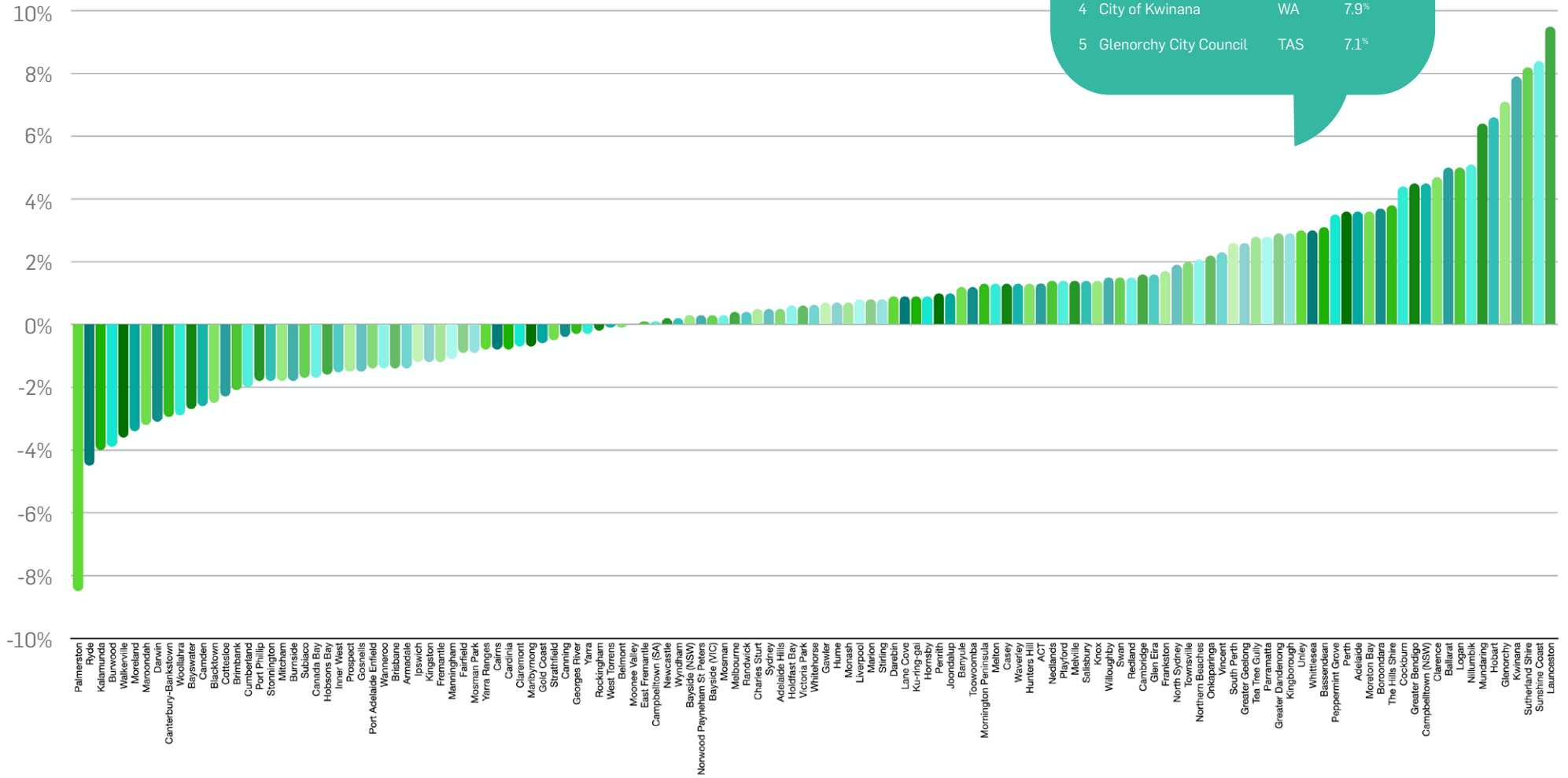
BUT GREY IS GROWING TOO

Between 2016-2020, **73**% of places increased their hard surfaces, or grey cover*. The most significant increase was City of Bayswater (WA), up **6.9**%. The biggest decrease was City of Boroondara (VIC) which saw some of its hard surfaces replaced by tree canopy.

MOST GROWTH IN GREY COVER*
2016 - 2020

	Place (LGA)	State	Increase
1	City of Bayswater	WA	6.9%
2	City of Burnside	SA	5.2%
3	City of Ryde	NSW	5.0%
4	Fairfield City Council	NSW	4.6%
5	Burwood Council	NSW	4.4%
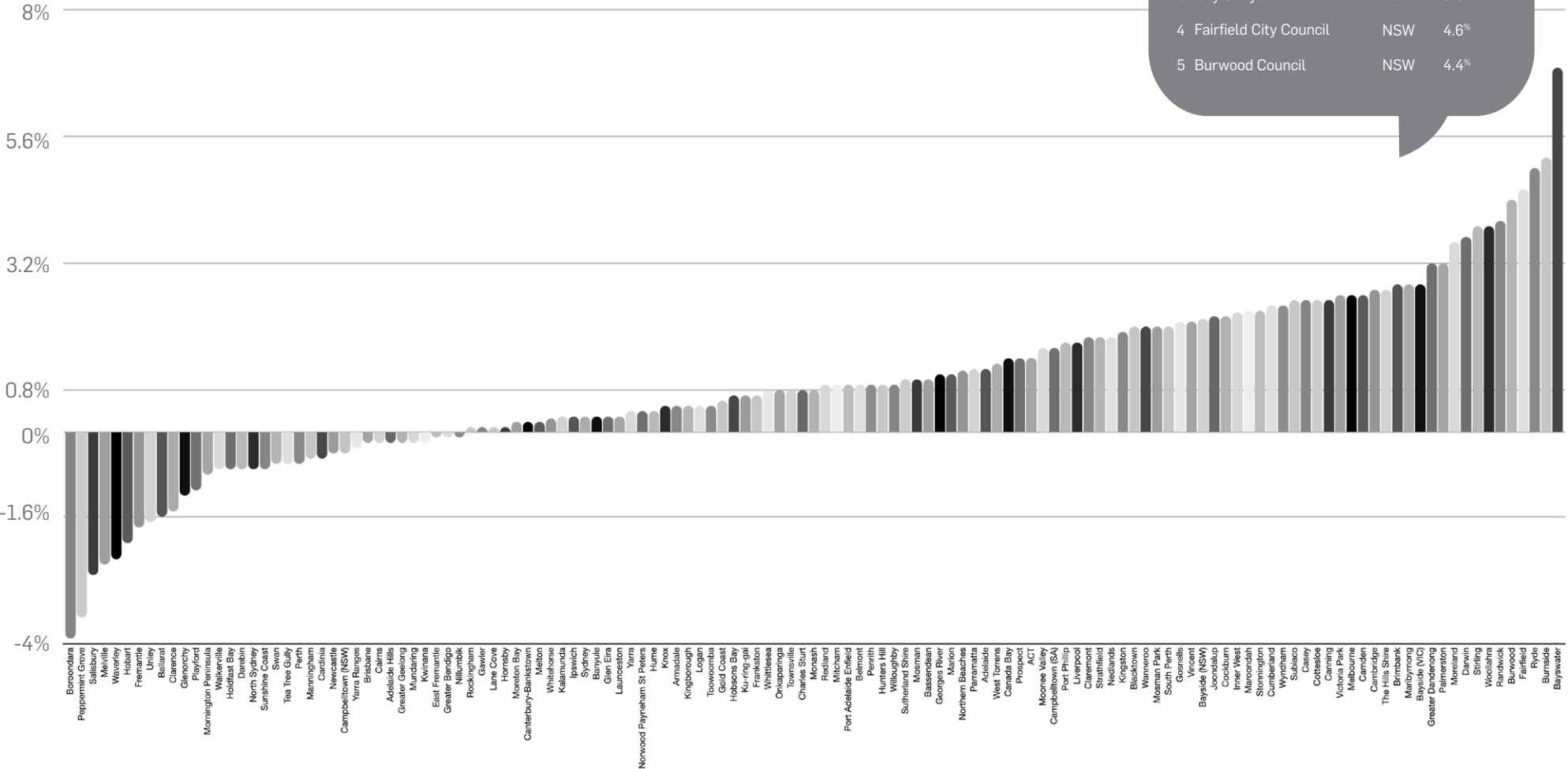
*Grey cover is hard surfaces such as pavement, roads, concrete paths, car parks and roofs.

WHAT ABOUT THE FUTURE?

To answer the question, "Where Will all the Trees Be?", we gave each place a **'Challenge Rating'**. This 'Challenge Rating' helps understand the level of difficulty each place faces when it comes to maintaining and increasing urban green cover now, and into the future. A low challenge rating means that it may be less difficult to achieve more green cover. A high challenge rate means that greater effort may be required to maintain or increase green cover.

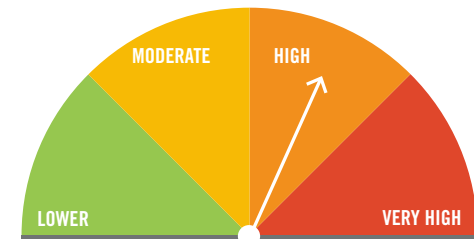The challenge rating is determined by a mix of:

BASELINE

Places that have a higher level of green cover are more likely to still have significant cover in the future.

+
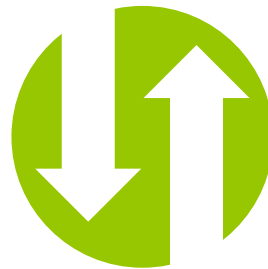
MOMENTUM

Places that are experiencing growth are more likely to have higher green cover in the future.

=

CHALLENGE RATING

How challenged a place is estimated to maintain or increase its green cover into the future.

LOWER   MODERATE   HIGH   VERY HIGH

OTHER FACTORS ALSO DETERMINE A PLACE'S FUTURE OUTLOOK

These are captured at an individual place level and not in our rating tool. To see the individual challenges for your place, visit greenerspacesbetterplaces.com.au

RAINFALL
Places with higher rainfall are less challenged in growing green cover.

POPULATION
Places with higher population growth have a bigger challenge in growing and maintaining green cover.

RESOURCING
Places with lower levels of community disadvantage tend to have more resources for green cover projects.

FRAMEWORK
Places with state planning frameworks that encourage urban greening are less challenged.

FIRE RISK
Places with high bushfire risk are more challenged to grow and maintain green cover.

ACTION
Places with strong local strategy, policy and programs are better placed to overcome challenges.

25

THE FUTURE IS CHALLENGING

Over the next decade, **88/131** (67%) of our urban places will face moderate to very high challenges to maintain or grow green cover.

LOWER

Banyule City Council (VIC)
Bayside City Council (VIC)
Cairns Regional Council (QLD)
Cambelltown City Council (SA)
City of Adelaide (SA)
City of Boroondara (VIC)
City of Clarence (TAS)
City of Greater Bendigo (VIC)
City of Hobart (TAS)
City of Kwinana (WA)
City of Launceston (TAS)
City of Nedlands (WA)
City of Norwood Payneham
& St Peters (SA)
City of Onkaparinga (SA)
City of Perth (WA)
City of Swan (WA)
City of Tea Tree Gully (SA)
City of Unley (SA)
City of Whittlesea (VIC)
Darebin City Council (VIC)
Frankston City Council (VIC)
Glen Eira City Council (VIC)

Glenorchy City Council (TAS)
Hornsby Shire Council (NSW)
Hunter's Hill Council (NSW)
Kingborough Council (TAS)
Ku-ring-gai Council (NSW)
Lane Cove Council (NSW)
Mosman Council (NSW)
North Sydney Council (NSW)
Northern Beaches Council (NSW)
Redland City Council (QLD)
Shire of Mundaring (WA)
Shire of Peppermint Grove (WA)
Sunshine Coast Council (QLD)
Sutherland Shire Council (NSW)
The Hills Shire Council (NSW)
Toowoomba Regional Council (QLD)
Town of Cambridge (WA)
Townsville City Council (QLD)
City of Whitehorse (VIC)
Willoughby City Council (NSW)
Yarra Ranges Council (VIC)

43 /131

MODERATE

Cambelltown City Council (NSW)
City of Cockburn (WA)
City of Greater Dandenong (VIC)
City of Greater Geelong (VIC)
City of Parramatta Council (NSW)
City of South Perth (WA)
Georges River Council (NSW)
Logan City Council (QLD)
City of Ballarat (VIC)
Moreton Bay Regional Council (QLD)
Nillumbik Shire Council (VIC)
The City of Vincent (WA)
Town of Bassendean (WA)
Town of Claremont (WA)
Town of Mosman Park (WA)
Yarra City Council (VIC)

16 /131

HIGH

Adelaide Hills Council (SA)
Australian Capital Territory
Bayside Council (NSW)
Brisbane City Council (QLD)
Cardinia Shire Council (VIC)
City of Armadale (WA)
City of Belmont (WA)
City of Burnside (SA)
City of Canning (WA)
City of Casey (VIC)
City of Charles Sturt (SA)
City of Gold Coast (QLD)
City of Holdfast Bay (SA)
City of Joondalup (WA)
City of Kalamunda (WA)
City of Marion (SA)
City of Melbourne (VIC)
City of Melville (WA)

City of Mitcham (SA)
City of Monash (VIC)
City of Newcastle (NSW)
City of Palmerston (NT)
City of Playford (SA)
City of Rockingham (WA)
City of Ryde (NSW)
City of Salisbury (SA)
City of Stirling (WA)
City of Stonnington (VIC)
City of Subiaco (WA)
City of Sydney (NSW)
City of Wanneroo (WA)
City of West Torrens (SA)
Fairfield City Council (NSW)
Hume City Council (VIC)
Knox City Council (VIC)
Liverpool City Council (NSW)

Manningham City Council (VIC)
Maribyrnong City Council (VIC)
Melton City Council (VIC)
Moonee Valley City Council (VIC)
Mornington Peninsula Shire (VIC)
Penrith City Council (NSW)
Randwick City Council (NSW)
Strathfield Council (NSW)
Town of Cottesloe (WA)
Town of East Fremantle (WA)
Town of Gawler Council (SA)
Town of Victoria Park (WA)
Town of Walkerville (SA)
Waverley Council (NSW)
Woollahra Municipal Council (NSW)
Wyndham City Council (VIC)

52 /131

VERY HIGH

Blacktown City Council (NSW)
Brimbank City Council (VIC)
Burwood Council (NSW)
Camden Council (NSW)
City of Bayswater (WA)
City of Canada Bay (NSW)
City of Canterbury Bankstown (NSW)
City of Darwin (NT)
City of Fremantle (WA)
City of Gosnells (WA)
City of Kingston (VIC)
City of Port Adelaide Enfield (SA)
City of Port Phillip (VIC)
City of Prospect (SA)
Cumberland City Council (NSW)
Hobsons Bay City Council (VIC)
Inner West Council (NSW)
Ipswich City Council (QLD)
Maroondah City Council (VIC)
Moreland City Council (VIC)

20 /131

LOWER MODERATE HIGH VERY HIGH
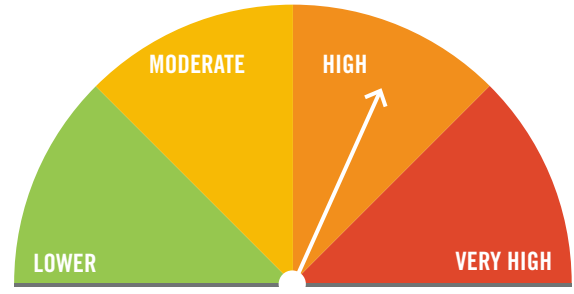
IN SHORT:

The majority of Australia's places have lost green cover since 2013. Many have arrested the decline in recent years, but many have not.

Of more concern,

67%

of our urban areas face significant challenges in growing and maintaining green cover into the future.

SO WHAT CAN WE DO ABOUT IT?

THINK AHEAD, PLAN BETTER AND PLANT NOW

We can learn from who is doing it well, even within the context of challenges,
and encourage everyone else to join in. After all, as they say:

> "*The best time to plant a tree was 20 years ago.*
>
> *The second best time is now.*"
>
> *Chinese Proverb*

ST KILDA ROAD

1964   **2019**

THE GOAL

WE NEED TO ENSURE THAT AS OUR CITIES GROW, SO TOO DOES OUR GREEN COVER, SO WE CAN ALL ENJOY THE BENEFITS.

Over time, change to population is inevitable but there's no reason why we can't have green cities. In fact, there are examples all over Australia of how this is already happening.

— PART TWO —

LET'S DIG DEEPER

EVERY PLACE IS DIFFERENT

A drier, inner suburb of Adelaide cannot be usefully compared to a spacious,
high rainfall part of Far North Queensland.

To understand how to improve a place, we need to first understand what kind
of place it is, and how similar places have improved their green cover.

WHITFIELD, CAIRNS, QLD.
Average annual rainfall of 2,386mm, spacious verges with
dwellings generously spaced, all surrounded by forested hills.

RICHMOND, ADELAIDE, SA.
Average annual rainfall of 536mm, narrow verges,
houses closer together in a completely urban setting.

WE USED THREE FACTORS TO DETERMINE PLACE TYPE

RAINFALL*

How much rain
falls on the place

Our numbers show places with high rainfall are anywhere from 12% to 600% greener than comparable low rainfall places.

URBANISATION

How much of the
place is built up

In places where urban areas are surrounded by bushland, higher average green cover tends to be recorded.

DENSITY

How many
people per km^2

Density helps us understand how places are designed to accommodate people, (high or low rise) and how much room is left for green cover.

*Rainfall, urbanisation, population and density figures are based on statistics provided by the Australian Bureau of Statistics and rainfall by the Bureau of Meteorology.

THE SIX PLACE TYPES

1 SUBURBAN, SPACIOUS & LOW RAINFALL

Low Rainfall | <50% urban | Low Density

5-42% green cover
- Biggest gain*: 5%
- Biggest loss*: 1%

2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

Avg-High Rainfall | <50% urban | Low Density

30-80% green cover
- Biggest gain: 10%
- Biggest loss: 4%

3 URBAN, SPACIOUS & LOW RAINFALL

Low Rainfall | 50-100% urban | Avg Density

10-50% green cover
- Biggest gain: 8%
- Biggest loss: 9%

4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

Avg-High Rainfall | 50-100% urban | Avg Density

18-68% green cover
- Biggest gain: 8%
- Biggest loss: 9%

5 URBAN, COMPACT & LOW RAINFALL

Low Rainfall | 50-100% urban | High Density

9-39% green cover
- Biggest gain: 9%
- Biggest loss: 4%

6 URBAN, COMPACT & AVG-HIGH RAINFALL

Avg-High Rainfall | 50-100% urban | High Density

14-45 % green cover
- Biggest gain: 7%
- Biggest loss: 5%

---

13 PLACES

QLD
Toowoomba Regional Council

SA
City of Onkaparinga
City of Playford

TAS
City of Clarence

VIC
City of Ballarat
City of Greater Bendigo
City of Greater Geelong
Hume City Council
Melton City Council
City of Whittlesea
Wyndham City Council

WA
City of Swan
City of Wanneroo

25 PLACES

ACT
Australian Capital Territory

NSW
Cambelltown City Council
Hornsby Shire Council
Penrith City Council
Sutherland Shire Council
The Hills Shire Council

QLD
Cairns Regional Council
City of Gold Coast
Ipswich City Council
Logan City Council
Moreton Bay Regional Council
Redland City Council
Sunshine Coast Council
Townsville City Council

SA
Adelaide Hills Council

TAS
Glenorchy City Council
Kingborough Council
City of Launceston

VIC
Cardinia Shire Council
Mornington Peninsula Shire
Nillumbik Shire Council
Yarra Ranges Council

WA
City of Armadale
City of Kalamunda
Shire of Mundaring

21 PLACES

NSW
Camden Council

SA
City of Adelaide
City of Burnside
Town of Gawler Council
City of Marion
City of Mitcham
City of Port Adelaide Enfield
City of Salisbury
City of Tea Tree Gully
City of West Torrens

VIC
Brimbank City Council
Frankston City Council
City of Greater Dandenong
Hobsons Bay City Council
City of Kingston

WA
Town of Cambridge
City of Cockburn
City of Fremantle
City of Joondalup
City of Nedlands
Shire of Peppermint Grove

20 PLACES

NSW
Blacktown City Council
Ku-ring-gai Council
Liverpool City Council
City of Newcastle
Northern Beaches Council

NT
City of Darwin
City of Palmerston

QLD
Brisbane City Council

TAS
City of Hobart

VIC
City of Casey
Knox City Council
Manningham City Council
Maroondah City Council

WA
Town of Bassendean
City of Belmont
City of Canning
City of Gosnells
City of Kwinana
City of Melville
City of Rockingham

23 PLACES

SA
Cambelltown City Council
City of Charles Sturt
City of Holdfast Bay
City of Norwood Payneham & St Peters
City of Prospect
City of Unley
Town of Walkerville

VIC
Banyule City Council
Bayside City Council
City of Boroondara
Darebin City Council
Glen Eira City Council

Maribyrnong City Council
City of Melbourne
Moonee Valley City Council
Moreland City Council
City of Port Phillip
City of Stonnington
Yarra City Council

WA
Town of Claremont
Town of Cottesloe
Town of East Fremantle
Town of Mosman Park

29 PLACES

NSW
Bayside Council
Burwood Council
City of Canada Bay
City of Canterbury Bankstown
City of Parramatta Council
City of Ryde
City of Sydney
Cumberland City Council
Fairfield City Council
Georges River Council
Hunter's Hill Council
Inner West Council
Lane Cove Council
Mosman Council
North Sydney Council

Randwick City Council
Strathfield Council
Waverley Council
Willoughby City Council
Woollahra Municipal Council

VIC
City of Monash
City of Whitehorse

WA
City of Bayswater
City of Perth
City of South Perth
City of Stirling
City of Subiaco
The City of Vincent
Town of Victoria Park

*2016-2020 figures

NOW LET'S LOOK AT EACH PLACE TYPE IN MORE DETAIL

1 SUBURBAN, SPACIOUS & LOW RAINFALL

Low Rainfall   <50% Urban   Low Density

These places tend to sit in the outer areas of Melbourne and Sydney, as well as regional towns such as Ballarat and Toowoomba. They also include some areas closer to the CBD in our smaller capitals.
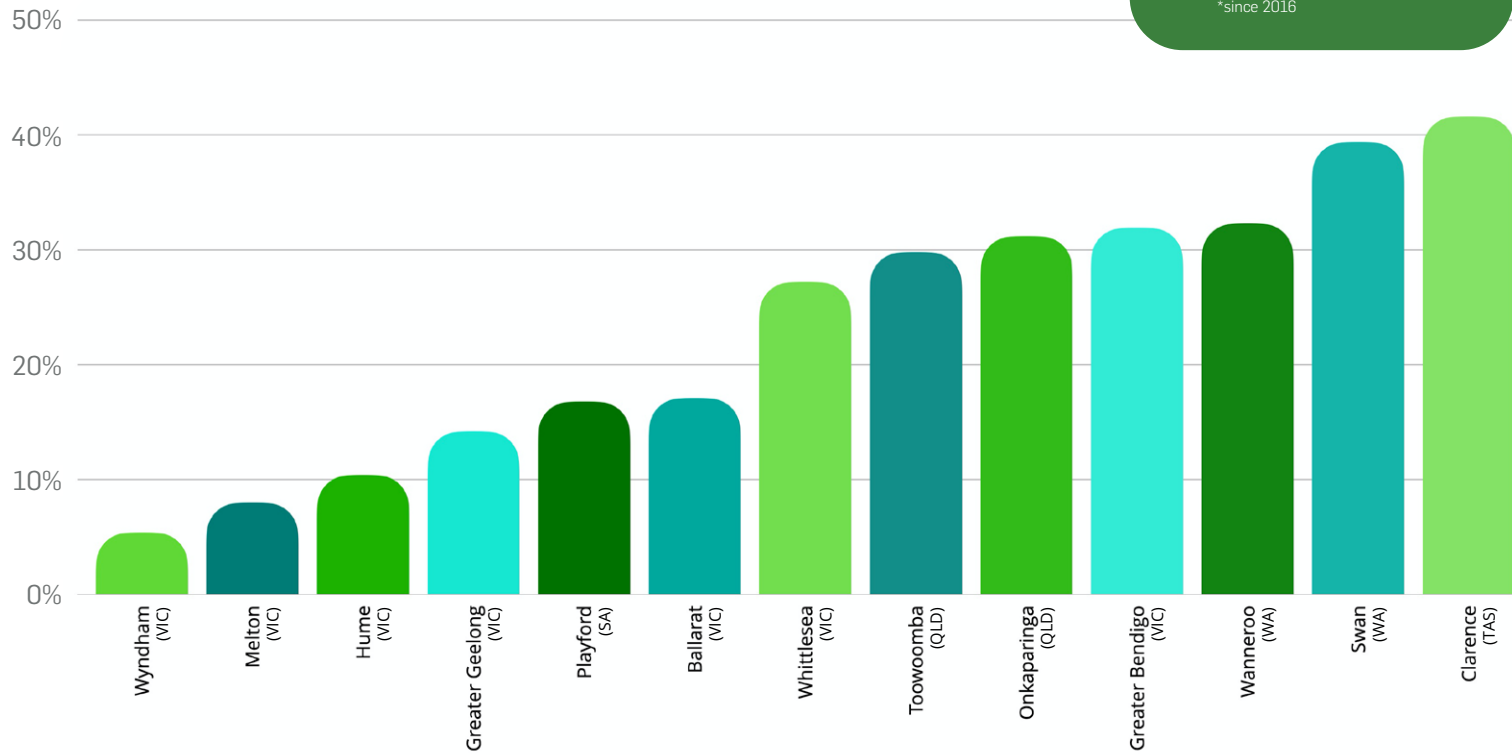
In all cases, a large part of these places is non-urban, with built up areas typically surrounded by farmland or forest.

It is in these types of larger areas with lots of grassland or forest, where results are most likely to be skewed. For detailed information on tree cover specifically in urban streets and parks, consult your local council.

1 SUBURBAN, SPACIOUS & LOW-RAINFALL

GREEN COVER

13 PLACES

🌳 **5-42% Green Cover**
⊕ Biggest gain*: **5%**
⊖ Biggest loss*: **1%**
*since 2016

Place	Green Cover
Wyndham (VIC)	~5%
Melton (VIC)	~8%
Hume (VIC)	~10%
Greater Geelong (VIC)	~14%
Playford (SA)	~17%
Ballarat (VIC)	~17%
Whittlesea (VIC)	~27%
Toowoomba (QLD)	~30%
Onkaparinga (QLD)	~31%
Greater Bendigo (VIC)	~32%
Wanneroo (WA)	~32%
Swan (WA)	~39%
Clarence (TAS)	~42%

1 SUBURBAN, SPACIOUS & LOW-RAINFALL

At street level, you will see streets with wide verges and dwellings that are well spaced apart.
Places with the highest green cover tend to feature urban areas surrounded by forested land,
or nestled into forested land, as seen in the background of some images.

City of Wyndham, VIC: **5.4**% green cover

City of Playford, SA: **16.8**% green cover

City of Whittlesea, VIC: **27.2**% green cover

Toowoomba Regional Council, QLD: **29.8**% green cover

City of Swan, WA: **39.4**% green cover

City of Clarence, TAS: **41.6**% green cover

1 SUBURBAN, SPACIOUS & LOW-RAINFALL

5% Green Cover

41% Green Cover

Green cover ranges from **41%** coverage (at its highest) and **5%** at its lowest.

This render shows the range in green cover for places in this typology.
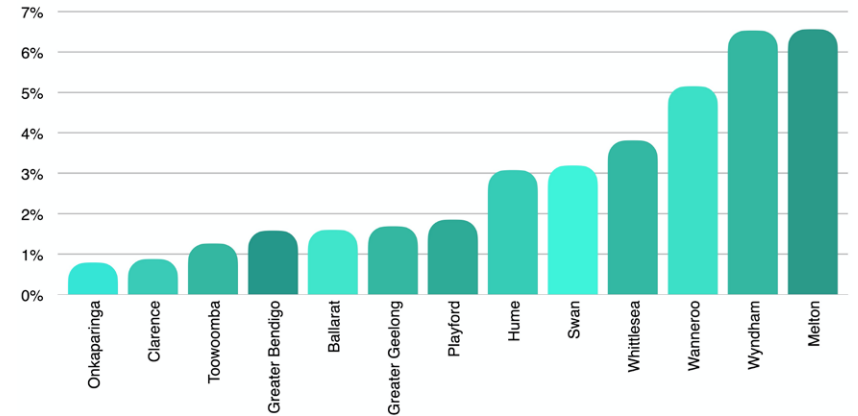
1 SUBURBAN, SPACIOUS & LOW-RAINFALL

Looking at the data from Place Type 1, we see that a majority of places are increasing their green cover. Population growth is variable. Around half are seeing increased grey cover, but at the same time tree canopy is also increasing.
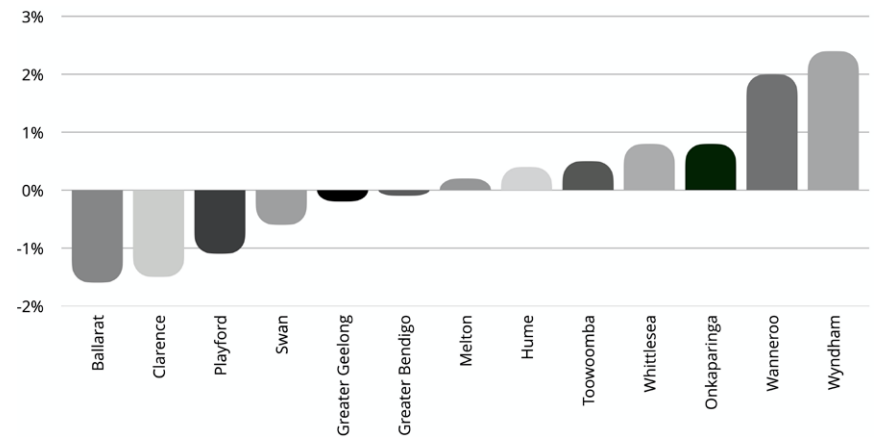
CHANGE IN GREEN COVER 2016-2020
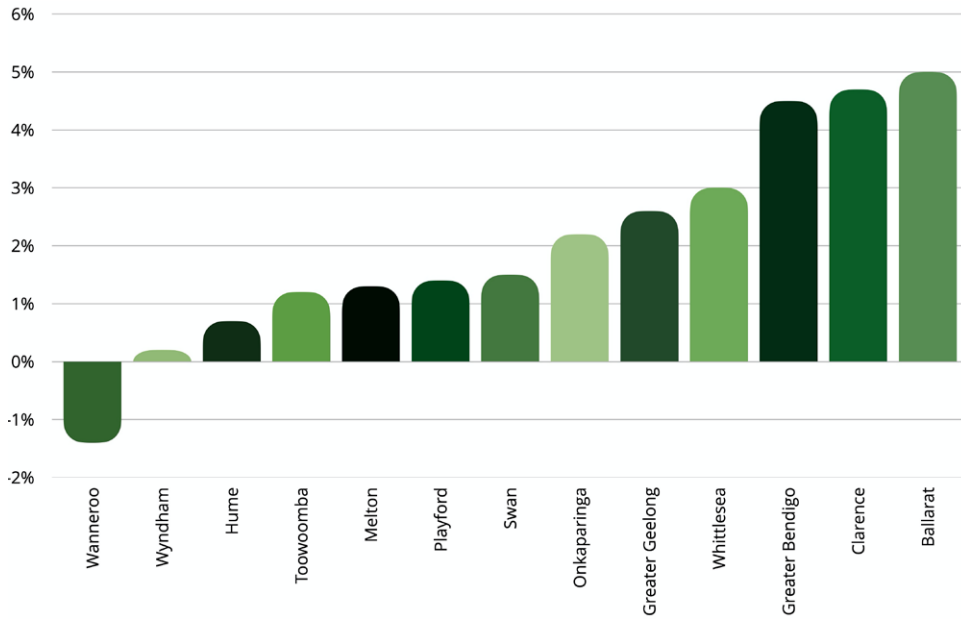
AVERAGE ANNUAL POP GROWTH 2001-2019
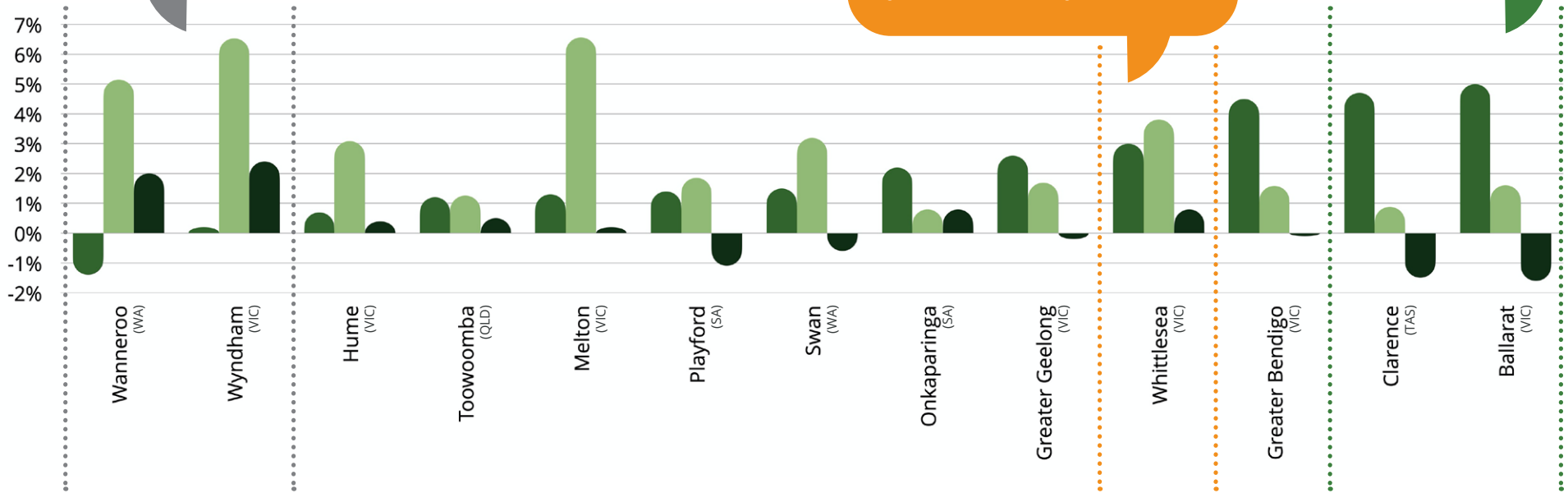

CHANGE IN GREY COVER 2016-2020

1 SUBURBAN, SPACIOUS & LOW-RAINFALL

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale population growth is matched with significant increase in grey cover and loss or stagnation of green cover.

City of Whittlesea (VIC) is our best on ground. Green cover is increasing alongside population and grey cover, indicating that as the place grows, so too is its green cover.

At this end of the scale low population growth might indicate that there is less demand for increased building of roads and other hard spaces. Without this type of competition for space, it's easier to increase green cover.

Chart categories: Wanneroo (WA), Wyndham (VIC), Hume (VIC), Toowoomba (QLD), Melton (VIC), Playford (SA), Swan (WA), Onkaparinga (SA), Greater Geelong (VIC), Whittlesea (VIC), Greater Bendigo (VIC), Clarence (TAS), Ballarat (VIC)

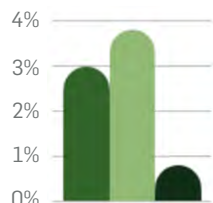Legend: CHANGE IN GREEN COVER 2016-2020 · AVERAGE ANNUAL POP GROWTH 2001-2019 · GREY COVER CHANGE 2016-2020

CITY OF WHITTLESEA

VICTORIA

Based on historic policies it appears as though the City of Whittlesea has quite stringent tree removal and pruning rules. They also have a free street tree planting program.

It appears that some of the key drivers for increasing green cover in the City of Whittlesea include an acknowledgment of the issues surrounding urban heat and benefits of green cover.

City of Whittlesea

4%
3%
2%
1%
0%

■ CHANGE IN GREEN COVER 2016-2020

■ AVERAGE ANNUAL POP GROWTH 2001-2019

■ GREY COVER CHANGE 2016-2020

There has been a **1%** increase in hard surfaces throughout Whittlesea alongside a **3.8%** (high) rate of population growth. There has been a **3%** transformation of bare ground to green cover and no loss of existing canopy. Should this positive trend continue we would expect to see an increase in tree cover over coming years. Urban greening is a real priority within this council, and the greening pipeline appears strong.

WHAT DOES THE CITY OF WHITTLESEA DO WELL?

A clear vision of the future:

The City of Whittlesea's urban tree planting sets out to both protect the trees and green cover they already have, and increase the number of trees in areas that will have the greatest impact on future liveability. Ensuring that the right trees are planted in the right place is a key priority.

Right tree, right location:

The City of Whittlesea is working to ensure that the selection of tree species used in streets and parks continues to evolve and adapt to local needs and conditions.

Rules are rules:

The City of Whittlesea have a long history of stringent tree removal and pruning policies - particularly when it comes to removing and pruning significant trees on private land.

Encouraging community planting – we need your help!

Free tree giveaways are also a measure through which the City of Whittlesea encourage tree planting on private land in the rural hinterlands. Given that 85% of land is privately owned across the LGA, the council is very clear in its invitation to the community to help.

Formalise outcomes within the community strategic plan:

Whittlesea's urban greening is formalised within their overarching community strategic plans and goals, including:

• 'Protect and Manage' - Preserve existing trees and green cover on Council and non-council land.

• 'Enhance' - Grow the tree population and green cover to achieve a 20% canopy increase for the city. The Council plants almost 8,000 street trees every year

• 'Engage' - Inspire community support for the Greening Whittlesea Strategy and contribution towards achieving the shared strategic vision

• 'Built Environment' - Construct infrastructure that contributes to the greening of the city

Currently Whittlesea is preparing their Greening Whittlesea Plan for endorsement by Council.

Protect and retain:

Whittlesea has a 'River Red Gum Tree Protection Policy' which has been instrumental in protecting the endemic species in their growth areas.

2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

Avg-High Rainfall   <50% Urban   Low Density

Similar to Type 1 places, these are typically sprawling suburbs surrounded by farmland and forest that sit around the edges of our major cities.

These places are set apart from Type 1 as they have higher average annual levels of rainfall.

It is in these types of larger areas with lots of grassland or forest, where results are most likely to be skewed. For detailed information on tree cover specifically in urban streets and parks, consult your local council.
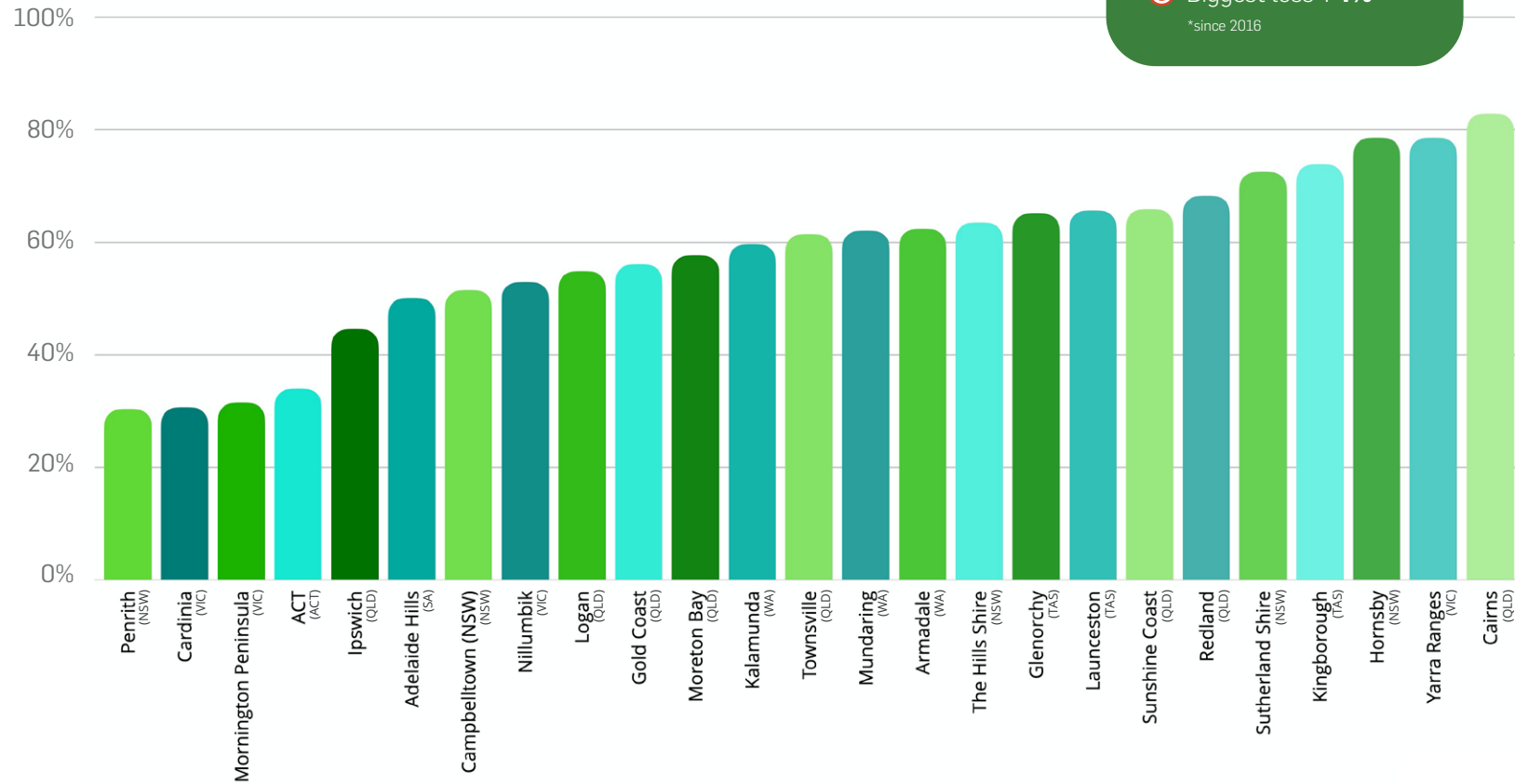
2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

GREEN COVER

25 PLACES

- 🌳 **30-80% Green Cover**
- ⊕ Biggest gain*: **10%**
- ⊖ Biggest loss*: **4%**

*since 2016

2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

At street level, you will see streets with wide verges and dwellings that are well spaced apart. The places with the highest green cover tend to feature urban areas surrounded by forested land, or indeed nestled into forested land, as seen in the background of some images.

Penrith City Council, NSW: **30.4%** green cover

Adelaide Hills Council, SA: **50.1%** green cover

Moreton Bay Regional Council, QLD: **57.7%** green cover

City of Armadale, WA: **62.4%** green cover

Sutherland Shire Council, NSW: **72.6%** green cover

Cairns Regional Council, QLD: **82.9%** green cover

2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

30% Green Cover

83% Green Cover

Green cover ranges from **83%** coverage (at its highest) and **30%** at its lowest.

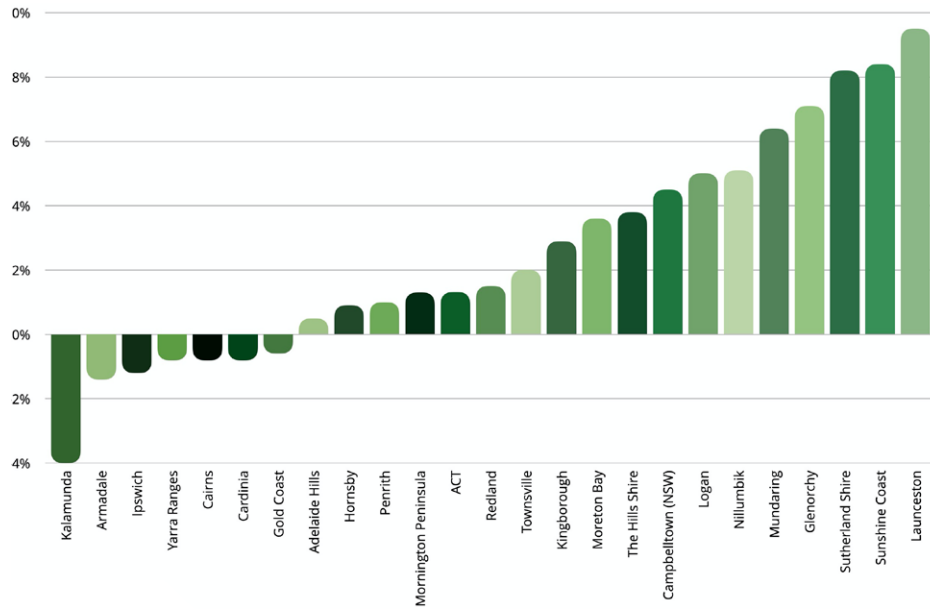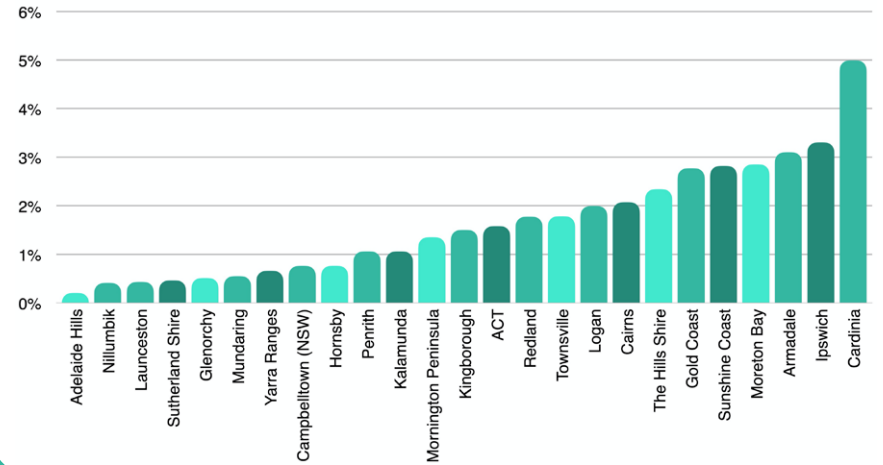This render shows the range in green cover for places in this typology.

2 SUBURBAN, SPACIOUS & AVG-HIGH RAINFALL

Looking at the data from Place Type 2, we see that a majority of places are increasing their green cover. Population growth varies from almost zero to over 5%pa. A majority of places are reducing grey cover through growth of tree canopy.
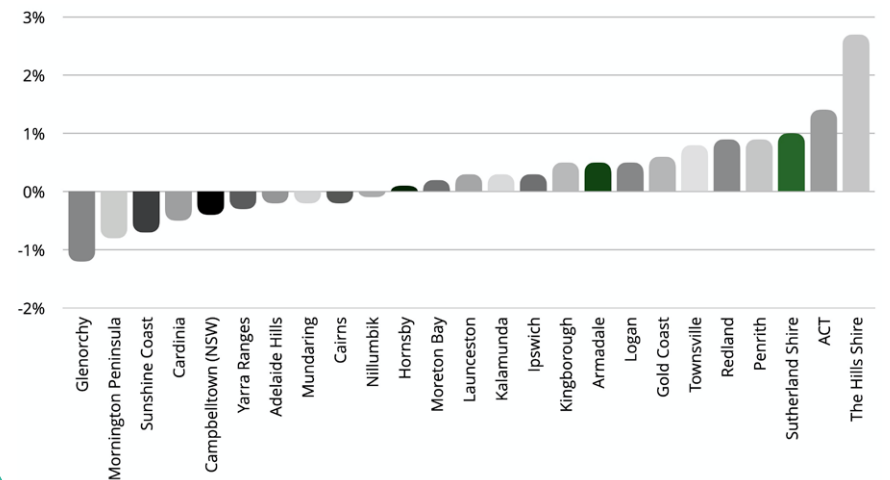
CHANGE IN GREEN COVER 2016-2020

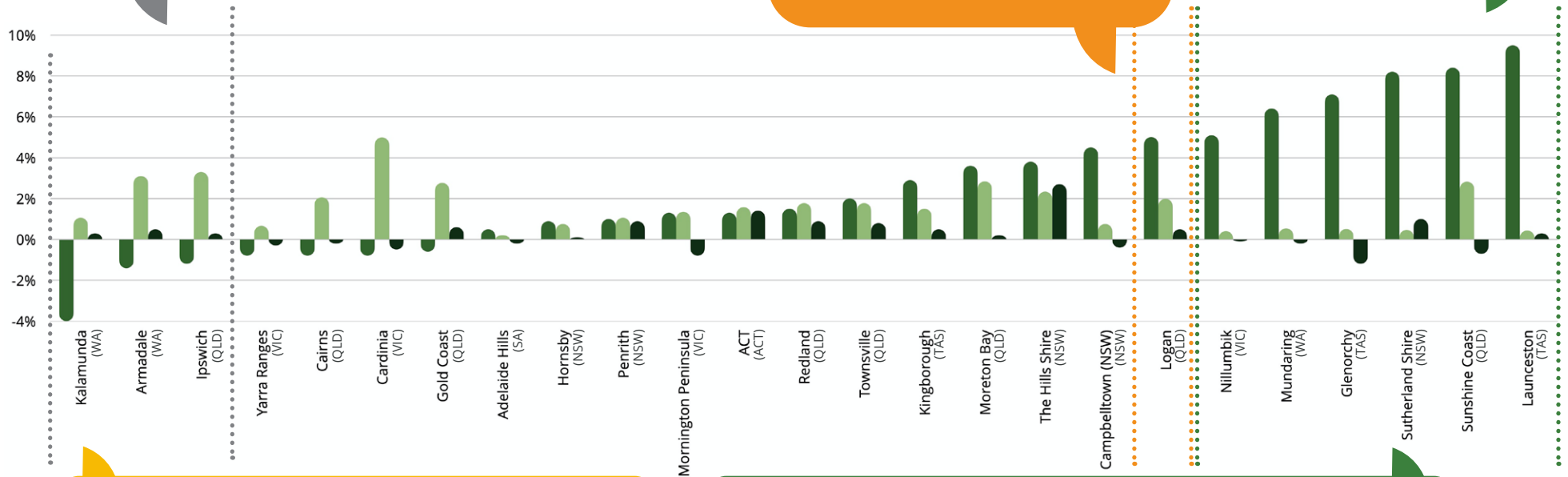## AVERAGE ANNUAL POP GROWTH 2001-2019

CHANGE IN GREY COVER 2016-2020

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale, we see that where there are lower rates of population growth, there is less competition between grey space and green space, with the Sunshine Coast Council (QLD) as a potential exception.

Logan City Council (QLD) is our best on ground, recording a significant increase in green cover alongside population and increase in hard space. The Hills Shire (NSW) is also a place worth watching.

At this end of the scale, we see increases in population along with decreased green cover.

Chart categories (left to right): Kalamunda (WA), Armadale (WA), Ipswich (QLD), Yarra Ranges (VIC), Cairns (QLD), Cardinia (VIC), Gold Coast (QLD), Adelaide Hills (SA), Hornsby (NSW), Penrith (NSW), Mornington Peninsula (VIC), ACT (ACT), Redland (QLD), Townsville (QLD), Kingborough (TAS), Moreton Bay (QLD), The Hills Shire (NSW), Campbelltown (NSW), Logan (QLD), Nillumbik (VIC), Mundaring (WA), Glenorchy (TAS), Sutherland Shire (NSW), Sunshine Coast (QLD), Launceston (TAS)
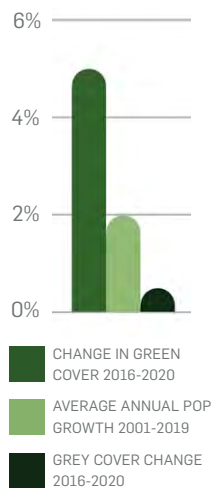
Y-axis: 10%, 8%, 6%, 4%, 2%, 0%, -2%, -4%

Kalamunda needs a special mention as it was significantly affected by bushfire. As such, much green cover loss was to bare earth or grassland rather than grey cover.

While the i-Tree Tool is great for providing an overall assessment of canopy, it does not always tell an accurate account of urban canopy. Sutherland Shire (NSW) has acquired detailed vegetation analysis which indicates an increase in canopy in National Parks, Crown Lands and along riparian zones, though canopy in private property and the public domain has declined.

CHANGE IN GREEN COVER 2016-2020   AVERAGE ANNUAL POP GROWTH 2001-2019   GREY COVER CHANGE 2016-2020

LOGAN CITY COUNCIL

QUEENSLAND

One size doesn't fit all: unlike other councils in this category, Logan City Council is surrounded by bushland and native vegetation which makes their approach to urban forestry a slightly more hybridised model requiring a mix of traditional conservation and forestry efforts as well as urban forestry approaches.

LOGAN
CITY COUNCIL

6%
4%
2%
0%

CHANGE IN GREEN COVER 2016-2020

AVERAGE ANNUAL POP GROWTH 2001-2019

GREY COVER CHANGE 2016-2020

Logan is one of the most populated places in QLD who's population is increasing at an at an annual rate of **2%** per annum. There are very few apartments, so it's great news that as the population grows, so too is overall green cover, by **5%.** Some of this is coming from hard surfaces, but much is also coming from bare ground. The big increase of tree canopy from 41% in 2016 to 53% in 2020 is also promising.

Logan Rivers and Wetlands Recovery Plan 2014–2024

WHAT DOES LOGAN CITY COUNCIL DO WELL?

Purchase to protect:

In 2019, Logan City Council used Environmental Levy funds to purchase a 47 hectare parcel of land called Bahrs Scrub for conservation and regeneration.

The purchase of this land contributes significantly to the council's green infrastructure network. Given the type of land within the City of Logan, there is a lot of emphasis on the preservation of wildlife and habitat corridors and Voluntary Conservation Covenants on land.

Recognising the value of green infrastructure:

The environmental levy is spent on initiatives such as waterway enhancement and recovery, ecosystem protection and the Conservation Incentive Program, as well as inspiring the community to connect with nature through the Environmental Events and Activities program. In Financial Year 19/20, $9.2 million was levied through rates and $823,444 was collected through Environmental Land Sales and Other Income. Of this, $821,700 was spent on environmental park infrastructure enhancements, $3.4 million on bushland maintenance and bush care and $2.7 million spent on connecting landscapes, river recovery and nature conservation.

Tree giveaway:

Tree giveaways to residents and community groups is a successful way in which the Council continues to encourage urban greening on private land. During FY19/20, 12,910 free native plants were provided to the community through various conservation programs.

Register to protect significant trees:

Council has a registry of significant trees that are afforded greater protection under planning laws. Members of the community are encouraged to nominate trees that they think are significant to the registry.

3 URBAN, SPACIOUS & LOW RAINFALL

Low Rainfall　　　50-100% Urban　　　Low Density

Like Type 1 and Type 2 places, these places tend to sit in the outer areas of our cities, with some exceptions such as City of Adelaide. Places of this kind do not generally contain large areas of bush or farmland within their borders, so are more highly urbanised than Type 1 & 2 places.

These are places where you'd be more likely to find more 'hard infrastructure' to support growing populations, like shopping centres, roads, carparks, and industrial and commercial centres.

3 URBAN, SPACIOUS & LOW RAINFALL
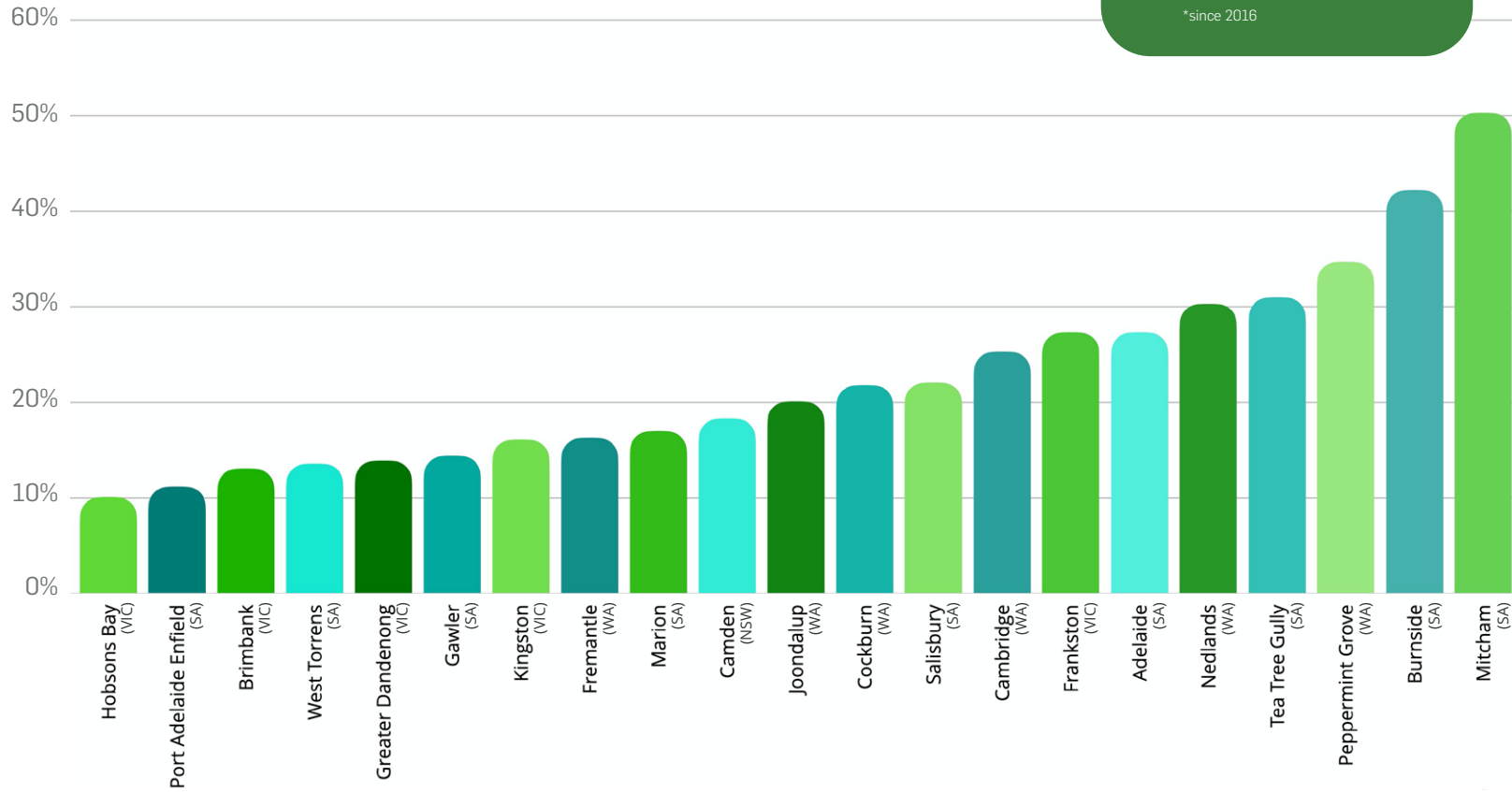
GREEN COVER

21 PLACES

- 🌳 **10-50% Green Cover**
- ⊕ Biggest gain*: **8%**
- ⊖ Biggest loss*: **9%**

*since 2016

Bar chart of green cover percentages:

Place	Green Cover
Hobsons Bay (VIC)	~10%
Port Adelaide Enfield (SA)	~11%
Brimbank (VIC)	~13%
West Torrens (SA)	~13%
Greater Dandenong (VIC)	~14%
Gawler (SA)	~14%
Kingston (VIC)	~16%
Fremantle (WA)	~16%
Marion (SA)	~17%
Camden (NSW)	~18%
Joondalup (WA)	~20%
Cockburn (WA)	~21%
Salisbury (SA)	~22%
Cambridge (WA)	~25%
Frankston (VIC)	~27%
Adelaide (SA)	~27%
Nedlands (WA)	~30%
Tea Tree Gully (SA)	~31%
Peppermint Grove (WA)	~35%
Burnside (SA)	~42%
Mitcham (SA)	~50%

3 URBAN, SPACIOUS & LOW RAINFALL

At street level, you will see streets with wide verges and dwellings well spaced apart. Ample urban parklands contribute to green cover.

Hobsons Bay City Council, VIC: **10.1**% green cover

City of West Torrens, SA: **13.6**% green cover

City of Fremantle, WA: **16.3**% green cover

City of Salisbury, SA: **22.1**% green cover

City of Nedlands, WA: **30.3**% green cover

City of Mitcham, SA: **50.3**% green cover

10% Green Cover

50% Green Cover

Green cover ranges from **50%** coverage (at its highest) and **10%** at its lowest.

This render shows the range in green cover for places in this typology.

3 URBAN, SPACIOUS & LOW RAINFALL

Looking at the data from Place Type 3, we see that a majority of places are increasing their green cover. Population growth rate varies from almost zero to over 5%pa. A majority of places are reducing grey cover through growth of tree canopy.
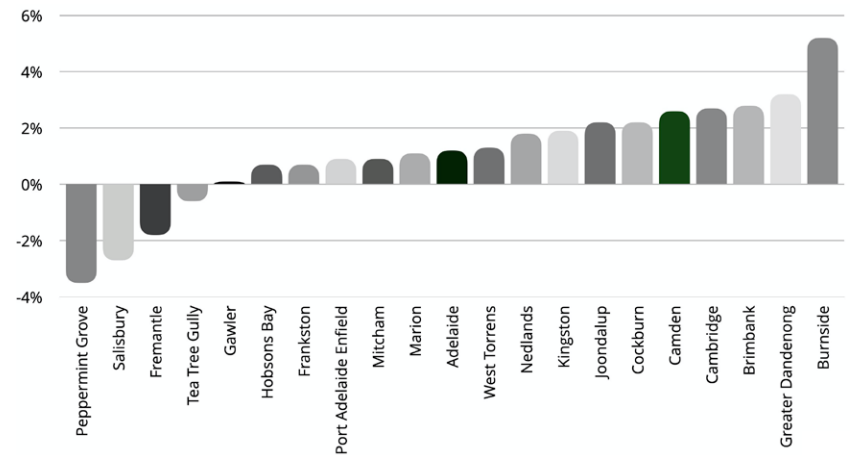
CHANGE IN GREEN COVER 2016-2020
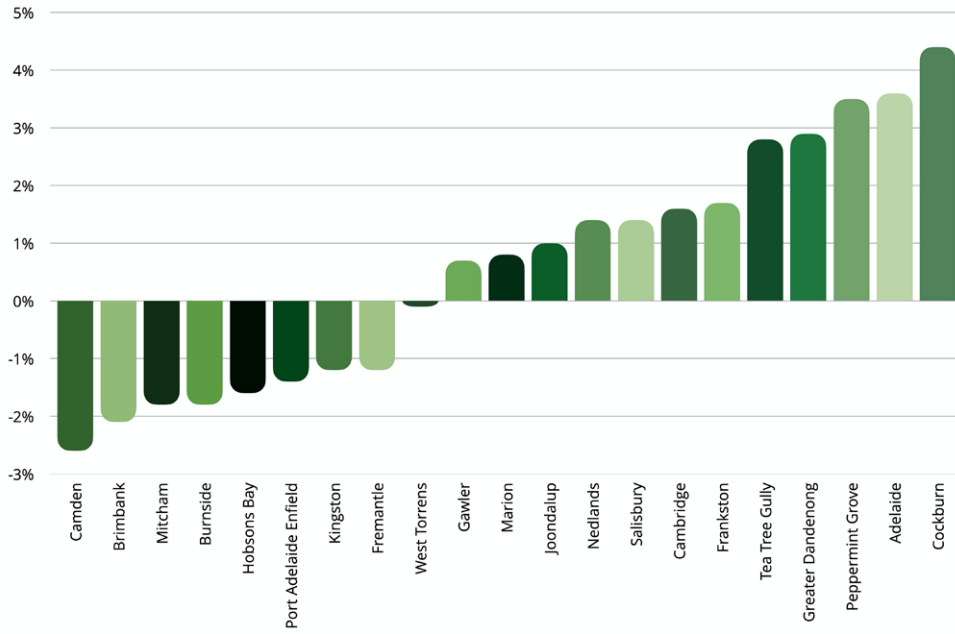
AVERAGE ANNUAL POP GROWTH 2001-2019
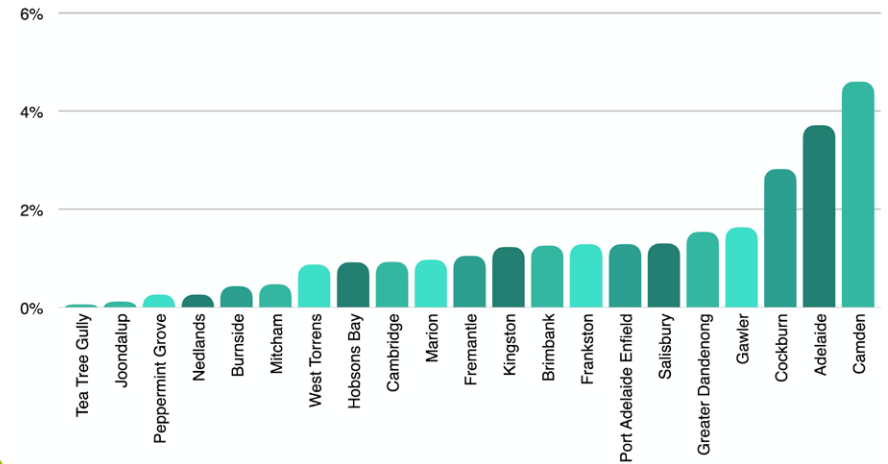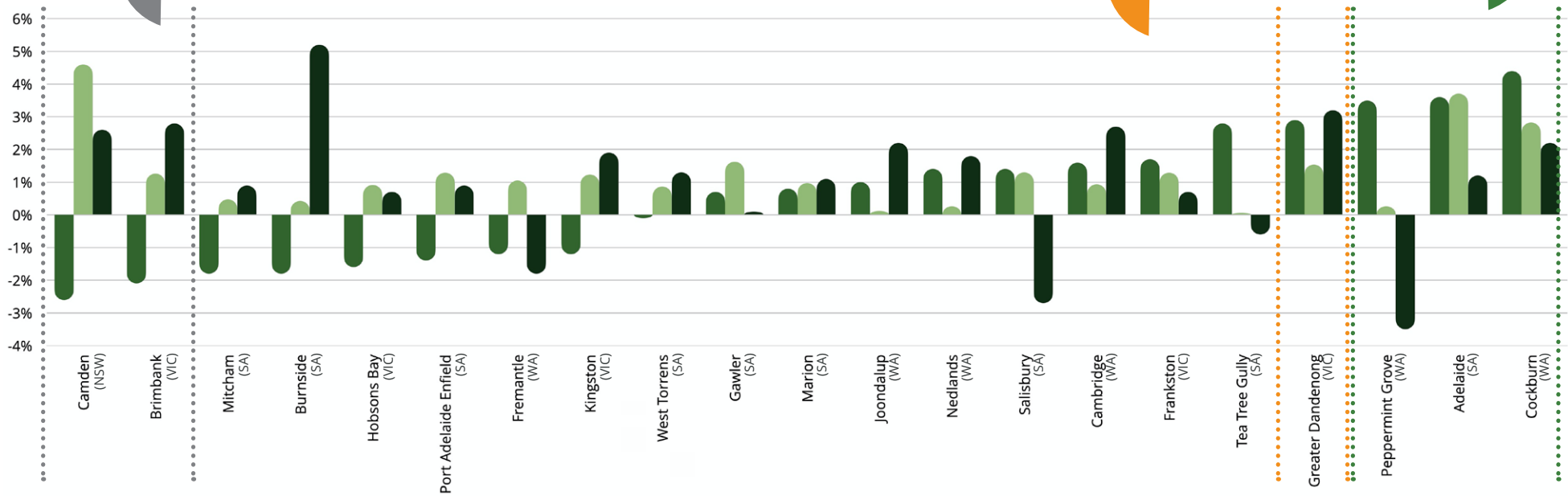

CHANGE IN GREY COVER 2016-2020

3 URBAN, SPACIOUS & LOW RAINFALL

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale, we can see high population growth coinciding with loss of green cover and increase in grey cover.

City of Greater Dandenong (VIC) is our best on ground. The City is ensuring that while hard infrastructure is growing rapidly, green cover is keeping up.

At this end of the scale we can see population growth, matched with an increase of hard surfaces and an increase in green cover. City of Adelaide (SA) & City of Cockburn (WA) are demonstrating a reversal of canopy that was lost between 2013 and 2016 at a good rate of recovery.


Chart categories (x-axis):
Camden (NSW), Brimbank (VIC), Mitcham (SA), Burnside (SA), Hobsons Bay (VIC), Port Adelaide Enfield (SA), Fremantle (WA), Kingston (VIC), West Torrens (SA), Gawler (SA), Marion (SA), Joondalup (WA), Nedlands (WA), Salisbury (SA), Cambridge (WA), Frankston (VIC), Tea Tree Gully (SA), Greater Dandenong (VIC), Peppermint Grove (WA), Adelaide (SA), Cockburn (WA)

Legend:
- CHANGE IN GREEN COVER 2016-2020
- AVERAGE ANNUAL POP GROWTH 2001-2019
- GREY COVER CHANGE 2016-2020

CITY OF GREATER DANDENONG

VICTORIA

The City of Greater Dandenong is made up of sprawling suburban areas, combined with large commercial / industrial land uses and surrounded by Green Wedge zoned land which has very little tree canopy cover and has multiple uses from agriculture, rural living, sports facilities and the Eastern Treatment Plant.

CHANGE IN GREEN COVER 2016-2020

AVERAGE ANNUAL POP GROWTH 2001-2019

GREY COVER CHANGE 2016-2020
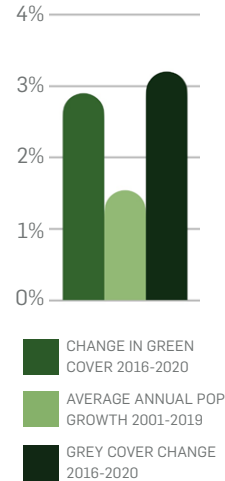
While Dandenong has relatively low green space cover compared to many areas like it, it has seen a **2.9%** increase in green cover since 2016. This is a significant upward trend. At the same time, there is an increase in hard spaces - most likely through the transformation or development of grass and bare ground into housing or commercial developments. It's ever-growing population mostly live in low density single story houses and only **10%** of housing is apartments.

WHAT DOES DANDENONG DO WELL?

Good analysis means a good plan:

The City of Greater Dandenong have a number of urban greening plans, but the most critical is the 'Greening Our City Urban Tree Strategy 2018-2028'. This ten-year plan outlines the city's vision for a "healthy, green and resilient urban forest that is well managed, protected and provides benefits to the community". The Urban Tree Strategy speaks directly to the councils overarching community plan and sits alongside three other key documents including the Green Wedge Management Plan, Open Space Strategy, and Sustainability Strategy.

Promote good technical expertise and tree management:

This work is formalised within two documents - the Technical and Management Guidelines and the Street and Park Tree Planting Program, and expressed in projects such as the Gateway Planting of Ornamental Pear Trees along major arterial roads, not just adding shade but also contributing to the aesthetics of the street.

Identification of Vacant Street Tree Sites:

Having undertaken an extensive tree inventory, the City were able to identify and accelerate street tree planting resulting in the removal of around 935 (poorly growing or sick) trees per year and planting 1,700 new trees, resulting in a current net gain of approximately 765 trees per year.

Focus on planting to alleviate urban heat:

Another benefit of measuring and analysing urban tree coverage is to identify priority planting opportunities to achieve the greatest impact. The City is prioritising planting on feeder roads that link residential streets to core activity centres, to public spaces, pedestrian corridors, priority routes between key destinations and activity centres, and on main streets and boulevards.

Engage and educate the community on the value of trees:

The Greater Dandenong City Council has undertaken a range of initiatives to help educate the community in choosing the appropriate

tree species for their space and promote the benefits of urban trees in cooling their homes and streets. Initiatives include: greater community consultation and education to a more diverse range of community members; improved access to web-based information about Greater Dandenong's trees in various languages; the development of a community tree planting program; strong council leadership on tree planting in the media; strengthening relationships with developers; and enforcing guidelines on street tree planting in new developments. One example of these types of programs is the 'Adopt-a-Park' pilot project for kindergartens.

Urban greening as a response to the climate emergency:

On January 28, 2020 the Greater Dandenong City Council declared a 'climate emergency' committing Council to emergency action on climate change. The Climate Emergency Strategy was adopted by council on August 24, 2020.
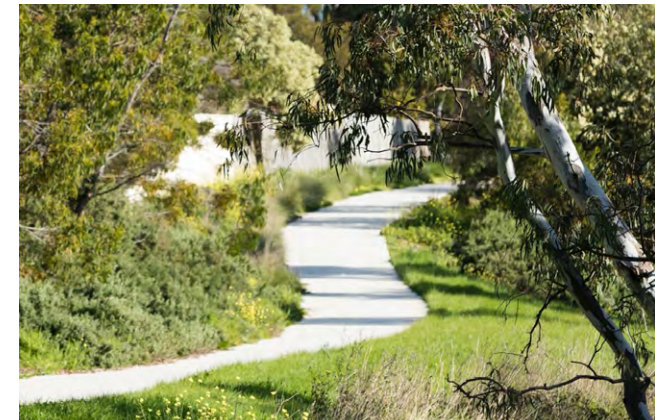
4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

Avg-High Rainfall   **50-100% Urban**   **Average Density**

Like Type 1 and Type 2 places, these places tend to sit in the outer areas of our cities, with the exception of Brisbane City Council (which covers the CBD as well as a large part of Brisbane's metro area). Places of this type do not generally contain large areas of bush or farmland within their borders, so are more highly urbanised than Type 1 & 2 places.

Type 4 places are similar to Type 3 places, but with higher rainfall.
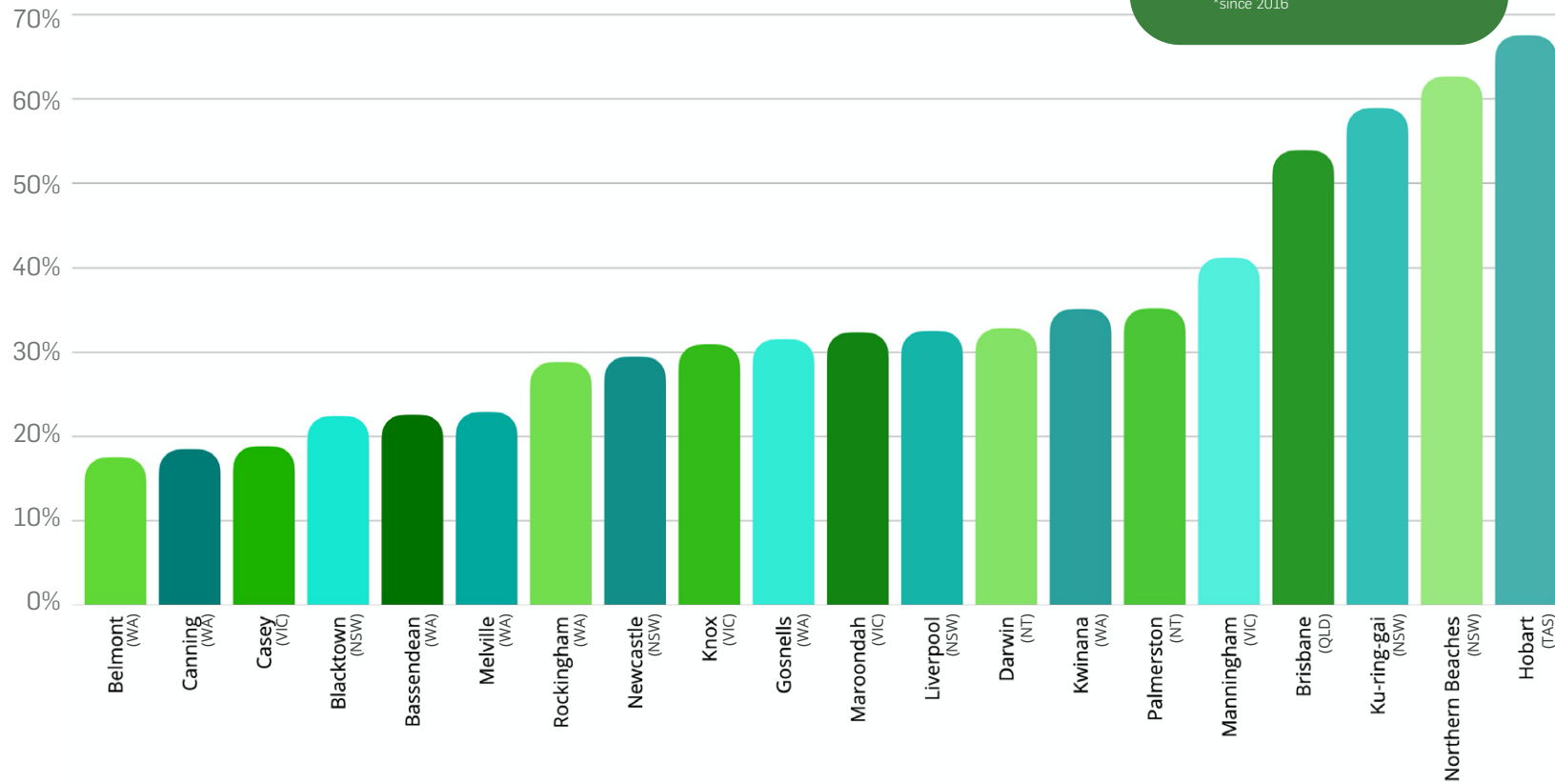
4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

GREEN COVER

20 PLACES

🌳 **18-68% Green Cover**
⊕ Biggest gain*: **8%**
⊖ Biggest loss*: **9%**
*since 2016

Chart — Green Cover (%) by place:

Place	
Belmont (WA)	~17%
Canning (WA)	~18%
Casey (VIC)	~18%
Blacktown (NSW)	~22%
Bassendean (WA)	~22%
Melville (WA)	~22%
Rockingham (WA)	~28%
Newcastle (NSW)	~29%
Knox (VIC)	~30%
Gosnells (WA)	~31%
Maroondah (VIC)	~32%
Liverpool (NSW)	~32%
Darwin (NT)	~32%
Kwinana (WA)	~35%
Palmerston (NT)	~35%
Manningham (VIC)	~41%
Brisbane (QLD)	~54%
Ku-ring-gai (NSW)	~59%
Northern Beaches (NSW)	~62%
Hobart (TAS)	~67%

4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

At street level, you will see streets with wide verges and ample lot sizes with well-spaced dwellings.
Places with the highest green cover tend to feature urban areas surrounded by forested land, or indeed
nestled into forested land, as seen in the background of some images.

City of Belmont, WA: **17.5**% green cover.

Blacktown City Council, NSW: **22.4**% green cover.

Maroondah City Council, VIC: **32.2**% green cover.

City of Palmerston, NT: **35.2**% green cover.

Ku-ring-gai Council, NSW: **58.9**% green cover.

City of Hobart, TAS: **67.6**% green cover.

4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

17% Green Cover

67% Green Cover

Green cover ranges from **67%** coverage (at its highest) and **17%** at its lowest.

This render shows the range in green cover for places in this typology.
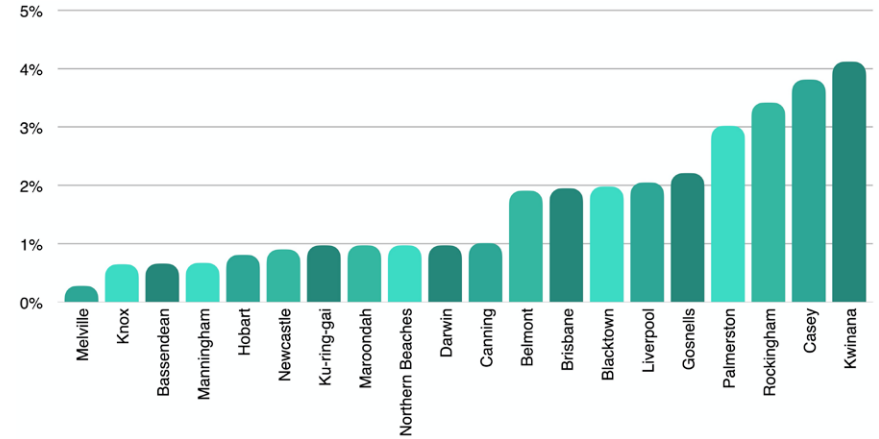
4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

Looking at the data from Place Type 4, we see that half of places are increasing their green cover, while the other half are losing theirs. Population growth varies from almost zero to over 4%pa. A majority of places are reducing grey cover through growth of tree canopy.
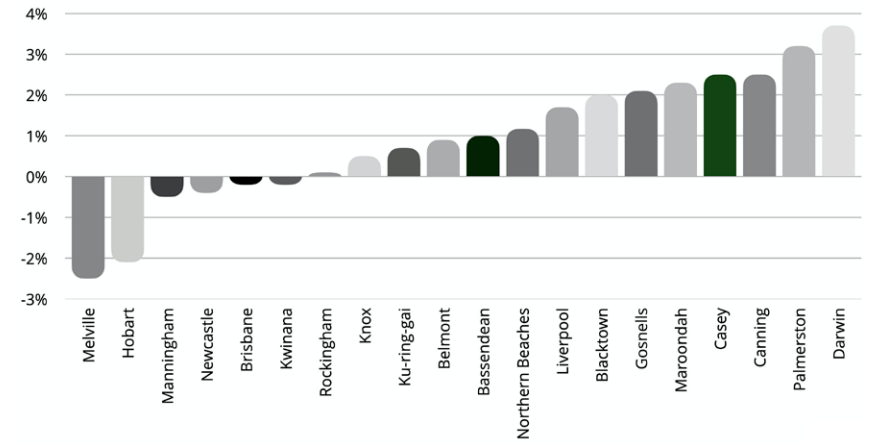
CHANGE IN GREEN COVER 2016-2020
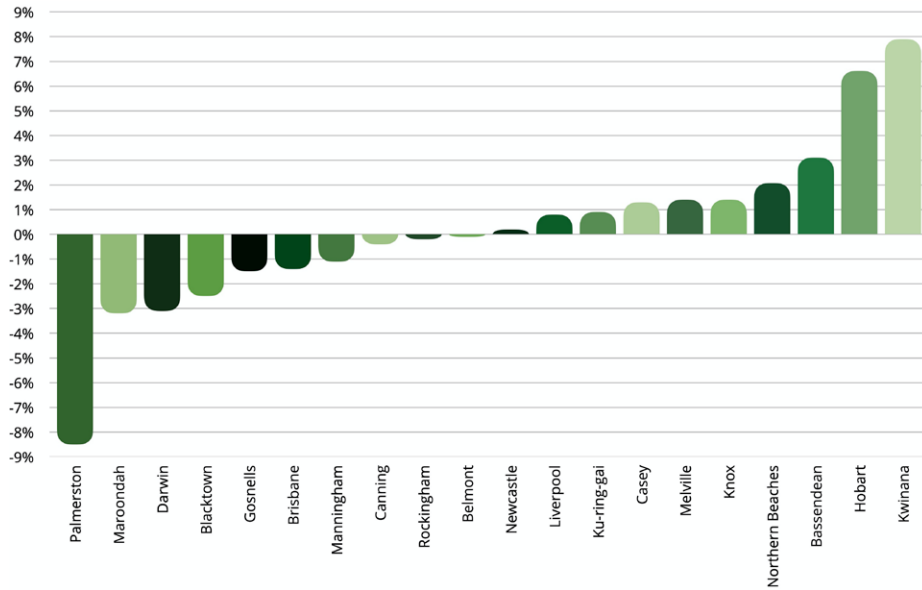
AVG ANNUAL POP GROWTH 2001-2019
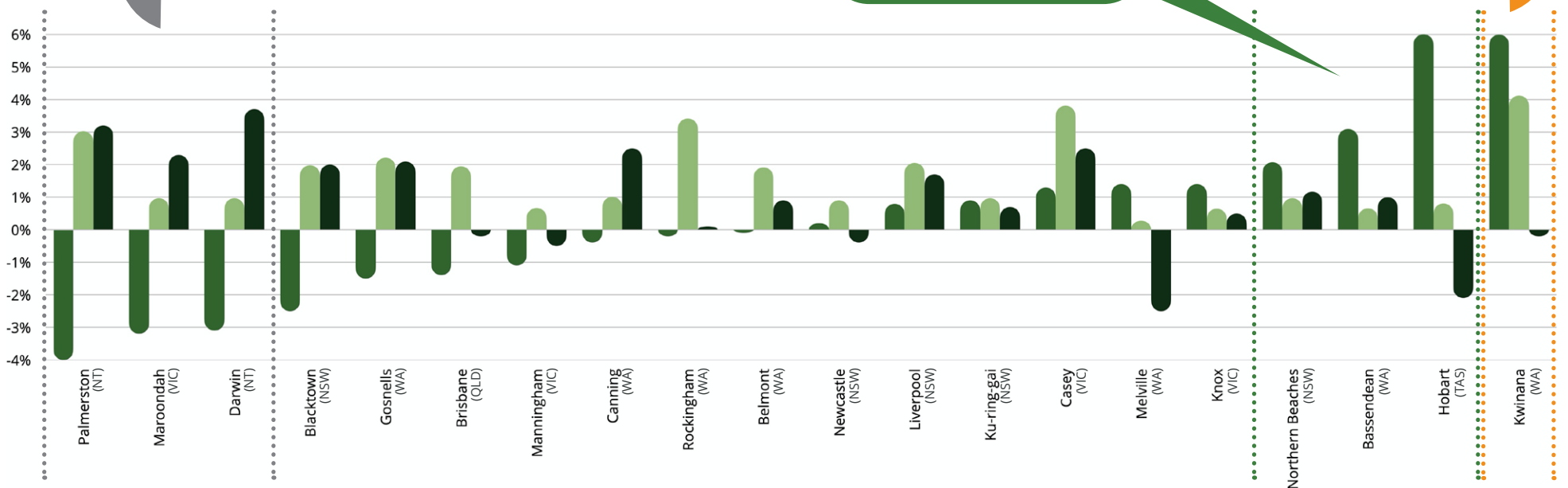

CHANGE IN GREY COVER 2016-2020

4 URBAN, SPACIOUS & AVG-HIGH RAINFALL

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale, population growth is matched with significant increase in grey cover and significant loss of green cover.

At this end of the scale, we see places where population growth has not come at the expense of green cover.

City of Kwinana is our best on ground, managing to have both the highest level of population growth and green cover growth in the category.

X-axis categories: Palmerston (NT), Maroondah (VIC), Darwin (NT), Blacktown (NSW), Gosnells (WA), Brisbane (QLD), Manningham (VIC), Canning (WA), Rockingham (WA), Belmont (WA), Newcastle (NSW), Liverpool (NSW), Ku-ring-gai (NSW), Casey (VIC), Melville (WA), Knox (VIC), Northern Beaches (NSW), Bassendean (WA), Hobart (TAS), Kwinana (WA)

Legend:
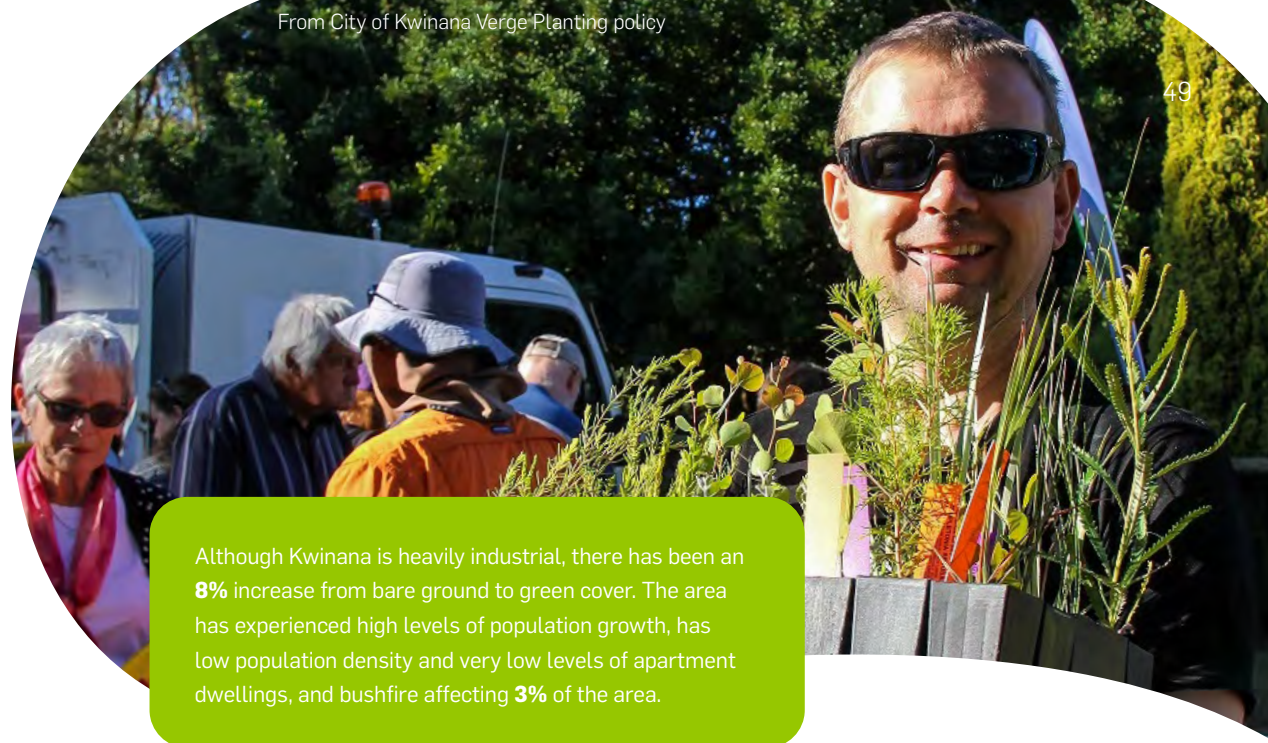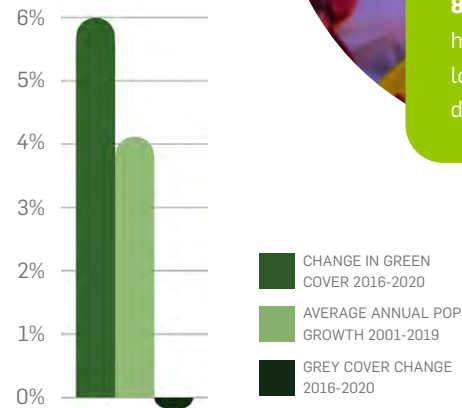- CHANGE IN GREEN COVER 2016-2020
- AVERAGE ANNUAL POP GROWTH 2001-2019
- GREY COVER CHANGE 2016-2020

KWINANA CITY COUNCIL

WESTERN AUSTRALIA

Kwinana City Council Has managed to achieve very good green cover growth. The local council have a long established street tree planting policy which has been in place since 1992.

From City of Kwinana Verge Planting policy

Although Kwinana is heavily industrial, there has been an **8%** increase from bare ground to green cover. The area has experienced high levels of population growth, has low population density and very low levels of apartment dwellings, and bushfire affecting **3%** of the area.

From City of Kwinana Verge Planting policy

From City of Kwinana Verge Planting policy

City of Kwinana

■ CHANGE IN GREEN COVER 2016-2020

■ AVERAGE ANNUAL POP GROWTH 2001-2019

■ GREY COVER CHANGE 2016-2020

WHAT DOES KWINANA CITY COUNCIL DO WELL?

Take it to the verge:
The City of Kwinana has a policy in place to ensure that street verges within the area are developed to a consistent standard. Residents can request a verge tree and the City will install and water the tree for 2 years for establishment.

(At least) one tree for every household:
Land owners are entitled to at least one tree per verge frontage (with more encouraged), with each property allocated one tree (and corner properties allocated two). In new subdivisions, the developer is required to install street trees at a minimum rate of one per lot.

Invest in community groups to plant trees:
Kwinana collaborated with the Government of Western Australia to provide a greening fund helping community groups plant native trees to the Perth metropolitan area.

Focus on Industrial Area Landscape:
This program recognises the importance of industrial lands and of the aesthetics of the industrial area. 120 trees were planted in the streets of the Kwinana Industrial Area.

Street Tree planting program for cooler streets:
To improve prominent streetscapes throughout the city, 90 trees were planted along McWhirter Promenade (formally Johnson Road) in Wellard and 132 trees along Orelia Avenue in Orelia.

5 URBAN, COMPACT & LOW RAINFALL

Low Rainfall   50-100% Urban   High Density

These places tend to be the inner suburbs of major cities in SA, VIC & WA and include the City of Melbourne CBD. In these places you can expect to see high density residential apartment dwellings, and homes that are within close proximity to jobs and major transport, health and education infrastructure. There is a mixture of established suburbs, and urban infill as a result of upzoning.

These are urban centres where a large proportion of Australians live, work and play.

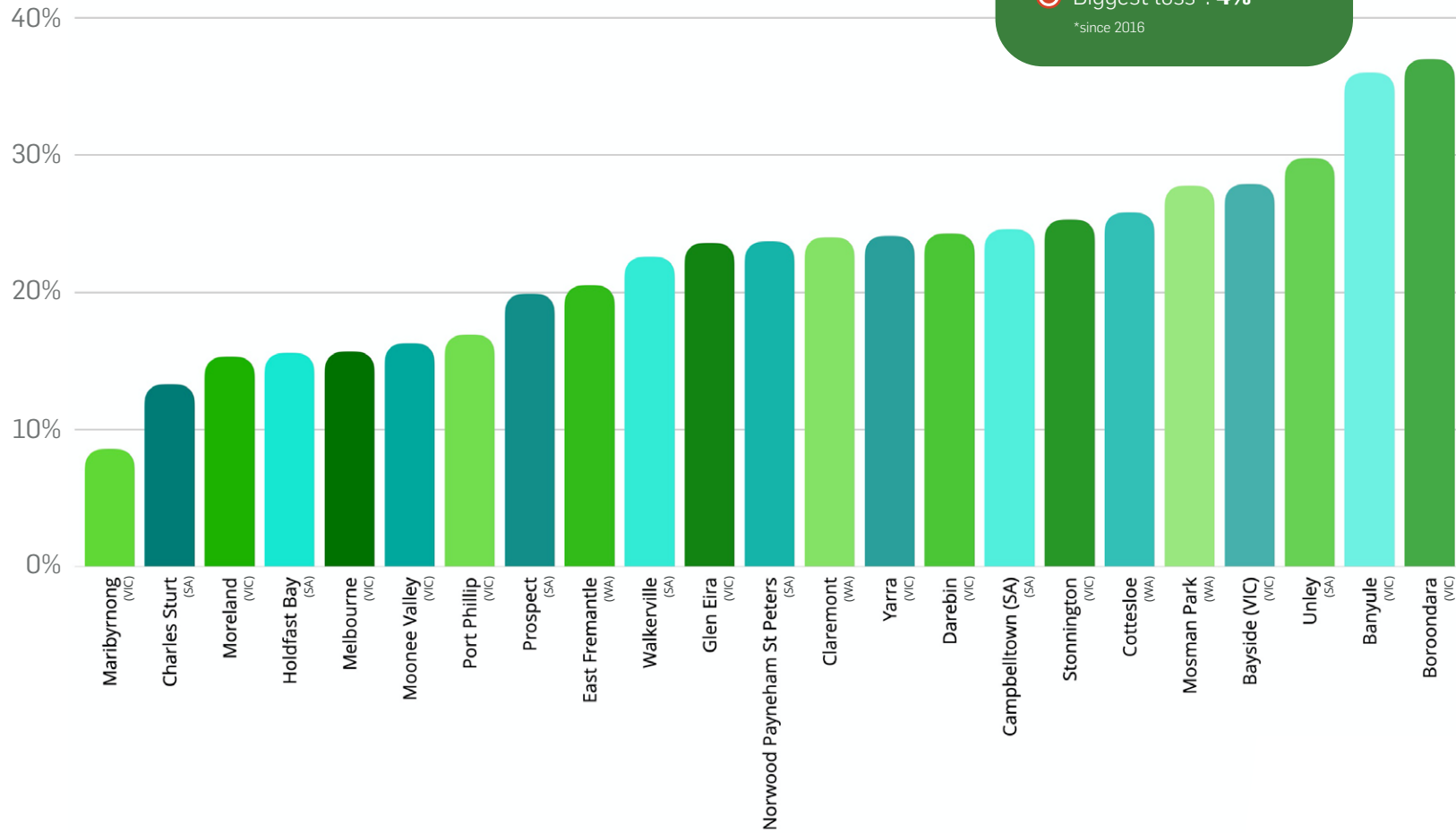# 5 URBAN, COMPACT & LOW RAINFALL

GREEN COVER

23 PLACES

- 🌳 **18-68% Green Cover**
- ⊕ Biggest gain*: **9%**
- ⊖ Biggest loss*: **4%**
- *since 2016

40%	
30%	
20%	
10%	
0%	

Maribyrnong (VIC), Charles Sturt (SA), Moreland (VIC), Holdfast Bay (SA), Melbourne (VIC), Moonee Valley (VIC), Port Phillip (VIC), Prospect (SA), East Fremantle (WA), Walkerville (SA), Glen Eira (VIC), Norwood Payneham St Peters (SA), Claremont (WA), Yarra (VIC), Darebin (VIC), Campbelltown (SA), Stonnington (VIC), Cottesloe (WA), Mosman Park (WA), Bayside (VIC), Unley (SA), Banyule (VIC), Boroondara (VIC)

At street level, you will see streets with lots of apartment blocks and more compact dwellings, with verges and smaller parks contributing to green cover.

Maribyrnong City Council, VIC: **8.6**% green cover.

City of Melbourne, VIC: **15.7**% green cover.

City of Prospect, SA: **19.9**% green cover.

Town of Claremont, WA: **24**% green cover.

City of Unley, SA: **29.8**% green cover.

City of Boroondara, VIC: **37**% green cover.

5 URBAN, COMPACT & LOW RAINFALL

Green cover ranges from **37%** coverage (at its highest) and **8%** at its lowest.

This render shows the range in green cover for places in this typology.

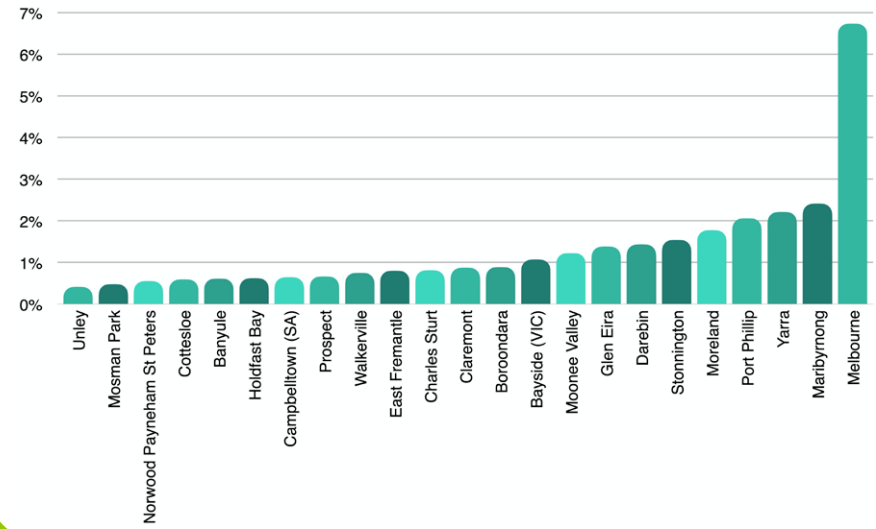8% Green Cover

37% Green Cover

5 URBAN, COMPACT & LOW RAINFALL

Looking at the data from Place Type 5, we see that 52% of places are increasing their green cover. Population growth varies from almost zero to over 6%pa. A majority of places are reducing their grey cover through growth of tree canopy.
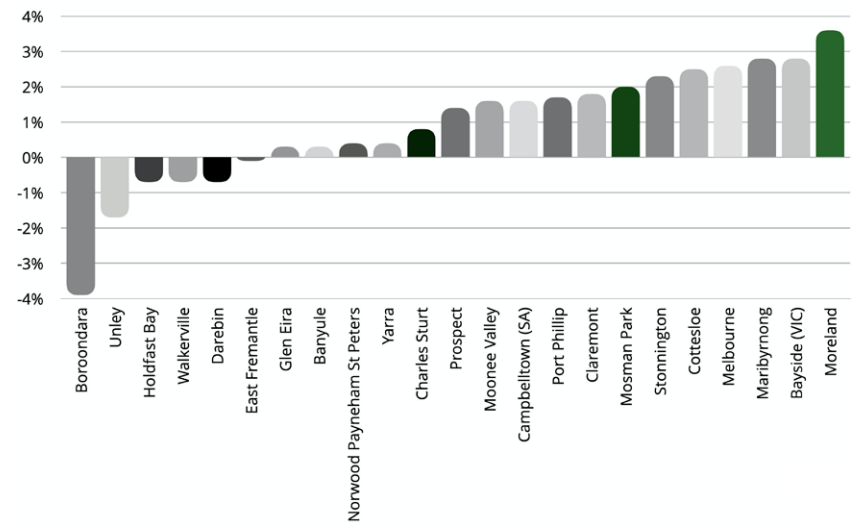
CHANGE IN GREEN COVER 2016-2020
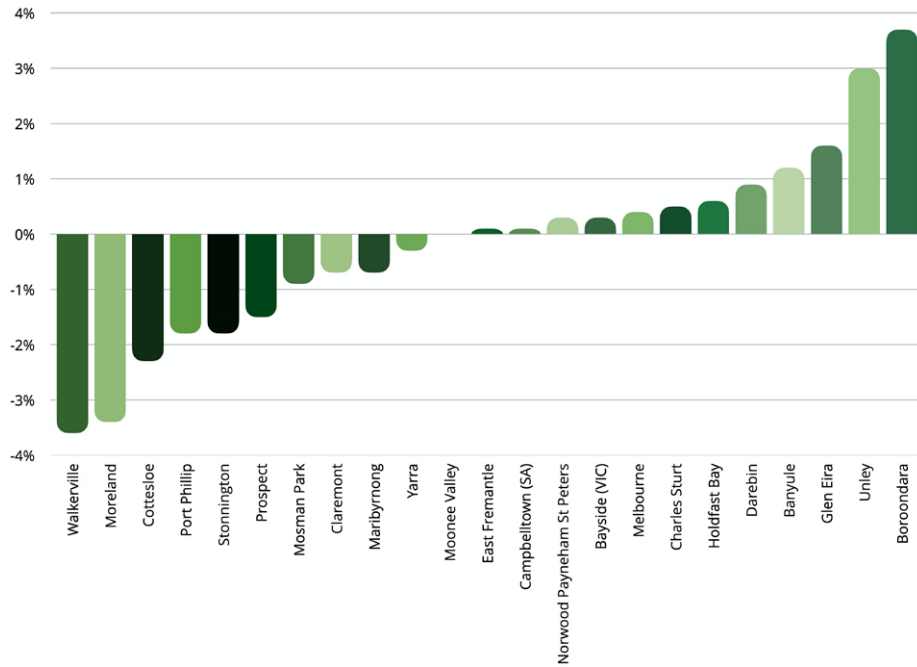
AVERAGE ANNUAL POP GROWTH 2001-2019

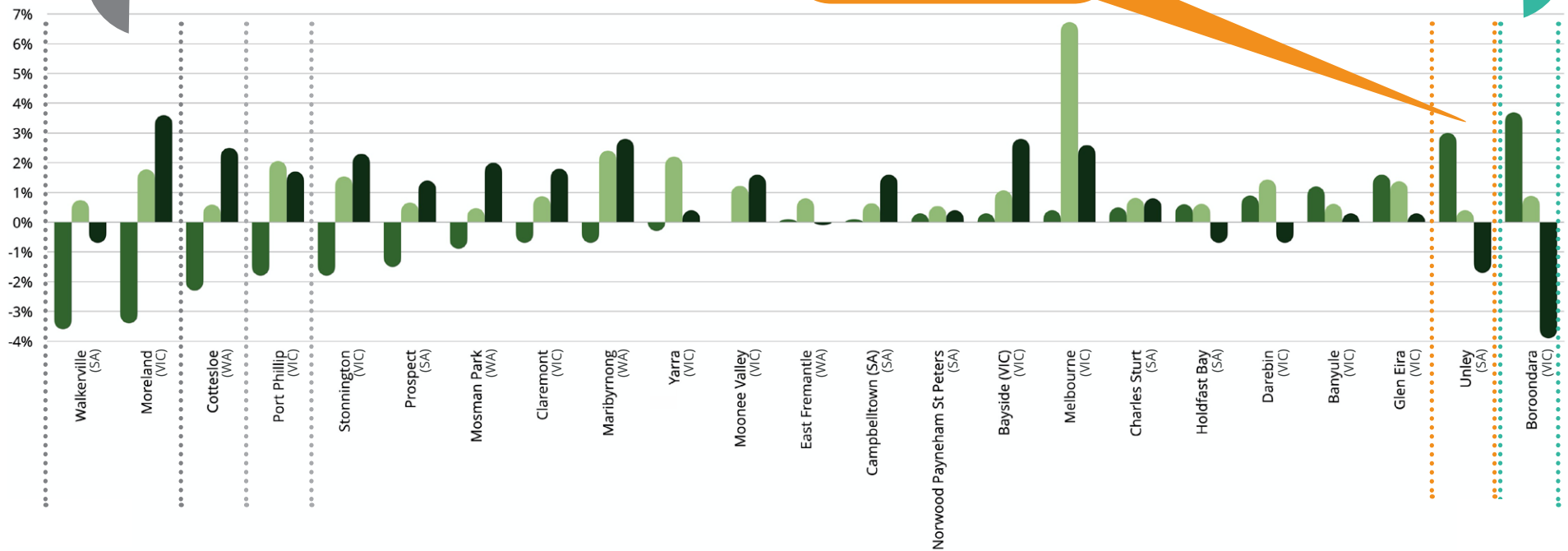

CHANGE IN GREY COVER 2016-2020

5 URBAN, COMPACT & LOW RAINFALL

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale, we see significant reduction in green cover in Town of Walkerville (SA), even without high population growth. City of Moreland (VIC) and City of Port Phillip (VIC) follow a more typical trend of increased population concurrent with increased of grey (hard) surfaces.

City of Unley (SA) is our best on ground, showing impressive green cover growth within the context of population growth.

At this end of the scale, we see impressive growth in City of Booroondara, even when coupled with population growth.

Chart categories: Walkerville (SA), Moreland (VIC), Cottesloe (WA), Port Phillip (VIC), Stonnington (VIC), Prospect (SA), Mosman Park (WA), Claremont (VIC), Maribyrnong (WA), Yarra (VIC), Moonee Valley (VIC), East Fremantle (WA), Campbelltown (SA), Norwood Payneham St Peters (SA), Bayside (VIC), Melbourne (VIC), Charles Sturt (SA), Holdfast Bay (SA), Darebin (VIC), Banyule (VIC), Glen Eira (VIC), Unley (SA), Booroondara (VIC)

Legend: CHANGE IN GREEN COVER 2016-2020 · AVERAGE ANNUAL POP GROWTH 2001-2019 · GREY COVER CHANGE 2016-2020

Best on ground

CITY OF UNLEY

SOUTH AUSTRALIA

The City of Unley has low population growth but has relatively high population density. Hard surfaces appear to be on the decline which is thought to be as a result of their dedicated verge planting program.

With 80% of the City's land being privately owned, Council cannot meet state and local targets by focusing on public land alone. Ensuring Unley remains leafy and resilient for future generations requires Council working together with private land owners and the community.

Unley is strengthening and increasing programs to help retain and increase canopy cover on private land.

- CHANGE IN GREEN COVER 2016-2020
- AVERAGE ANNUAL POP GROWTH 2001-2019
- GREY COVER CHANGE 2016-2020

In Unley, **20%** of residential dwellings are apartments buildings. In 2016, Unley Council's target was to maintain its canopy base of **26%**, however between 2013 and 2016 it recorded a drop of almost **4%**. Since then, it has managed to recover some of this and now has an overall cover of **24.8%**. A key challenge in the City of Unley is an aging tree population with **7%** of all trees nearing the end of their 'useful life'.
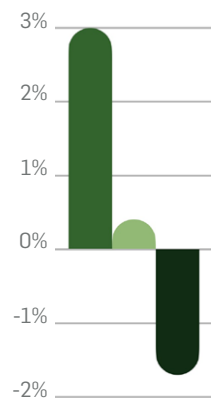
WHAT DOES CITY OF UNLEY DO WELL?

Build environmental strategies about green space:

The City of Unley is playing a proactive role in keeping the city leafy for future generations. Council have an overarching environmental program called Sustainable Unley. Managing urban green cover is covered in three of the five key themes of their Environmental Sustainability Strategy. Key moves from this strategy are:

Mature Tree Replacement: Green Unley identifies that 7% of the existing mature tree population is at the end of its life. Through the tree replacement program, the existing stumps are left for habitat, while replacement trees add to green cover.

Community care for verges: Unley's residents manage their community-led verge planting and maintenance program, whereby residents are encouraged to increase permeable spaces by 'adopting their verge'. A recently endorsed Tree Strategy continues management of existing tree assets but also works on planting over 440 additional trees each year.

Use water wisely: Waterwise Unley highlights how the Council is using stormwater harvesting and aquifer recharge programs to recycle water for irrigation. They also have an extensive Water Sensitive Urban Design program including rain gardens, overflow recharge tanks and aquifer capture. Unley is one of the leading WSUD councils.

Resilient urban ecologies: Resilient Unley identified the urban heat island effect as a key vulnerability within the Council. It highlights the impact of hard surfaces, and value of trees and plants to naturally cool the area. In anticipation of more intense storms, Unley has built a detention wall alongside areas that are prone to flooding.

Share the responsibility of care with the community:

Unley have embedded Goals for Council and Goals for Community into their Environmental Strategy, highlighting the importance of taking shared responsibility for environmental outcomes. The responsibility for the implementation of the Environment Strategy sits within the Council's Asset and Environment City Development division and is budgeted for as part of the Annual Business Plan.

Set the community their own target:

The community target is to convert and then plant a minimum of 400 verges from dolomite to loam. The latest 'Greening Verge Incentive Program' runs from 2020 - 2021 and asks residents to apply to have their verge greened. It was oversubscribed within two weeks. Successful applicants will have the help of the Council to excavate their verge, remove the material, spread the backfill soil, install a PVC pipe underneath (a leaky drain for irrigation) and a paved bin pad. Residents agree to source and pay for the plants they would like on the verge, and are responsible for maintenance of their verge.

Commit to an ambitious target:

Unley has an ambitious target to increase the Council's urban tree canopy cover, with an additional target of achieving an increase of 20% by 2045 (equivalent to 14,000 additional trees). Their goal includes preserving their existing canopy cover wherever possible and incorporating new tree canopy in streets and public spaces, developments and re-developments.

6 URBAN, COMPACT & AVG-HIGH RAINFALL

💧 Avg-High Rainfall   🏢 50-100% Urban   🅿️🚗 High Density

These places tend to be the inner suburbs of our cities and include major CBDs including City of Sydney and City of Perth. You can expect to find higher proportions of high-rise and medium-rise apartment dwellings among these areas as well as amenities such as hospitals, schools, shopping centres, offices and commercial uses of land.

These places are interesting as we can see that high population per square kilometre doesn't necessarily equate to less green space. In fact, stabilising and increasing green space in some of our most densely populated places comes down to protecting what green space already exists, and maximising public and private land that is available for planting.

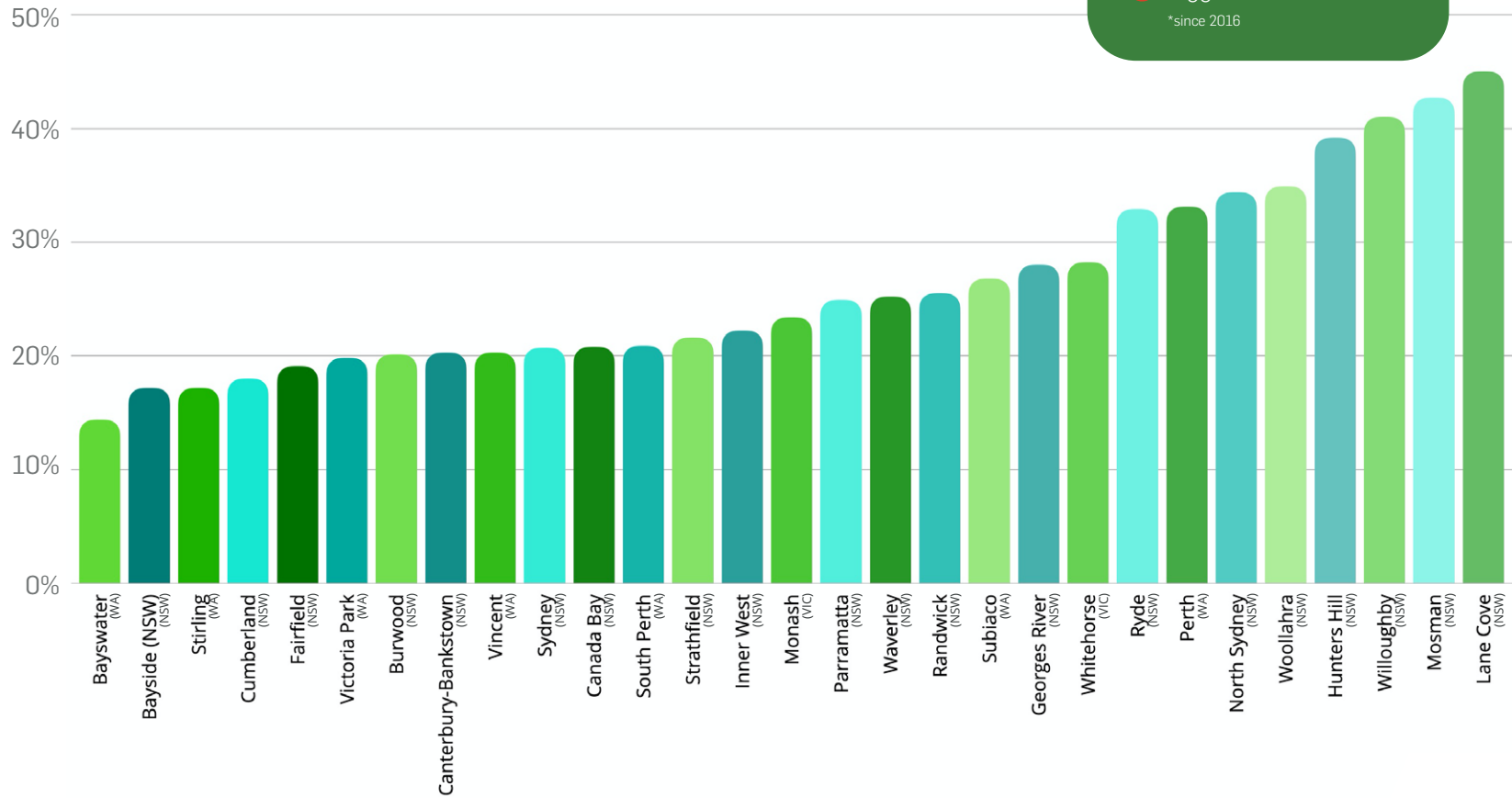# 6 URBAN, COMPACT & AVG-HIGH RAINFALL

GREEN COVER

29 PLACES

🌳 **14-45% Green Cover**
⊕ Biggest gain*: **7%**
⊖ Biggest loss*: **5%**
*since 2016

Bayswater (WA)
Bayside (NSW)
Stirling (WA)
Cumberland (NSW)
Fairfield (NSW)
Victoria Park (WA)
Burwood (NSW)
Canterbury-Bankstown (NSW)
Vincent (WA)
Sydney (NSW)
Canada Bay (NSW)
South Perth (WA)
Strathfield (NSW)
Inner West (NSW)
Monash (VIC)
Parramatta (NSW)
Waverley (NSW)
Randwick (NSW)
Subiaco (WA)
Georges River (NSW)
Whitehorse (VIC)
Ryde (NSW)
Perth (WA)
North Sydney (NSW)
Woollahra (NSW)
Hunters Hill (NSW)
Willoughby (NSW)
Mosman (NSW)
Lane Cove (NSW)

6 URBAN, COMPACT & AVG-HIGH RAINFALL

At street level, you will see streets with lots of apartment blocks and more compact dwellings, with verges and smaller parks contributing to green cover.

City of Bayswater, WA: **14.4**% green cover.

City of Sydney, NSW: **20.7**% green cover.

Inner West Council, NSW: **22.23**% green cover.

City of Subiaco, WA: **26.8**% green cover.

City of Perth, WA: **33.1**% green cover.

Lane Cove Council, NSW: **45**% green cover.

6 URBAN, COMPACT & AVG-HIGH RAINFALL

Green cover ranges from **45%** coverage (at its highest) and **14%** at its lowest.

This render shows the range in green cover for places in this typology.

14% Green Cover

45% Green Cover

6 URBAN, COMPACT & AVG-HIGH RAINFALL

Looking at the data from Place Type 6, we see that 59% of places are increasing their green cover. Population growth varies from almost zero to over 5%pa. A majority of places are reducing grey cover through growth in tree canopy.

CHANGE IN GREEN COVER 2016-2020
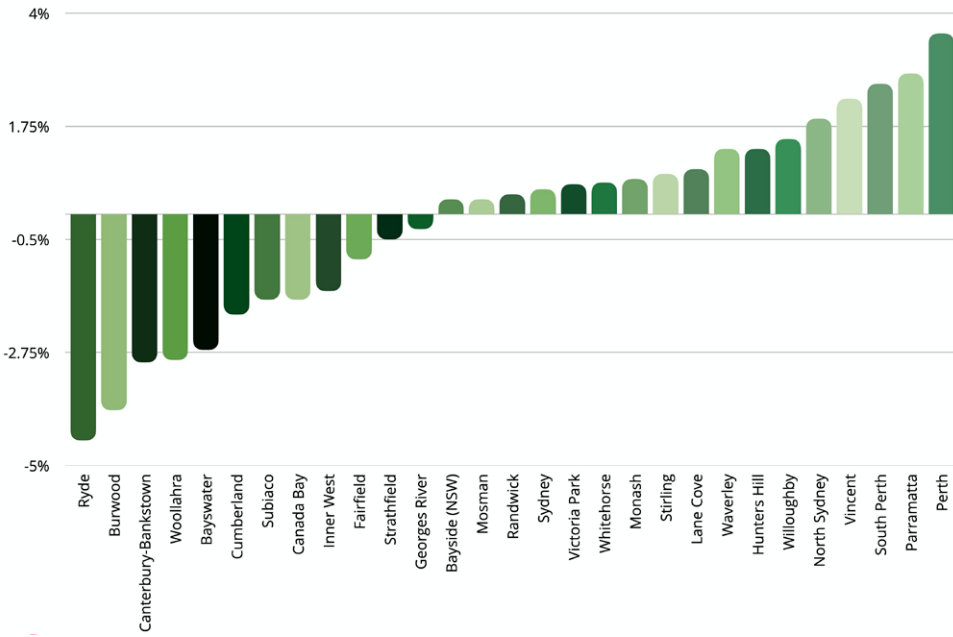
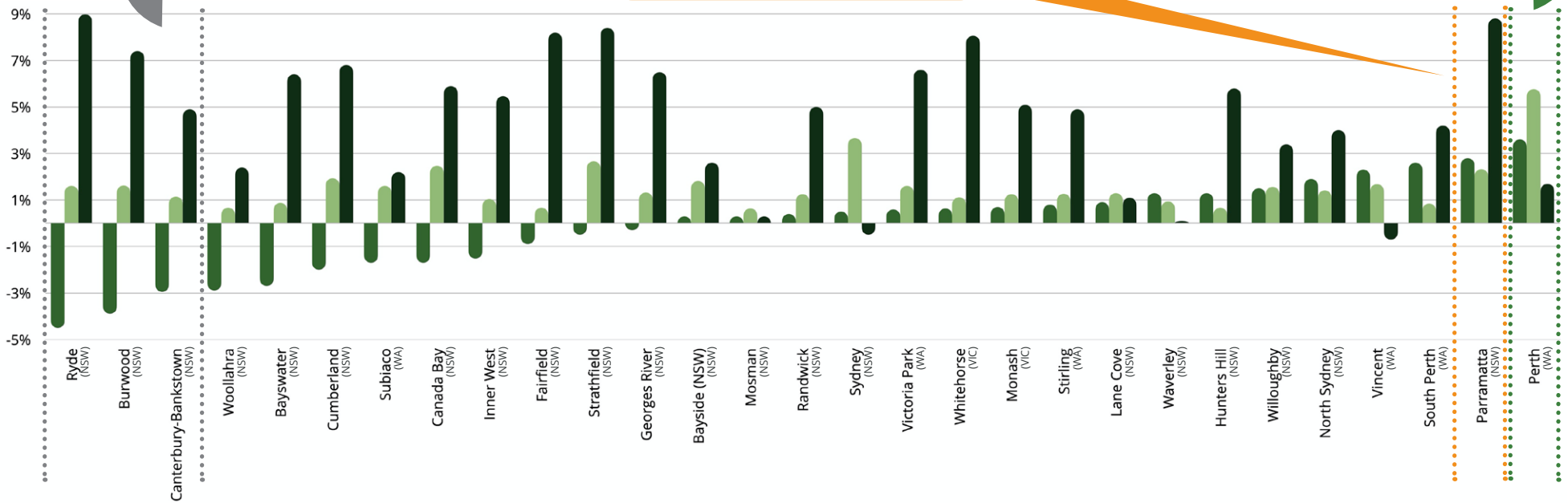## AVERAGE ANNUAL POP GROWTH 2001-2019
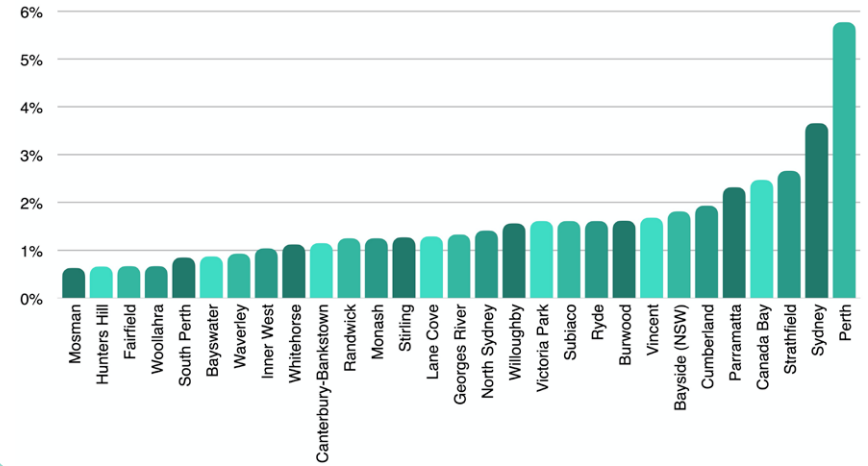
CHANGE IN GREY COVER 2016-2020
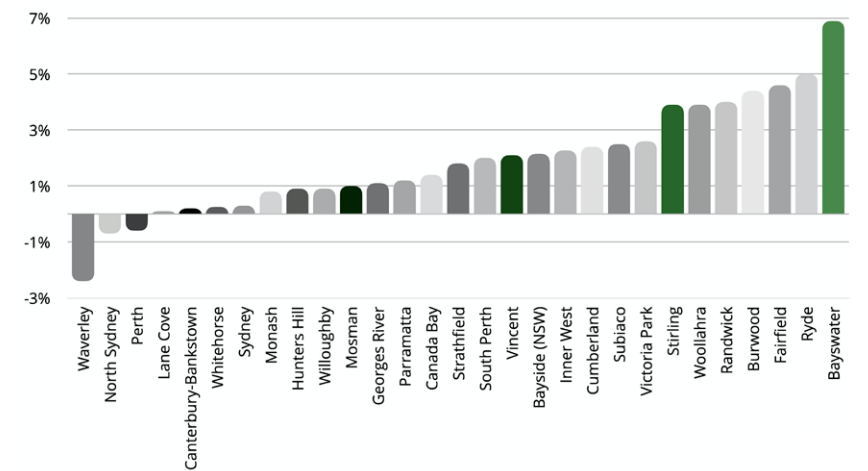
6 URBAN, COMPACT & AVG-HIGH RAINFALL

Overlaying this key data is where we find different places managing different levels of population growth with different outcomes.

At this end of the scale, we are seeing very high increase of grey cover, significant loss of green space and relatively modest rates of population growth.

City of Parramatta (NSW) is our best on ground, showing significant green cover growth even within the context of large scale construction and development in the City.

At this end of the scale, we see an increase in green cover even with high population growth rate and increase in hard surfaces. This is done by increasing population into high rise developments, rather than sprawl.

Chart x-axis labels: Ryde (NSW), Burwood (NSW), Canterbury-Bankstown (NSW), Woollahra (NSW), Bayswater (NSW), Cumberland (NSW), Subiaco (WA), Canada Bay (NSW), Inner West (NSW), Fairfield (NSW), Strathfield (NSW), Georges River (NSW), Bayside (NSW) (NSW), Mosman (NSW), Randwick (NSW), Sydney (NSW), Victoria Park (WA), Whitehorse (VIC), Monash (VIC), Stirling (WA), Lane Cove (NSW), Waverley (NSW), Hunters Hill (NSW), Willoughby (NSW), North Sydney (NSW), Vincent (WA), South Perth (WA), Parramatta (NSW), Perth (WA)

Legend: CHANGE IN GREEN COVER 2016-2020 ● AVERAGE ANNUAL POP GROWTH 2001-2019 ● GREY COVER CHANGE 2016-2020

Best on ground
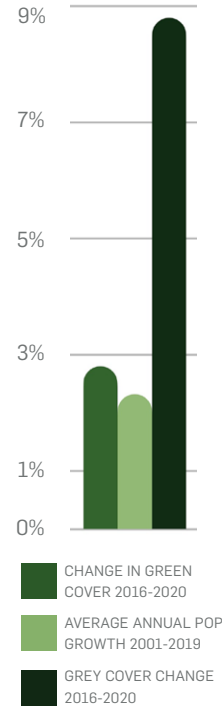
THE CITY OF PARRAMATTA

NEW SOUTH WALES

The City of Parramatta has a higher residential population than the City of Sydney with 257,197 people growing at a rate of 2.3% per annum. It does not have the highest population density, but with 3,058 people per km², it is quite dense.

Green cover is slightly below comparator LGAs, and has had a noticeable gain from which others can learn from.

As the City grows, Council has made an effort to ensure that the natural environment improves, creating a better quality of life, not just for people, but for all living things.

CITY OF PARRAMATTA

- CHANGE IN GREEN COVER 2016-2020
- AVERAGE ANNUAL POP GROWTH 2001-2019
- GREY COVER CHANGE 2016-2020

There has been a significant increase in hard surfaces since 2013 with a jump from **43.4%** to **52.2%** in 2020. At the same time, grass and bare ground has decreased by **4%** and amid this, shrub and tree canopy cover has increased by **1.3%** and **1.5%** respectively. Parramatta appear to be recovering from a low of **18.7%** in 2013 and are currently sitting on **20.2%** tree cover, with an ambition to increase it to **40%** by 2050 (based on 2016 levels).

WHAT DOES THE CITY OF PARRAMATTA DO WELL?

Educate the community about the adverse impact of urban heat:

The City of Parramatta have a number of initiatives that are designed to ensure that as the City undergoes rapid population growth there is adequate provision of green space and an increase in the urban forest. Overcoming urban heat has been a key driver of these policies, and collaboration with the local health district, Western Sydney University, Western Sydney Regional Organisation of Councils through the 'Turn Down the Heat' strategy has been central to this approach.

Significant increase in greening:

Impressively, the City has planted almost 500,000 trees, shrubs and ground cover since 2015. Plantings were delivered through the street tree program, bushland biodiversity revegetation, and playground and park reserve plantings.

Targeting walkability and public domain:

The provision of leafy green streets with high shade amenity and comfort for people is another key initiative for the City. The Parramatta Ways Walking Strategy (2017) identifies key walking streets throughout the LGA allowing Council to focus effort and funding on discreet streetscape upgrades that contribute to a network of shady places.

New projects or subdivisions in key centres including; the CBD, town centres or medium to high density residential development zones are required to submit public domain plans that address adjacent public streets and street tree planting. In this way, new canopy street trees are being renewed in the public domain, where they are needed most.

Development-by-development and focused planning controls:

The City of Parramatta are very aware of the challenges of greening on private land. There is strict enforcement of setbacks for boundaries (especially front) and basement car parking, as well as deep soil zones for medium and high density residential development. The City has worked hard to improve greening requirements for new developments while harmonising the City's draft DCP after amalgamation in May 2016. It is thought that these requirements will - over time - continue to have a cumulative and positive impact on green cover levels.

— **PART THREE** —

LET'S DO THIS

WHEREVER YOU LOOK, THERE ARE GOOD EXAMPLES TO LEARN FROM

The Sunvale Community Park in Brimbank (QLD) is another fantastic example of positive collaborations between councils and the community. The park harvests 100,000-litres of water through underground tanks.

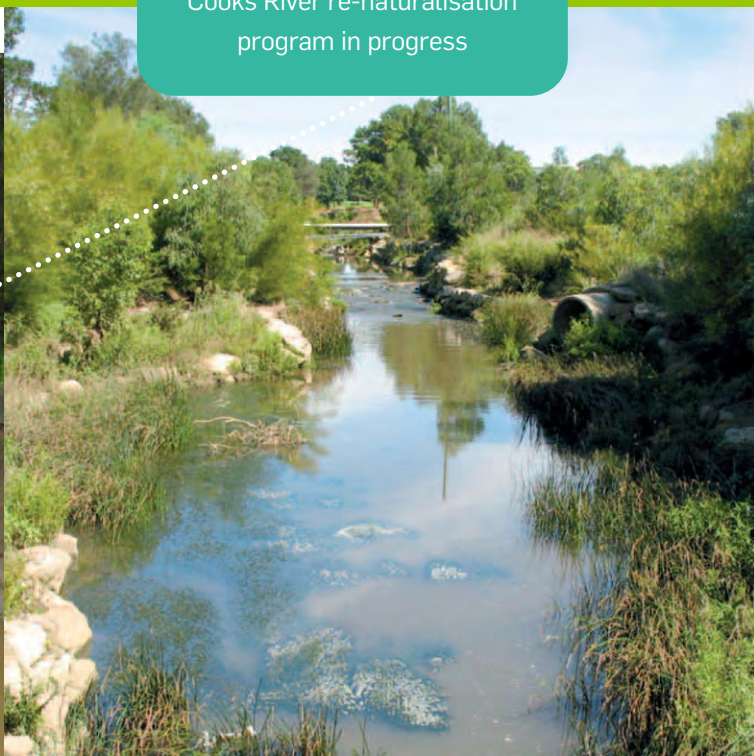McElhone Place, Surry Hills (NSW) is an excellent example of community-led urban greening.
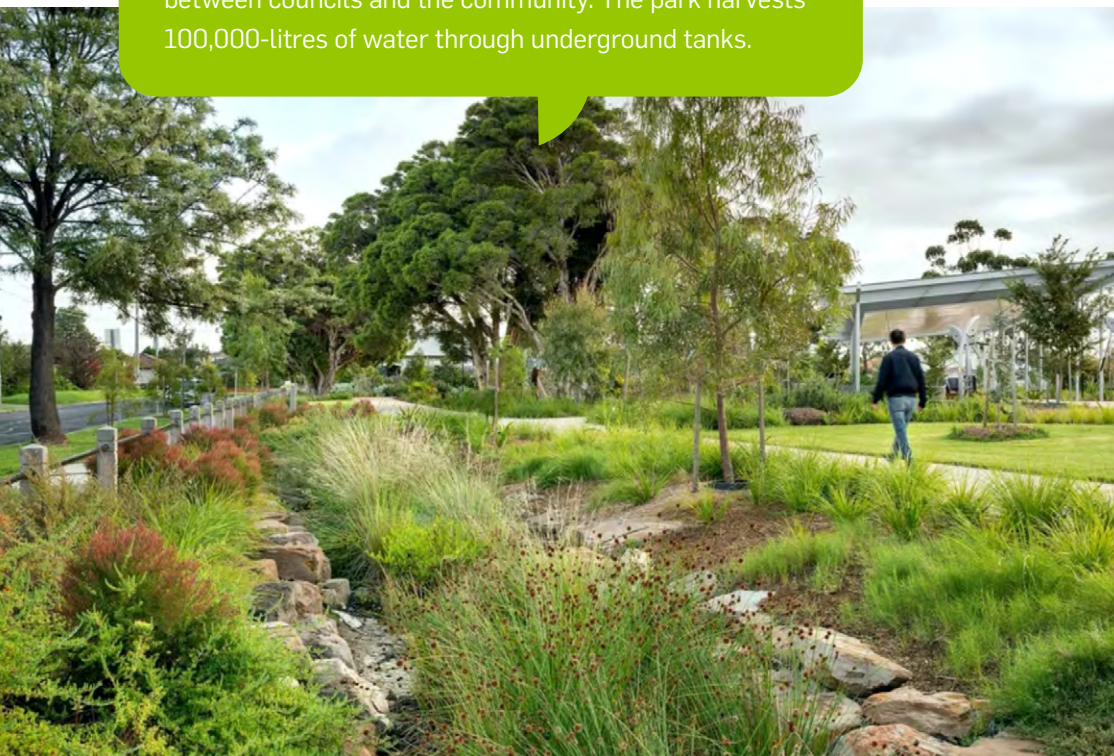
WHAT'S BEEN LOST CAN BE GROWN AGAIN
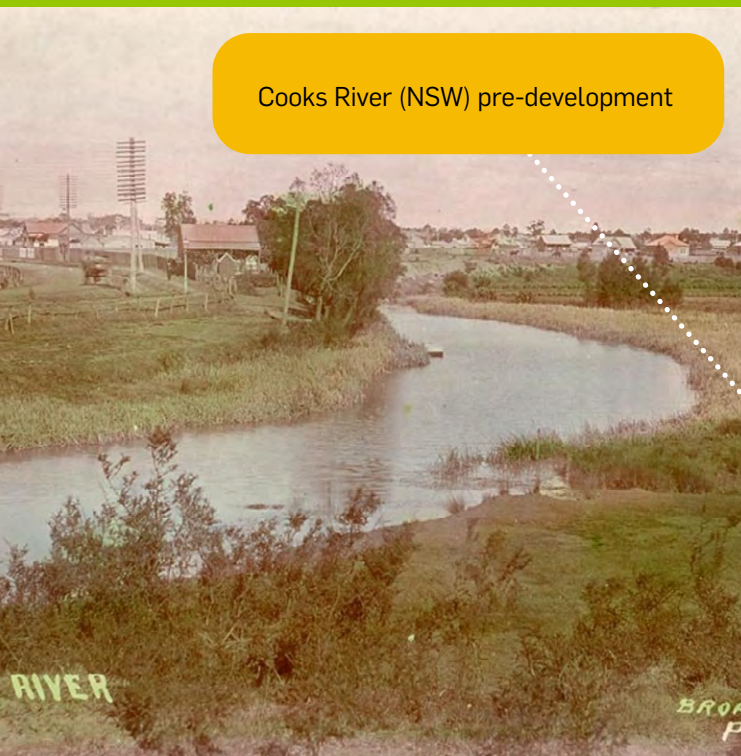
Cooks River (NSW) pre-development

Cooks River now

Cooks River re-naturalisation program in progress

Westfield in Sydney's Burwood (NSW), from above.

Imagery ©2020 CNES / Airbus, Maxar Technologies, Map data ©2020

🚫 LESS OF THIS

EVEN MALLS OFFER OPPORTUNITY

➕ MORE OF THIS

Burwood Brickworks (VIC) rethinks what a shopping centre can be.

CAR PARKS, TOO

What if more of these...

...looked like this?
After all, every little helps.

WHATEVER YOUR PLACE, THERE ARE SOME BASICS EVERYONE CAN LEARN FROM

1 MOISTURE MATTERS

17/20 of Australia's greenest LGAs sit in high rainfall areas. So, if you're not in a high rainfall area, you need to learn to catch and keep it.

Water Sensitive Urban Design practices in places like the City of West Torrens, Onkaparinga, and the City of Mitcham demonstrate how more porous surfaces and water retention can help achieve better overall cover.

AILA-award winning Water Sensitive Urban Design. Holland Street Upgrade, City of West Torrens, SA, by JPE Design Studio.

2 FAILING TO PLAN IS PLANNING TO FAIL

Planned developments from the 1940s to the early 1980s tend to be more generous when it comes to making space for front and back yards or street trees.

Newer developments leave little space for trees, plants or even grass. What little grass is left over is often used as additional 'off street' parking. This is a very key trend in places like Palmerston NT and parts of Canberra.

This planned community in Palmerston NT exemplifies how, on the left the suburbs established in the 1980s have less 'house' and allow for much more green space, whereas the newer ones on the right leave little room for green space.

3 MORE CAN MEAN MORE TO LOSE

One of the concerning trends we are seeing among the 'green dress circle suburbs' is a downward trend in canopy and green space.

These 'left green' suburbs like Hunters Hill, Willoughby, Ryde, and Woollahra in NSW, along with drier places like the Mitcham Shire (SA) and Burnside (SA), are losing canopy - not necessarily to new development, but more likely to views, swimming pools, tennis courts and patios as existing residences are expanded.

Mansion developments in suburbs like Burnside (SA) are showing how the 'leafy green streets' might not be for much longer.

4 OPPORTUNITIES AREN'T ALWAYS OBVIOUS

As we have deep-dived into understanding the various types of land and uses across our urban local government areas, we have noticed that, whenever we see a large patch of grey or white without much tree cover or greenery, its generally a commercial warehouse or industrial zone.

Given that some of the major challenges when it comes to urban greening are residents not wanting to give up car parks, it may be that there may be less of a fuss if councils encouraged private commercial land owners to plant on their land.

One example we discovered of this already happening is in the City of Greater Dandenong (VIC) where such an approach has created a gain in green cover.

⑤ IF AT FIRST YOU DON'T SUCCEED…

Efforts count for a lot, but not everything. As a general rule, there is correlation between places that have made a concerted effort to be greener and success. However, factors out of a council's control can still work against them.

The City of Hobsons Bay is doing everything within its power to increase green cover but some of the most complex and diverse land uses within a large area creates challenges. This underlines the importance of concerted and sustained efforts over time. Although significant gains haven't been seen in this area yet, we are optimistic about the green cover 'pipeline' that is in the works.

City of Hobsons Bay (VIC) is buying back land for public use and undertaking an ambitious tree planting regime to try and achieve 30% urban canopy by 2040.

AND REMEMBER, IMPROVING IS AS SIMPLE AS KNOWING YOUR PLACE TYPE, LEARNING FROM THE BEST, THEN BEING PERSISTENT.

HAPPY GREENING.

HOW'S YOUR PLACE?

USE THE INTERACTIVE TOOL ON OUR WEBSITE TO GET THE FULL STORY.
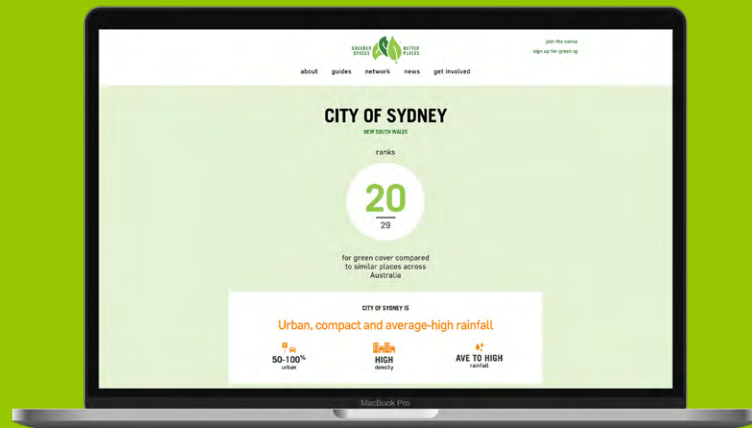
NEED SOME HELP GREENING?

GET RESOURCES TO HELP YOUR PLACE IMPROVE:

— **PART FOUR** —

APPENDIX

NOTE TO READER

Three things to keep in mind as you read this report:

1 THE TOOL WE USE TO MEASURE YOUR GREEN COVER IS AN INDICATOR.

Our figures are based on dropping 1,000 'points' across your local government area (LGA). These points are then analysed to identify what they are (e.g. tree, shrub, road, etc.) so that we can determine the dominant cover type for your LGA. So, if you live in a place surrounded by lots of bushland or grass – and a good proportion of those 'points' landed in that area – your percentage of green cover will be higher. Your local council may have more specific data about your LGA's green cover, so we encourage you to reach out if you have questions.

2 IT'S NOT ABOUT 'WINNING' OR 'LOSING' – IT'S HOW YOU PLAY THE GAME.

This is especially true when it comes to growing an urban forest. So, when you look at the graphs, think of them as a spectrum and not a 'rank'. Some places have far fewer people and competition for space, so it's much easier to plant green cover. Others have been bushfire affected, and some have much higher rainfall. As you read your profile, pay attention to how much population growth and new development (hard surfaces) have increased where you live. In many cases, keeping your green cover amid these types of challenges requires much more effort from your council than in other places with more favourable conditions.

3 LEARN FROM OTHERS FACING SIMILAR CHALLENGES.

It might seem odd to group and compare a place like Penrith to Cairns, or Launceston to Ipswich when they have different climates, (footy teams), planning rules, and characters – however, what places like these have in common is population size and land mass.

This is what gives us a sense of urban density (or how many people there are per square kilometre).

This matters because it helps us understand how land is used for housing and other purposes. These rankings were provided to our researchers by the Bureau of Statistics, and rainfall data was provided by the Bureau of Meteorology.

So, while it may seem counterintuitive to compare where you live to somewhere on the other side of the country, you may find that when it comes to overcoming urban greening challenges, you might have more in common than you think.

Finally, we figure that by reading this report you are one of the very many Australians who would like to see more green space in our towns and cities. You're a 'Yimby' (Yes. In. My. Backyard) or it could be frontyard - whatever the case, we need more of you so please get in touch with your local council to find out how you can support more urban greening in your area.

NOTES ON THE METHODOLOGY

Results shown are from research conducted by RMIT University between July and October 2020 using i-Tree Tools. A limitation of our methodology is that it is based on dropping 1000 random 'point' and then analysing these as representations of what's on the ground. Comparisons to 2016 data are based on using the same points four years apart. 2013 data is also based on i-Tree Tools but using different random point samples.

We recognise that when the points are dropped over large areas that have significant bushland, grassland and waterways, this skews average results for the urban areas of a local government area. As such, this report has matched i-Tree Tools data with further research to look more closely at what's happening on the ground.

We also recognise that our green cover results may vary from analysis that individual councils have done using other methodologies, such as using LiDAR data. While this may create variability in results, the consistent methodology used across the 2013, 2016 and 2020 studies in this series produces results that are comparable across all urban areas and comparable over time. It is also worth noting that the data set used to create this report is the only national urban data set available.

Please contact hello@greenerspacesbetterplaces.com.au for more information.

IMAGE CREDITS

Page 3, left: Render of Frasers 6 Star Green Star Community Mambourin development in Western Melbourne. https://www.frasersproperty.com.au/media-Centre/News/2019/10/22/mambourin-6-star-green-star#:~:text=Mambourin%20 was%20awarded%20the%206,connectivity%2C%20innovation%20and%20early%20amenity.

Page 13, left: Herald Sun article – https://www.heraldsun.com.au/lifestyle/whats-turning-st-kilda-road-into-a-weekend-ghost-town/news-story/8b71f93214116e68f47917feb210069f

Page 58, left: Curlew Community Park Image - Hobson's Bay – https://www.hobsonsbay.vic.gov.au/Council/Current-Projects/Parks-Foreshore-Projects/Curlew-Community-Park

Page 58, middle: McElhone Place, SURRY HILLS: Image credit - Larissa Shearman, Timeout Sydney – https://www.timeout.com/sydney/things-to-do/sydneys-best-laneways

Page 58, right and page 60, right: Brickworks Shopping Centre - Frasers Property – https://www.frasersproperty.com.au/retail/vic/burwood-brickworks/register

Page 59, left: View of the Cooks River at Campsie https://www.wikiwand.com/en/Cooks_River

Page 58, middle: Dan Cunningham – https://site.emrprojectsummaries.org/2015/02/08/cooks-river-naturalisation-sydney-nsw-australia/Environmetal Management and Restoration Summaries, published as part of the journal Ecological Management & Published as part of the journal Ecological Management & Restoration

Page 58, right: Recently naturalised banks of the Cooks River, upstream of Hedges Avenue, South Strathfield with native plants and sandstone. Image : Sydney Water https://alternate.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdq3/~edisp/dd_047775.pdf

Page 61, right: Cavanbah Sports & Recreation Club Car Park, Shire of Byron Bay. Pic Jess Miller

Page 62, left: JPE Design Studio

Page 64: Brimbank City Council

Renders by Ross Caddaye at https://www.rosscaddaye.com.au/

SEE FOR YOURSELF:

Cooler places: https://theconversation.com/after-another-hot-summer-here-are-6-ways-to-cool-our-cities-in-future-110817

Lower air pollution: https://theconversation.com/trees-appear-to-ionise-surrounding-air-5982

Higher property prices: https://theconversation.com/trees-can-add-50-000-value-to-a-sydney-house-so-you-might-want-to-put-down-that-chainsaw-122710

Lower crime rates: https://theconversation.com/greening-cities-makes-for-safer-neighbourhoods-62093

Human happiness: https://theconversation.com/increasing-tree-cover-may-be-like-a-superfood-for-community-mental-health-119930

Human health: https://www.euro.who.int/__data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1

More productive: https://dirt.asla.org/2018/11/01/this-is-your-brain-on-green-access-to-nature-improves-our-health/

Sleep better: https://theconversation.com/more-green-more-zzzzz-trees-may-help-us-sleep-132354

Smarter people: https://www.theguardian.com/environment/2020/aug/24/children-raised-greener-areas-higher-iq-study

CREDITS & AUTHORSHIP

RMIT UNIVERSITY

is a national initiative that brings together state and local government, universities, business and industry to make our urban areas greener.

We're on a mission to make sure our green spaces grow as our urban places grow and, in doing so, make Australia's cities the greenest in the world.

For more information please visit
greenerspacesbetterplaces.com.au/