MACKAY URBAN GREENING STRATEGY

Growing cooler, greener and connected neighbourhoods

Mackay REGIONAL COUNCIL

Mackay Regional Council respects the traditional custodians of the lands that make up our region, the **Yuwi and Widi people.** We also acknowledge all other Aboriginal and Torres Strait Islander people who call our region home.

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EXECUTIVE
SUMMARY

Council is committed to making the urban areas and neighbourhoods in the Mackay region greener, cooler and more connected through this 20-year Urban Greening Strategy. Council recognises the vital importance of urban greening for people, the environment, and the economy. The trees and shrubs in streets, parks and across neighbourhoods work quietly to provide shade from the sun, intercept rainfall and stormwater, provide cool spaces to enjoy and contribute enormously to the amenity of Mackay's urban character and sense of place.

Mackay's urban vegetation cover is relatively low and some areas, particularly central and South Mackay, are declining in vegetation cover. Small gains in tree canopy cover on public land are being offset by much larger losses or no net gains on private residential land. A changing climate is likely to further impact on the health and extent of green cover while significantly increasing the need for more shade and vegetation to maintain community health and wellbeing. Council also recognises that there are substantial improvements that can be made to the current urban greening program as well as the way urban greening outcomes are embedded across the organisation.

Through extensive community engagement, the community have conveyed their desire for more trees in neighbourhoods and their strong support for council to invest in more trees and develop incentives to encourage private landholders to plant trees on their own properties. Council also recognises that the community wants to be more actively involved in urban greening.

As a result, the aim is to achieve four key objectives through this strategy:

01 **Grow greener and cooler neighbourhoods**

02 **Protect and nurture our valued green assets**

03 **Build community stewardship and partnerships**

04 **Adapt and learn**

Through these key objectives, the following key targets can be used to measure progress. By 2042, the aim is to achieve:

- **an average of 40% tree canopy cover over pathways** (up from 16.8% in 2021)
- **an average of 40% tree canopy cover over public parks and the open space network** (up from 33.6% in 2021); and
- **an annual net gain of public tree numbers ensuring more trees are planted than removed.**

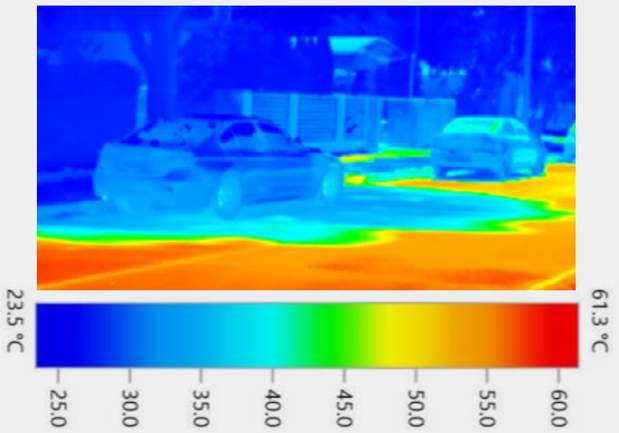
Our biggest opportunities include planting more trees strategically in areas where they are needed the most, with a focus on increasing shade and vegetation cover along pathways, in parks and open spaces and connecting areas of biodiversity. In addition to planting more trees, adopting a smarter approach to management and maintenance practices is an opportunity, particularly in ensuring that trees are treated as assets. Finally, it is recognised that local government cannot achieve greening outcomes on its own. There is a need to have collaborative partnerships and a community focused approach to delivering greener, cooler and more connected neighbourhoods across the urban areas of our region.

WHAT IS URBAN GREENING?

Urban greening is the strategic approach to protecting, planning for and planting vegetation across urban areas. Vegetation includes trees, shrubs and grasses and spans across all public and private land including streets, parks, conservation reserves, back and front yards, commercial properties, carparks and along waterways.

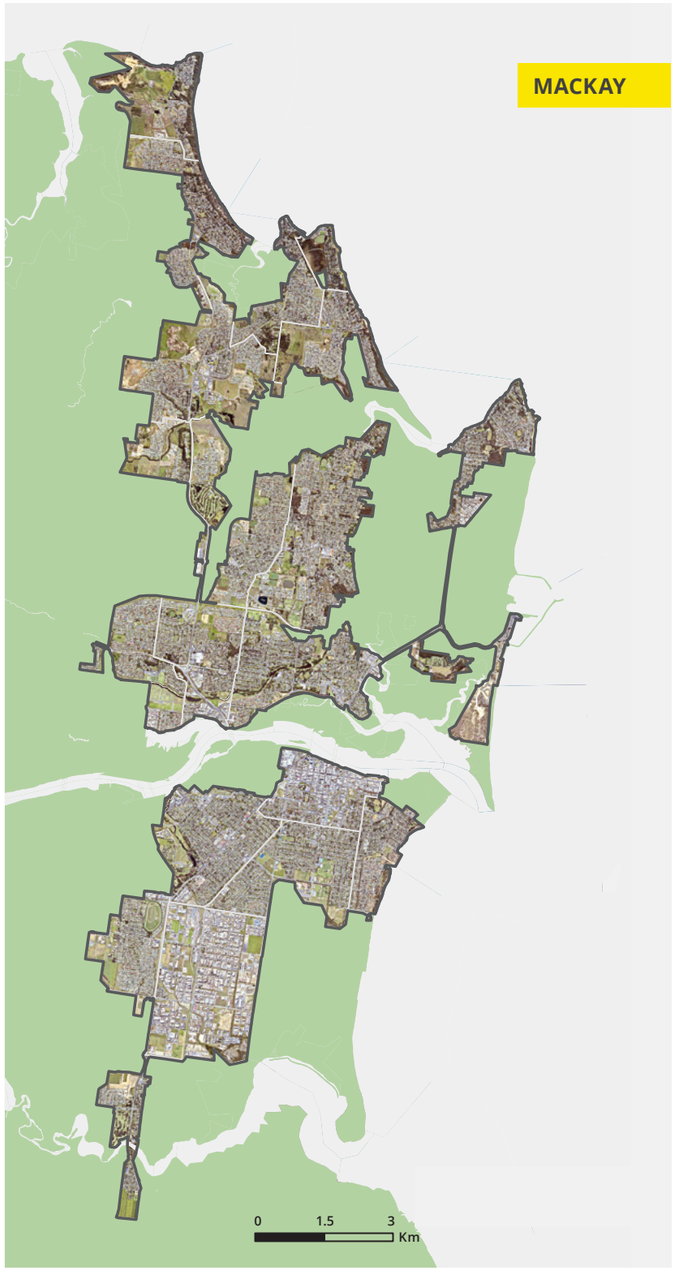
DID YOU KNOW?

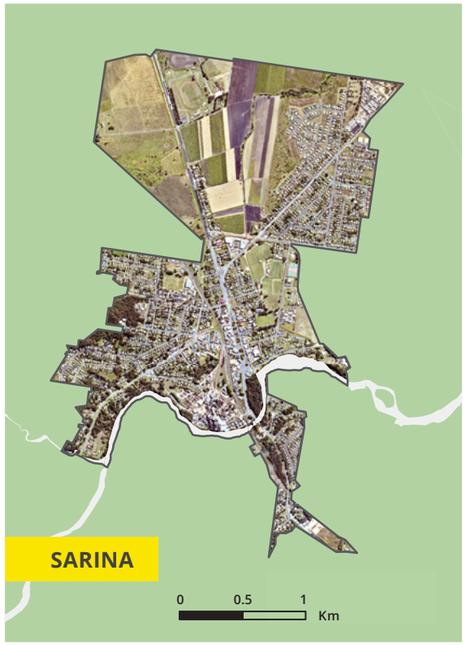
Tree shade can reduce surface temperatures by up to 20 degrees Celsius helping to alleviate the urban heat island effect and the health impacts that come from heat waves.

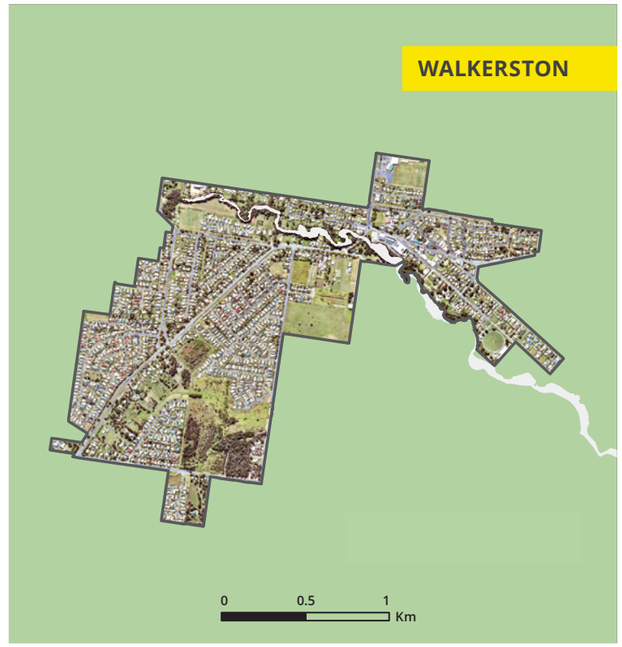


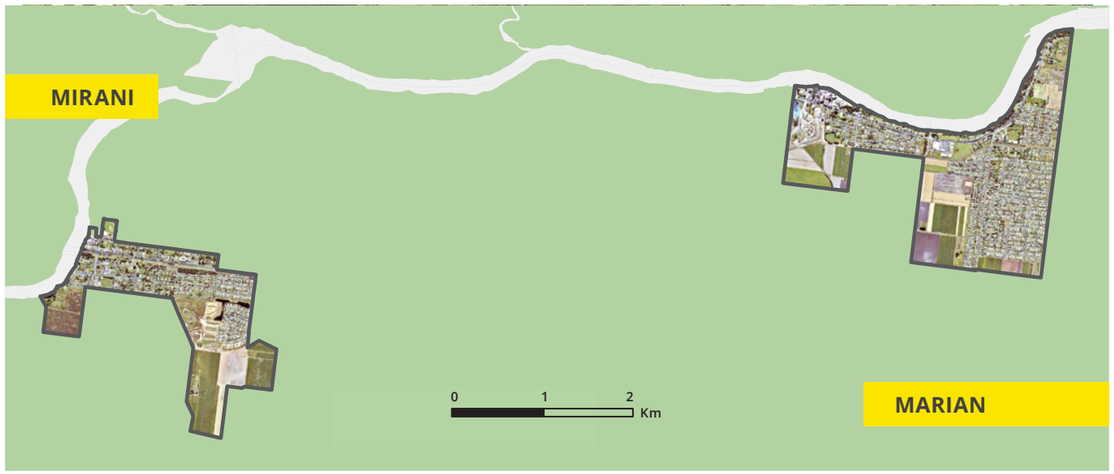
SCOPE OF THIS STRATEGY

This 20-year strategy outlines a council-led commitment to address the role of urban greening in making the Mackay region greener, cooler and more connected. It predominantly focuses on public land that council controls and manages, but also touches on council's role in working with the community to improve urban greening outcomes on privately owned land. The urban areas in the Mackay region that are the focus of this strategy are shown on the adjacent maps. They are composed of established and future residential, commercial, and industrial areas of Mackay and the major townships.









Map group 1: Spatial boundaries of Mackay regions' urban areas where the Strategy applies

Mackay Urban Greening Area

WHY URBAN GREENING IS
IMPORTANT

The type, condition, extent and distribution of trees and other vegetation provides a broad range of community, environmental and economic benefits to the region. These benefits include improving our physical and mental health, shading us from the hot sun, improving air quality, reducing the quantity of stormwater runoff and improving the quality of stormwater that flows into the Great Barrier Reef Marine Park. Urban greening is critical to protecting and enhancing our green assets to ensure their benefits are available to current and future generations.

TREE SHADE

REDUCES ENERGY CONSUMPTION BY 5-10%
In a home during summer saving power costs
[12],[17],[18]

REDUCES SURFACE TEMPERATURES BY UP TO 20ºC
This can alleviate the urban heat island effect and the health impacts that come from heatwaves
[4],[5],[8],[9],[12],[14],[18]

REDUCES UV EXPOSURE
Along pedestrian and cycling paths which encourages more walking and cycling
[5],[7],[8],[9],[12],[18],[19]

URBAN GREENING IS ONE OF THE MOST COST EFFECTIVE AND EFFICIENT MECHANISMS FOR ADAPTING CITIES TO CLIMATE CHANGE

By intercepting stormwater into natural soils and mitigating urban heat by providing shade and cooling to our local neighbourhoods. The average city block can generate more than five times as much stormwater runoff as a forested area of equal size.
[1],[4],[5],[9],[11],[12],[14],[18]

INCREASE PROPERTY VALUES BY UP TO 30%
With well maintained and spaced street trees
[3],[15],[16]

GREATER ECONOMIC PRODUCTIVITY BY UP TO 20%
Is recorded by retail and commercial shopping strips that are well treed and landscaped
[12],[18],[21]

Motorists drive more slowly along treed streets and so trees are frequently used as **TRAFFIC CALMING MEASURES**
[9],[12],[18]

URBAN GREENING

Helps to alleviate stress and **IMPROVES MENTAL HEALTH**
[19]

SUPPORTS BIODIVERSITY
by providing habitat, food sources and connectivity for wildlife
[9],[12],[18]

A core contributor of landscape character and aesthetics **IMPROVES THE LIVEABILITY OF A CITY**
[9],[11],[12],[18]

CLIMATE CONTROL

LARGE HEALTHY TREES ABSORB 60-70 TIMES MORE AIR POLLUTION THAN SMALLER TREES
Trees absorb carbon dioxide and produce oxygen improving our air quality
[12],[18]

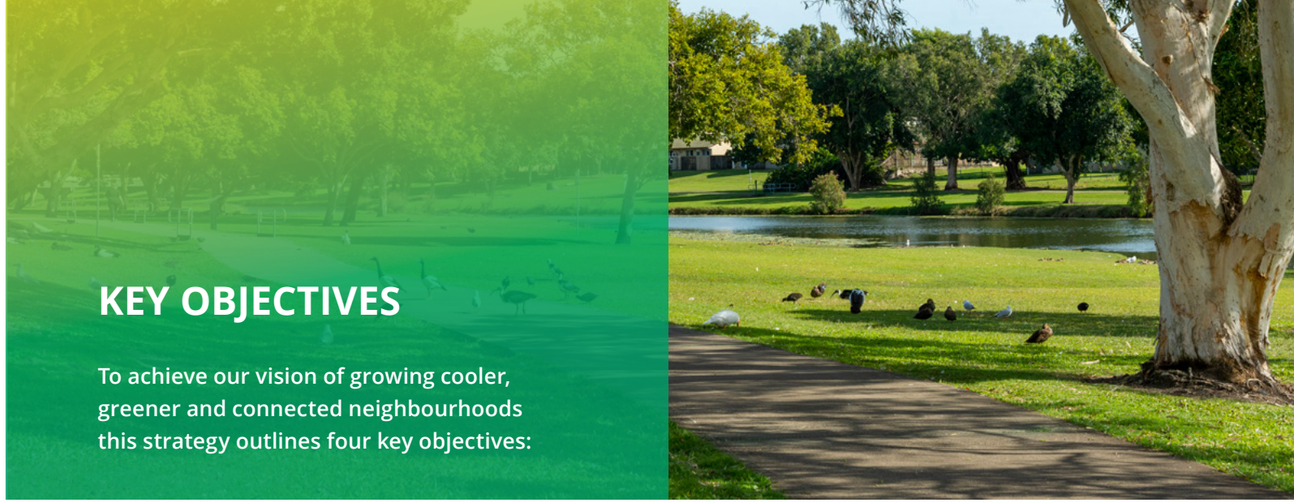
WHAT WE ARE AIMING TO
ACHIEVE

VISION

The Mackay region will have cooler, greener and better-connected neighbourhoods.

Cooler, greener and connected neighbourhoods are great places to live, work and visit and therefore support council's vision in becoming the best region for liveability and livelihood. Our urban greening program will deliver a great return on investment for council and community by providing:

- a network of tree-shaded pathways enhancing Mackay's vibrant and healthy outdoor lifestyle
- well-connected, attractive neighbourhood green spaces and places
- a new generation of signature trees that contribute to and enhance the urban landscape character and identity of the Mackay region
- enhanced habitats for native wildlife, supporting biodiversity connections and healthy waterways
- the opportunity to celebrate green assets and the partnerships that deliver cooler and greener neighbourhoods



KEY OBJECTIVES

To achieve our vision of growing cooler, greener and connected neighbourhoods this strategy outlines four key objectives:

01

Grow greener and cooler neighbourhoods

Create tree-shaded parks, open spaces and pathways, leafy streets and attractive liveable suburbs for everyone to enjoy. Greener and cooler neighbourhoods are great places to live, work and visit and contribute enormously to urban character and sense of place. They support council's vision to become the best region for liveability and livelihood, enhancing vibrant and healthy outdoor lifestyles.

02

Protect and nurture our valued green assets

Understanding, protecting and maintaining our green assets is an important part of growing a greener Mackay region. Vegetation will be considered as an asset to council and will be managed as such with a focus on maximising benefits and minimising costs. Adopting quality management and protection approaches will allow the greatest benefit to be gained from each tree, ensuring healthier longer-lived trees, and reducing the risks to and from trees.

03

Build community stewardship and partnerships

Fostering community stewardship and building partnerships will be a key component in achieving the vision for urban greening. The community, developers, businesses and other organisations can all play an important role in this space, by planting trees on individual properties, providing funding to planting programs, participating in planting events or educating children about how to plant and care for trees. Council will lead by example and utilise the communities' knowledge to build upon existing partnerships to create greening initiatives that allow the community to get involved and experience the benefits.

04

Adapt and learn

Council will keep improving how urban greening is delivered. Progress will be monitored and reported to ensure the greening program is on the right track, and adjustments will be made to the program accordingly. Community feedback will continuously be sought and innovative solutions to the challenges of a changing climate and competition for space will be trialled.

GREATEST OPPORTUNITIES

Based on a review of council's existing urban greening program and in consultation with council staff and the wider community, the following key focus points have been identified for this strategy:

Plant more trees

- Plant more trees than are removed
- Plant more trees along shade hungry pathways and in parks and open spaces
- Grow the next generation of significant trees and trees along our township gateways and boulevards to enhance local and regional identity
- Reduce the extent of mowed grass on council land by planting more local native trees and other vegetation for biodiversity and habitat enhancement
- Deliver developer-funded tree planting programs in new residential estates
- Ensure policy standards for tree planting are met as part of all new council and state capital projects, renewals and upgrades.

Improve the way we do things

- Embed urban greening into the planning and development of the Mackay region's future
- Embed urban greening into council's design standards
- Improve maintenance of the region's urban green assets
- Build better community understanding, connection to nature and pride in urban greening
- Be open to innovation and learn from others
- Learn from and build on urban greening achievements.

Work together

- Work across council departments and programs to deliver a smarter green asset approach
- Develop community and inter-agency partnerships and seek external funding opportunities to deliver a greener future for the whole Mackay region
- Celebrate the region's trees and biodiversity.

SIGNIFICANT PLANTINGS

Prior to and during early settlement, mango and coconut trees were planted in coastal areas for shipwrecked sailors.

Image: Barnes Gardens, Cremorne, Mackay, ca. 1912

MACKAY'S URBAN GREENING ACHIEVEMENTS TO DATE

Free Native Plant Program

Provides up to four free plants to each property contributing over 10,000 plants annually.

National Tree Day

Council organises an annual community planting event for National Tree Day in July each year. Each year thousands of tube stock are planted to create new habitats.

Protecting our significant legacy trees

Many of the region's older legacy trees have been maintained and protected by Mackay's significant tree register and through better and more innovative design choices

Quality greening outcomes in newer developments

There have been some great urban greening and stormwater management outcomes within medians and tree-shaded verges.

Proactive tree risk assessment and maintenance program

Council runs a proactive tree maintenance program which has reduced the amount of reactive works and customer requests, saving time and money. Regular inspections and maintenance also decrease damage caused to and by trees during storm events by removing unstable limbs.

Speedy storm and cyclone clean-up

Council crews are quick to respond after storms or cyclones cause damage.

Little McCready's Creek

Council, with assistance from local natural resource management body Reef Catchments, restored a section of Little McCreadys Creek to demonstrate best practice water sensitive urban design (WSUD) outcomes. This was done by installing rock and timber bed and bank controls, fishways, benched wetlands and dense riparian vegetation.

WHERE ARE WE
NOW

Hierarchy of council's governance documents showing where the Urban Greening Strategy aligns to others

POLICY CONTEXT

The Mackay Urban Greening Strategy will support the objectives of council's Corporate Plan by helping to deliver on the pillars of Live and Visit and Community and Environment. It will also directly support council's vision to become the best region for liveability and livelihood. This strategy supports the planning scheme's principles of achieving good neighbourhood design and helps to achieve the objectives of the Environmental Sustainability Strategy.

The Mackay Urban Greening Strategy itself is the primary document that directly influences tree management practices and policies and urban tree planting programs. Tree planting standards for development, including council projects, will be influenced by this strategy and reflected in the planning scheme.

The outcomes of the Urban Greening Strategy integrate with other local and regional management priorities such as transport, sustainable water management, climate change, recreation, inclusiveness, public domain planning and community health.

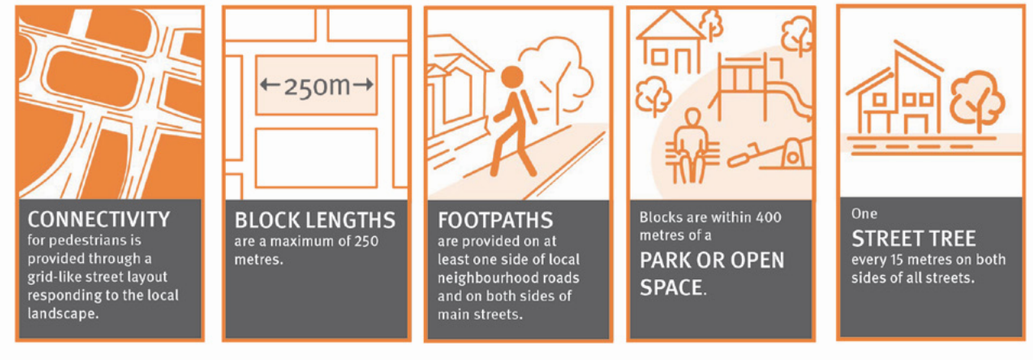
STATE CONTEXT

The Queensland Government does not have an overarching policy framework to support or encourage urban greening like New South Wales' *Greener places: Urban green infrastructure design framework or Victoria's Plan Melbourne 2017-2050 - Cooling and Greening Melbourne.* Instead, it has set a position statement and nine priority principles to high quality urban design outcomes in the Queensland QDesign Manual hpw.qld.gov.au). There is also a model code and mandatory requirements for neighbourhood design including assessment benchmarks to encourage more walkable neighbourhoods in the Planning Regulation 2017. These requirements align with the objectives of urban greening. Minimum requirements include one street tree planted every 15 metres on both sides of the street, but council is allowed to go above and beyond this minimum requirement.

SIGNIFICANT PLANTINGS 1860's

Mackay's most iconic tree, the Leichhardt tree was used to tie up tall ships docked in the river which later became the site where new settlers to Mackay first set foot.

Image: Leichhardt tree, ca. 1880



Minimum requirements for high quality design outcomes set by the Queensland Government

URBAN GREENING IN MACKAY - HISTORY

Mackay has a rich history that includes vegetation management for various community and economic benefits. Past decision making has influenced the way our urban areas look and feel now, and we can learn from past practices to ensure moving forward, Mackay will be greener and cooler.

SIGNIFICANT PLANTINGS

1870's– Exotic plants became abundant as ornamental plantings and mango trees were planted as a food source.

Prior to 1860

The region was covered by vegetation which was comprised of four broad types:

- Rainforest in the ranges to the west and at Cape Hillsborough
- Tropical woodlands in upland rainforests and fertile parts of the region
- Open woodlands dominated by eucalypts in less fertile areas
- Mangroves and certain casuarina species in foreshore and tidal areas[12].

These lands were the home to the Yuwi and Widi people. Prior to European settlement the Indigenous population managed the land sustainably for millennia.

1860-1865

Captain John Mackay led an exhibition in search of quality grazing land in the Pioneer Valley. He returned with 1200 cattle and established Greenmount station.

Early settlers then began clearing the land to establish cattle properties.

1865-1900

Mass land was cleared to plant sugar cane and construct sugar mills. By the end of the century sugar plantations occupied more land than the cattle properties, which were limited to the less productive hillside land.

The wharf at River Street was the primary means of exporting produce and was a key transit point. The Leichardt Tree was used as a place to tie up sailing ships before the wharves were built.

1900-1960

The 1918 cyclone devastated the region. Numerous buildings were destroyed, and rebuilding the town took many years.

During The Great Depression, work to beautify the main streets with landscaping was undertaken as part of an unemployment relief scheme which also aimed to attract tourism.

Mackay adopted Queensland's first Planning Scheme In 1934, which included a recommendation that street trees be planted at 12-metre intervals.

Many memorial avenue plantings were undertaken during WW2.

1960-1980

Mackay's tourism industry flourished thanks to the development of a number of tourist resorts and island tourism on Brampton, Lindeman and Keswick islands.

A 1958 Mackay tourism video stated that Mackay *"is a beautiful city with garden plots and tall palms down the centre of its wide streets. These reflect the civic pride of the residents."*

1990-Present

The popularity of Airlie Beach and the Whitsunday Islands led to a decline in Mackay tourism. However, attracting tourism continues to be an important objective of Mackay Regional Council.

In the early 2000s a mining boom led to rapid population growth that lasted until 2013. This led to the development of a number of high-rise buildings in the CBD as well as rapid expansion of residential neighbourhoods and the Paget industrial area.

Much of this development was located on land that had previously been cleared for sugar cane. Street and park trees were planted on scale to create welcoming residential neighbourhoods.

URBAN GREENING IN MACKAY - TODAY

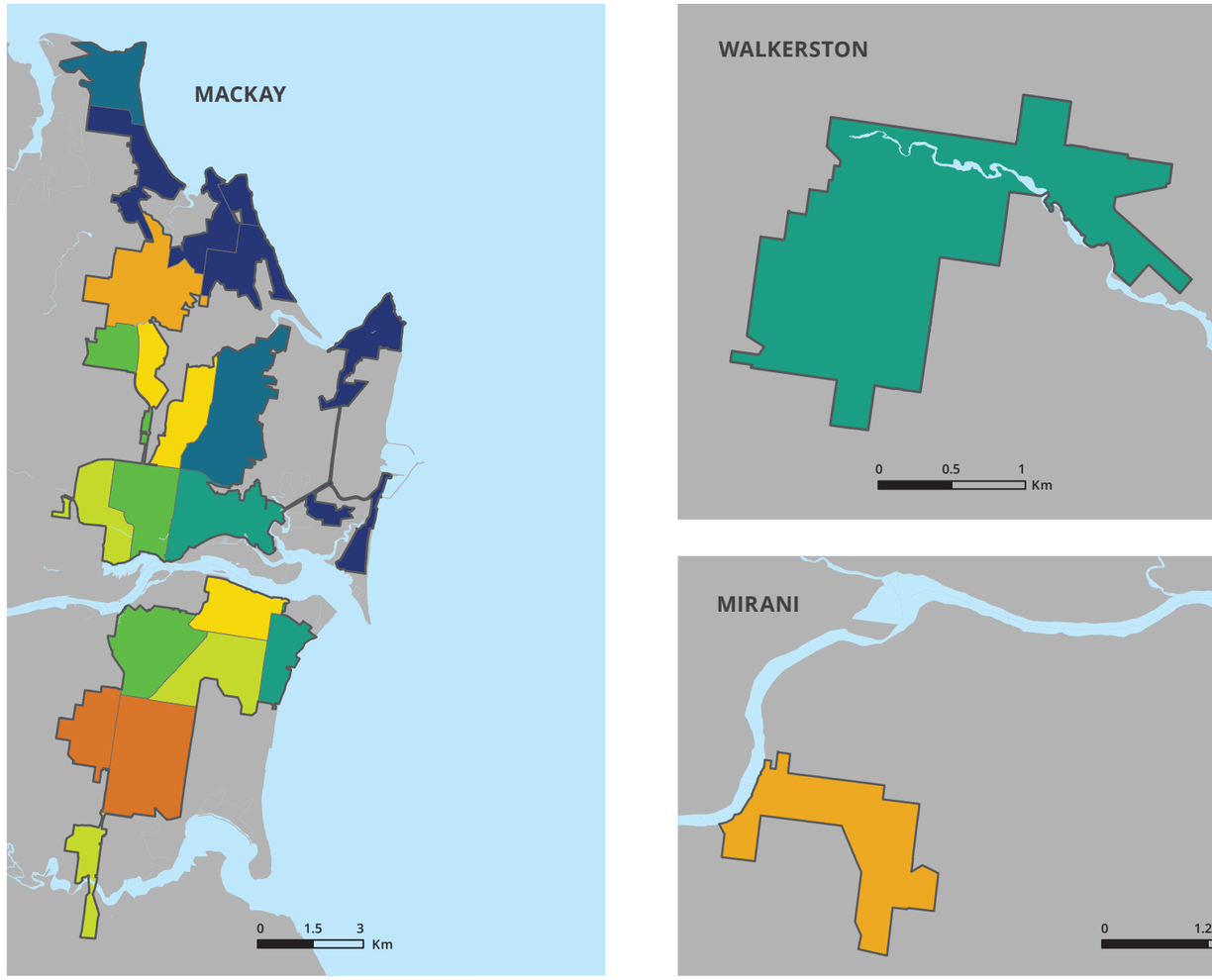
Existing tree canopy cover

Tree canopy cover is measured as the percentage of an area covered by tree canopy from an aerial perspective (ie. the branches and leaves of a tree). It is one of the most effective and often used metrics of urban greening as it shows where and how much benefit is gained from the existing tree canopy across each urban area.

As of 2021, only 14 per cent of Mackay's urban areas are covered by tree canopy, which in an urban context across Australia is considered quite low. For example, the canopy cover across Canberra's urban areas is 22.5 per cent[22]. The city centres of some of Australia's most densely populated cities have greater tree canopy cover than Mackay, including City of Sydney with 18.1 per cent[23] and Brisbane's CBD and inner-city suburbs with 16.3 per cent[6]. In Mackay, just over half of the urban tree canopy, 53 per cent, lies on privately owned land with the remainder on public land, most of which is controlled by council.

However, looking at a finer resolution, some suburbs have much greater tree canopy cover than others.

The lowest levels of tree canopy occur in industrial areas like Paget, with the highest levels of cover in suburbs like Blacks Beach, Bucasia and Slade Point. Only seven of Mackay's twenty-five suburbs/townships (around one fifth) have tree canopy cover of 20 per cent or more. In contrast, four out of five suburbs in Brisbane have 20 per cent or more canopy cover[13]. As a result, most of Mackay's residents are missing out on the significant health and wellbeing benefits of cooler, greener neighbourhoods due to a lack of tree canopy cover.



Map group 2: Tree Canopy cover by suburb across the urban Mackay region (2021)

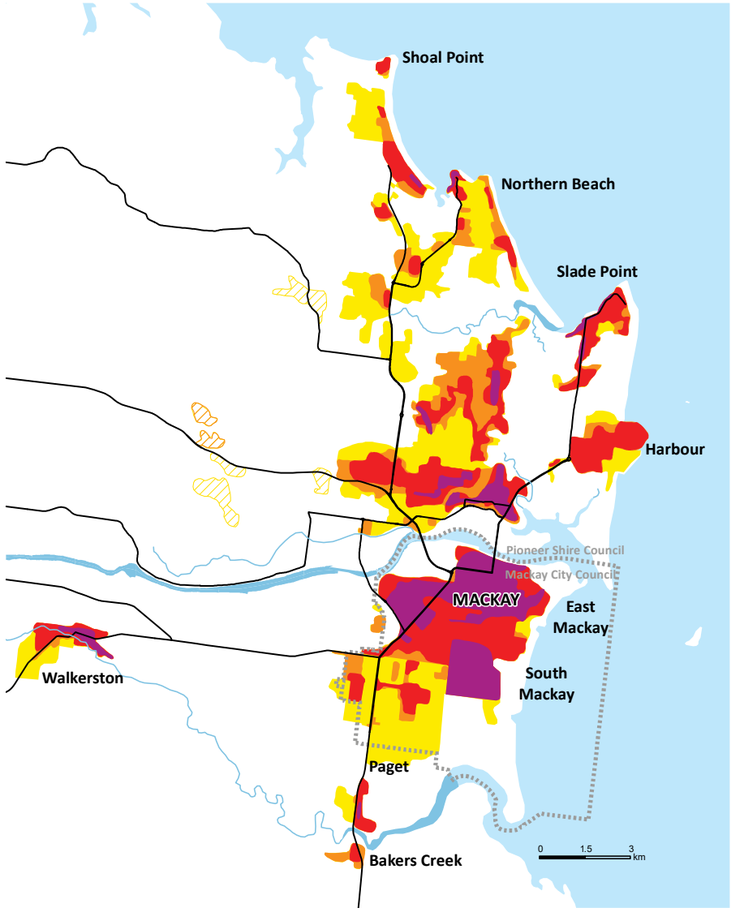
Tree canopy cover change

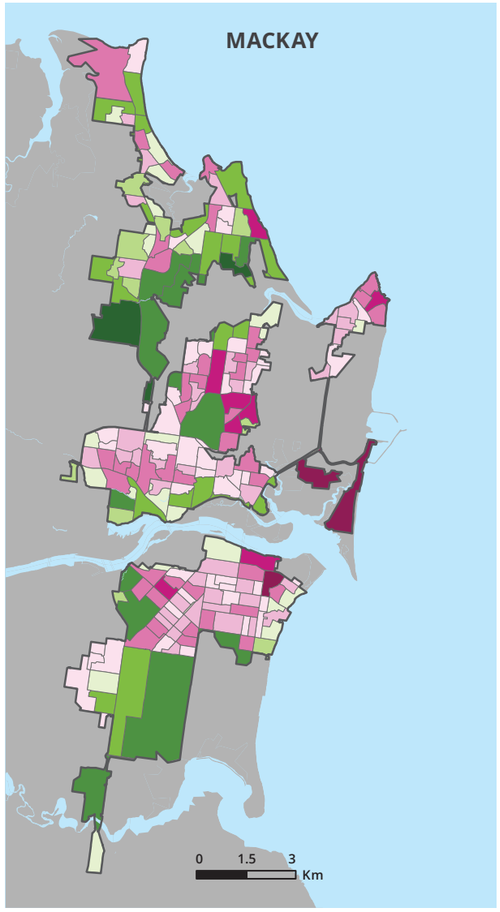
Unfortunately, since 2015, the tree cover in Mackay's urban areas has decreased from 14.2 per cent cover in 2015 to 14 per cent in 2021. This equates to approximately 30 hectares, or the equivalent of sixty football fields of tree cover that has been lost. However, this is not consistent across the urban area.

More established suburbs like West and South Mackay and parts of Andergrove have seen more loss than others. These areas have a higher existing tree canopy cover due to the presence of larger, older trees and it is likely that a combination of storm damage, urban development and changing landholder preferences for trees is contributing to this loss of tree cover.

Some newer suburbs, such as Rural View and Blacks Beach, show gains in tree canopy cover. This is likely a result of street and park tree planting in subdivisions where previously sugar cane dominated the landscape.

In the last five years, there have been gains in canopy cover across urban Mackay on council-





Map 3: Urban area expansion across urban Mackay since 1952. These areas align with changes in tree canopy cover.

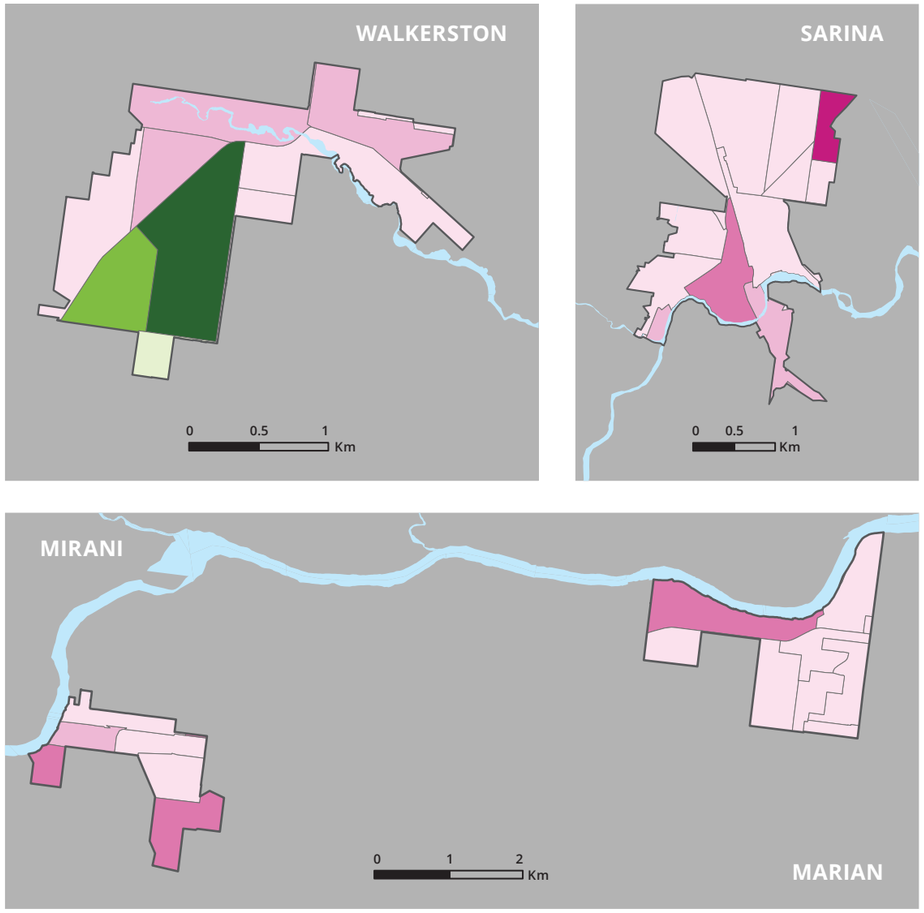
Current development pattern

- 1952 urban area
- 1986 urban area
- 1998 urban area
  Andergrove/Beaconsfield growth
- 2013 urban area
  Record urban expansion 2002-2013
  - Northern residential areas
  - Paget industrial area
- Approximate local government boundary 1987
- Major waterways
- State controlled roads

controlled lands. However, during this time these gains have been outpaced, mainly by the loss of tree cover on private land elsewhere. For example, the gain of 1.5 ha of canopy on council land in Andergrove was outpaced by a loss of 11 ha on private land.

Much of this loss and gain in tree cover, as illustrated in map group 4 (to the right), can be aligned to urban growth across Mackay as seen in map 3 (to the left) which shows Mackay's development areas from 1952 through to 2013

The older suburbs shown in purple and red, such as central and South Mackay, generally align with where tree canopy loss is occurring. The more recent development areas in yellow show tree canopy gain.



Map group 4: Tree Canopy cover change (gain or loss) by SA1 across the urban Mackay region (2015-2021)

The older suburbs generally have larger lot sizes and contain more well-established trees and therefore have more to lose. Based on anecdotal evidence from Australian capital cities it is likely that tree removal on private property is occurring due to a range of factors: development, new backyard sheds or pools, tree deaths, storm damage, resident concerns about tree safety or resident preferences. The newer suburbs, however, are experiencing tree canopy gains as land is converted from sugar cane plantations into residential housing, and newly planted street and park trees are growing. The losses in older areas highlight the importance of both a tree replacement program and the need to increase community/resident awareness about the importance of trees on private property.

Hectares gain or loss

- -4.05 – -2.00
- -1.99 – -1.00
- -0.99 – -0.50
- -0.49 – -0.25
- -0.24 – 0.00
- 0.01 – 0.25
- 0.26 – 0.50
- 0.51 – 1.00
- 1.01 – -2.00
- 2.01 – 3.66
- Mackay Urban Greening Area

URBAN GREENING IN MACKAY - TODAY

Tree canopy by land use type

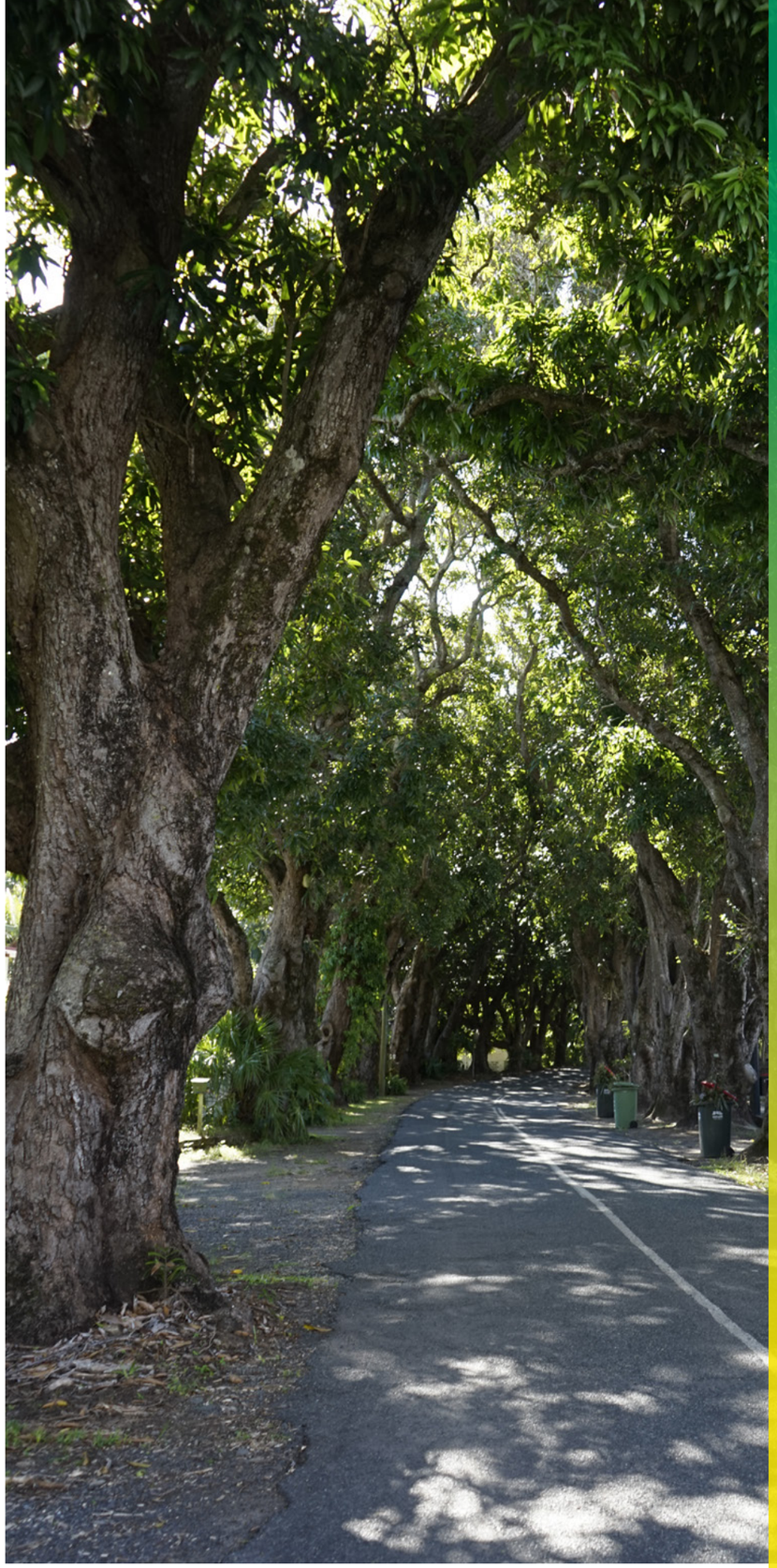
Just under half of Mackay's urban land area is zoned residential (under private ownership), which also contributes the largest amount, 45 per cent, of tree canopy to Mackay's total urban tree canopy by land use type. It contributes 500 hectares of Mackay's total 1113 hectares of urban tree canopy and is therefore a very important component of the total amount of urban greening.

Parks and open spaces are major contributing land use types to tree cover, contributing 304 hectares or 27 per cent of total tree canopy. Road reserves contribute 219 hectares or 20 per cent of total urban tree canopy.

However, the grey components of figure 1 suggest that tree canopy as a percentage of land use type is relatively low for some of these major contributors. Tree canopy cover on private residential land is only 15 per cent and road reserve canopy is only 13 per cent. Surprisingly, average pathway tree canopy cover is only 17 per cent (note this includes roadway and open space pathways). Parks and open spaces are the land use with the highest per cent canopy cover at 33 per cent.

This shows that there are opportunities for improving tree canopy cover on council owned land such as pathways, parks and open spaces, and for private landholders to increase tree cover on residential land.

Turning the tide on trends of canopy loss clearly requires a prioritised and planned approach, including learning from the things that are contributing to gains in some areas, diving deeper into the challenges of those areas in greatest need, and responding to community priorities and concerns.



SIGNIFICANT PLANTINGS 1880

Mango Avenue was established in Eimeo to support Mackay's first seaside resort.

Figure 1: Tree canopy cover contribution by land use type in hectares. Note: commercial, industrial and residential land is all PRIVATELY owned. Pathways, road reserves and parks and open spaces are all PUBLICLY owned.

URBAN GREENING ROLES AND RESPONSIBILITIES

No single agency is responsible for urban greening. Given that just over half of the tree canopy grows on private property, it is private landholders that control most of the region's urban greening assets. However, council plays a key role overall because it not only plants and cares for trees and landscaping in parks, streets and public facilities, but also sets planting requirements for new development activities, and encourages tree planting on private property through initiatives like its Free Native Plant Program. Council, however, has finite resources and cannot achieve its greening goals alone. It relies on the community and other key stakeholders as shown on the right and discussed below. Urban greening is a team effort requiring strong community, business and government partnerships.

The Department of Transport and Main Roads is mostly responsible for funding the planting and maintenance of vegetation along state-controlled roads. If council adds additional vegetation council will generally have to fund the planting and maintenance of this.

Council partners with organisations and businesses to achieve desired outcomes on public and private land. Other stakeholders such as Landcare groups also undertake some planting programs across both public and private urban lands.

Council controlled land

Local roads, parks, reserves and council facilities

Council plant and maintain all vegetation.

Council also has policies that protect trees on council land such as the Significant Tree Register.

New neighbourhoods

New residential areas being developed

Developers plant street and park trees in accordance with council requirements.

Developers maintain trees for one year before handing over to council to maintain.

Private properties

Residential back yards and front yards, commercial properties

Planting and maintenance is undertaken by the property owner.

Council provides some incentives for planting on private property such as the free native plant give away.

Council set requirements for planting on some commercial properties for screening or aesthetic purposes.

Roles and responsibilities for urban greening by land tenure

SIGNIFICANT PLANTINGS

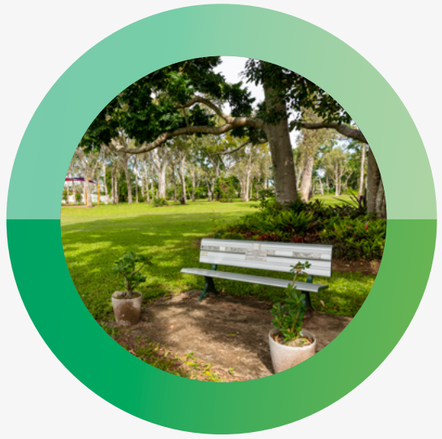
1884– Queens Park was established.

Image: Queens Park, Mackay, QLD ca. 1940

THE CURRENT GREENING PROGRAM

Council currently plants, removes and maintains trees and vegetation on council owned and managed properties, along roads and streets and in open spaces, such as parks, various types of reserves, including coastal foreshores. Council also provides incentives and information to the community to encourage the planting of trees. Although these activities form council's current urban greening program, they are currently run on an ad hoc basis year-on-year without a clear strategic direction. There are also gaps in the current program that need to be addressed.

Some of the current activities that occur and some of the gaps that we intend to address through the delivery of this Strategy are listed to the right.



OPEN SPACE

Current Program:

- Plant approximately 2500 trees and plants in open space and conservation reserves each year
- Mulching park trees
- Proactively inspect high risk trees

Gaps:

- No strategic plan for planting or improving shade cover to meet Open Space Policy tree canopy cover target over recreational open space pathways
- No formal tree management or protection policy
- No formalised tree inventory

STREETSCAPES

Current Program:

- Plant approximately 60 street trees per year
- Budgets cover the planting of approximately 15 customer street tree requests
- Proactively inspect high risk trees
- Tree maintenance predominantly run on a reactive basis from customer requests or storm cleanups

Gaps:

- Remove 450 street trees per year so losing around 390 street trees per year. Removed trees are not always replaced.
- No dedicated street tree planting plan or program
- No cyclical inspections or maintenance program
- Developer street tree contributions not being planted as process not in place
- No formalised tree inventory
- No formal tree management or protection policy
- No formalised tree inventory

COMMUNITY PLANTINGS

Current Program:

- Native plant giveaway program
- National tree day
- Community revegetation planting days
- Botanic gardens plant information tours

Gaps:

- No formal community education or awareness program about urban greening
- Only limited incentives for residents to plant trees on their private property

OTHER COUNCIL WORKS

Current Program:

- Ad hoc and limited inclusion of tree planting in council projects

Gaps:

- Trees not treated as assets when planning and constructing other infrastructure
- No organisational commitment to prioritise urban greening in council projects

SIGNIFICANT PLANTINGS

1888 – What is now the Mackay Regional Botanic Gardens began as a nursery which unsuccessfully sought to find an economically viable alternative crop to sugarcane.

URBAN GREENING WORK IN PROGRESS

There is already a body of work in progress as council and the region transitions towards the objectives for urban greening set-out by this strategy.

The following projects are underway:

- Investigating measures such as overlays and offsets which will seek to protect significant trees and vegetation as part of the review of the Natural Environment Plan
- Improving development compliance by:
  - mandating better private landscaping requirements
  - improving the quality of street and park tree stock
  - improving the street tree delivery process in new developments
- Developing a robust policy position on driveway crossovers and street trees
- Developing road cross sections, including tree planting and non-standard typologies inclusive of trees and WSUD.

SIGNIFICANT PLANTINGS 1897

60 significant trees planted for the Diamond Jubilee of Queen Victoria including the 'Jubilee Tree' which was initially planted at the intersection of Sydney Street and Victoria Street before being moved to Queens Park in 1965

Images: Above – Jubilee Tree being uprooted August 10, 1965, Bonzle, Dick Bale. Left – Jubilee Tree in Queens Park in 2022.

CHALLENGES AND GAPS

Protecting and growing urban greening assets comes with a series of challenges that need to be considered. Challenges are best overcome when council and the community can work together towards a shared vision.

CLIMATE CHANGE

Mackay, like many other coastal locations in Queensland, is vulnerable to the effects of climate change.

The consequences of climate change in our region include warmer average temperatures, rising sea levels and more extreme weather events such as heatwaves and cyclones. These changes pose significant challenges not only for the longer-term health of the region's communities but also for urban vegetation.

Urban vegetation, in particular trees, are one of the most cost effective and efficient mechanisms for helping the region adapt to climate change through their ability to shade and cool the urban environment, but also to intercept rainfall and stormwater runoff. Vegetation also helps to stabilise our foreshore from storm events as well as acting as a windbreak.

In the future, the region can expect:

- higher temperatures
- hotter and more frequent hot days
- more intense downpours
- less frequent but more intense tropical cyclones
- rising sea level
- more frequent sea-level extremes
- warmer and more acidic seas

In direct contrast, trees when exposed to severe weather events can impose significant financial cost to property and assets due to falling trees or branches. Further to this, a significant numbers of trees are lost during cyclone events, and are not typically replaced.

What does this mean for the Mackay region?

Research from James Cook University suggests that risk can be minimised through the following:

- Appropriate tree species selection, ensuring the right tree is planted in the right location. Selection of tree species that are more resistant to wind in more built-up areas.
- Encouraging stronger and deeper root growth through best practice tree planting that provides good soil volumes, nutrients and deep watering during establishment
- Proactive maintenance and regular inspections to ensure all known risks of structural and health issues are rectified through maintenance.

While no tree or shrub will always stand up to cyclonic winds, the risk of tree damage or loss can be minimised by following a sound decision making process around species selection, establishment practices and maintenance. This also applies to selecting resilient vegetation with tolerances for higher average temperatures.

Key actions:

= **Review and continually update council's List of Plant Species suitable to the specifics of Mackay's bioregion and in consideration of future climate**

= **Create a program of succession tree planting to ensure continued benefits for future generations**

= **Ensure council is planting superior quality tree stock and all new trees are established and maintained for the first three years post planting.**

CURRENT RESOURCING

With current resources, council is not able to maintain the existing level of urban greening at a best practice standard. Around 50 per cent of Mackay's street trees are inspected and proactively maintained as per industry's best practice standards, however the remaining 50 per cent are maintained on a reactive basis in response to customer requests or storm events. Regular cyclical inspections and a proactive maintenance program would likely reduce the number of customer requests significantly.

Currently there is no dedicated annual tree planting or tree renewal budget allocation. Tree planting is done on an ad hoc basis and is predominantly driven by customer requests. Added to this, not all newly planted trees receive adequate watering to help them establish.

Given the commitment to helping the region adapt to climate change, it is recognised that council will need to prioritise investment and the provision of adequate resourcing towards projects that seek to create multiple outcomes and benefits for the community and the environment. To streamline existing resources, council also need to embed urban greening outcomes in other council programs such as capital works and asset renewal programs.

Key actions:

= **Develop and implement a prioritised annual tree planting program which will determine the resources required to grow greener neighbourhoods**

= **Integrate tree planting into other council works and projects to streamline existing resources**

= **Review and update the proactive tree inspections and maintenance program to streamline operational resources.**

CURRENT URBAN TREE MANAGEMENT

Some key challenges and issues in the operational program for managing urban green assets identified as part of this strategy development are as follows:

- Tree protection compliance and enforcement
- Ad hoc tree establishment and watering standards, especially for newly planted trees
- In some cases, developers have provided funding to council to plant trees in lieu of providing trees at the time of releasing lots, but these trees have not yet been provided for several years due to a number of reasons
- In some new developments poor quality tree stock has been planted which is now creating management issues
- Council's asset management system is not fit for purpose for collecting tree data
- Consistency in the way council staff and contractors plant, retain and maintain trees
- Consistency and long-term planning related to the procurement of street tree stock including long term contracts to grow trees to Australian standards and specifications.

Key actions:

= **Develop a Tree Management Policy including tree protection, removal and replacement protocols**

= **Update existing tree inventory to include all street trees in Mackay, Mirani, Marian, Sarina and Walkerston**

= **Ensure council is receiving and planting good quality tree stock**

= **Ensure all newly planted trees are established and maintained for the first three years post planting**

= **Develop best practice tree selection, planting and maintenance guidelines for developers**

= **Review and update the process of and contract specifications for tree stock procurement**

= **Ensure tree database on Assetic is kept up to date through regular in-field works updates.**

URBAN GREENING IN THE PRIVATE REALM

Private residential land is the largest land use type in the urban area; it contributes 45 per cent of the total urban tree canopy. This means that the tree canopy cover gains that are being made on public land managed by council are being outweighed by losses on private land. In comparison to many of Australia's major cities, Mackay has the luxury of space and private residential lots are generally bigger than our capital city counterparts. Verges and front setbacks within subdivisions are also generally wider than metropolitan cities. However, this does not necessarily translate into more private green cover. Our lifestyles and housing preferences place value on backyard sheds, car parking space, pools and paved patios over vegetation, especially trees. Further to this, average lot sizes in new development are falling yet house sizes have remained the same. As such, the traditional backyard has disappeared leaving limited opportunity to establish large trees on some newly developed private land. This is further exacerbated by smaller road reserve widths in new developments, making it difficult to fit required services, including street trees.

Trees in the private realm are often not valued and in many cases are seen more as a liability than an asset. While council maintains a Significant Tree Register and regulates the protection of trees through planning overlays and local laws, the enforcement of these is not proving effective. With only 15 per cent tree canopy cover over our private residential land, there is a clear opportunity to incentivise residents to plant more trees on their private property.

Interestingly, a community survey run to inform the development of this Strategy in 2021, showed that 54 per cent of the 261 respondents support greater protection for trees on private property. 31 per cent were somewhat supportive and 14 per cent did not support any further protections. Further to this, 80 per cent of respondents would support council offering incentives for residents to plant trees on private property. This suggests that residents do value private trees and support council exploring options for protecting existing vegetation or incentivising new vegetation on private land.

SIGNIFICANT PLANTINGS 1889

Significant trees planted at the Mackay cemetery

Key actions:

= **Explore and implement feasible incentives for encouraging landholders to plant trees and vegetation on their own property**

= **Develop a suite of communication tools that aims to educate, engage and inspire the community about urban greening and the importance of retaining well-established trees and vegetation, particularly on private land**

= **Review and update the Significant Tree Register**

= **Explore potential mechanisms for protection of trees on private property.**

COMMUNITY KNOWLEDGE AND UNDERSTANDING

Consistently, council officers face the challenge of residents opposing the planting of a street tree out the front of their property or who want their street tree removed. Residents often feel that their individual preferences around vegetation should extend to the verge in front of their house. This creates a large barrier in delivering a street tree planting program. In many other regional councils across Australia, this issue has been explored and found to be directly influenced by gaps in knowledge and community understanding about the benefits of urban greening, and in particular, the benefit of trees. By improving general understanding and acceptance of the broad civic benefits of street trees and council's role in planting, protecting and maintaining them, there will be a greater desire for better urban greening outcomes.

Key actions:

= **Develop a suite of communication tools that aims to educate, engage and inspire the community about urban greening**

= **Develop a simpler method for community to nominate or request a street tree**

= **Investigate incentives for private landowners to plant and grow additional trees on private properties**

SIGNIFICANT PLANTINGS

1930s – 'Palm Walk' established at Queens Park (left). Streets beautification program aimed at attracting tourism as part of an unemployment relief program (below).

Image: Wood Street, ca. 1930

INFRASTRUCTURE CONFLICTS

It is important to remember that there is no perfect tree and that in the past, some tree species have been planted in urban environments that were either not appropriate or have outgrown the site. Past decision making has left a legacy of some conflict between infrastructure and trees that now needs to be resolved. Currently, in these circumstances, the end result is that the tree is removed to solve the infrastructure conflict. Industry knowledge about species selection and ensuring the right tree is planted in the right location has greatly improved and we now have the opportunity to make more informed decisions about species selection and placement.

Furthermore, smaller road reserves in newer neighbourhoods provide less space available for street trees creating potential underground conflicts between service corridors and trees. Smaller front setbacks, driveways, utility connections, light poles and drainage compete for space with street trees. These reductions in road reserve widths and overall public space are driven by road hierarchy guidelines but also the need to maximise the number of lots in these private developments, to meet population growth and housing stock requirements.

Key actions:

= **Review and update the proactive and regular tree inspection and maintenance program**

= **Create program of succession planting**

= **Develop streetscape design guidelines and typology specifications**

= **Develop best practice streetscape design tree selection, planting and maintenance guidelines for developers**

WHAT THE COMMUNITY
WANT

A community survey was conducted in mid 2021 asking residents about their perceptions of urban greening, their wants, expectations and thoughts on various tree management elements. Council received over 250 responses and the results indicated that people:

- value the trees in their neighbourhood
- would like to see more trees in their neighbourhood and across Mackay
- particularly appreciated trees that provide shade for outdoor activities and trees that contribute to the biodiversity of the region.

SIGNIFICANT PLANTINGS

1935 – Jubilee Park established for the Silver Jubilee of King George V, with commemorative Weeping Figs.

The community would like to participate in activities that offer free trees for planting on private property, that provide opportunity for local tree planting activities and that help to care for trees in the local area.

99%

Support council to invest in more trees

95%

Believed trees contribute a lot to the quality of a neighbourhood

91%

Thought their neighbourhood needed more trees

85%

Support or somewhat support greater protections for existing trees on private property

95%

Would support increased council incentives for tree planting on private property

In planning for more trees council should:

- avoid damage to properties and services
- choose native species
- involve local residents in the choice of species and placement of trees.

Respondents want to see more trees that support wildlife, trees that are native to the area, and medium-sized shade trees.

Biggest concerns:

- Poor choice of trees
- Risk to life and property during extreme weather

PRIORITY AREAS FOR URBAN GREENING

Setting priorities

In order to maximise the benefits of investment in urban greening over the next 20 years, and deliver the objectives of this strategy, projects such as the annual tree planting program will be prioritised to deliver greening where it is needed most. Priorities will be explored by analysing the data on tree canopy cover and trends of gain or loss across the region's urban suburbs as well as considering key activity locations, demographic data and community feedback. Following the data analysis, the initial recommended locations will need to be verified and ground truthed, and projects chosen in consideration of a number of other factors.

The prioritisation of projects will initially focus on some key areas including:

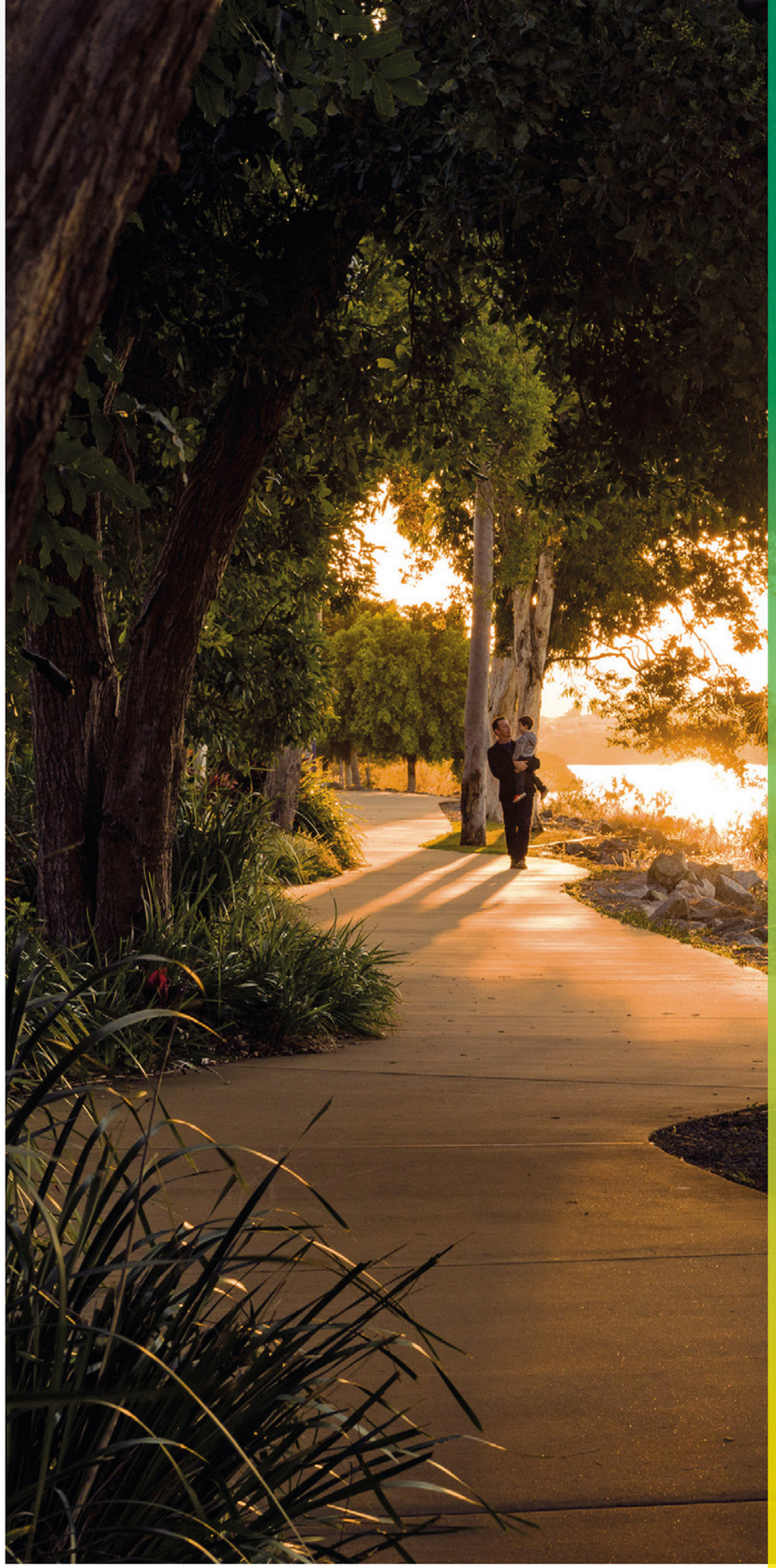
- pathways within parks
- roadside and other pathways
- biodiversity areas and corridors.

Some of the data that will inform the initial desktop prioritisation of these projects will include:

- existing canopy cover of suburbs and neighbourhoods and the trend of gain or loss
- the average canopy cover of parks and pathways within suburbs
- the proximity of locations to high activity areas such as schools, shops, community facilities
- the socio-economic disadvantage data of different neighbourhood areas.

After an initial set of priorities are generated, these will be ground truthed and the annual tree planting program will be further refined based on other factors such as:

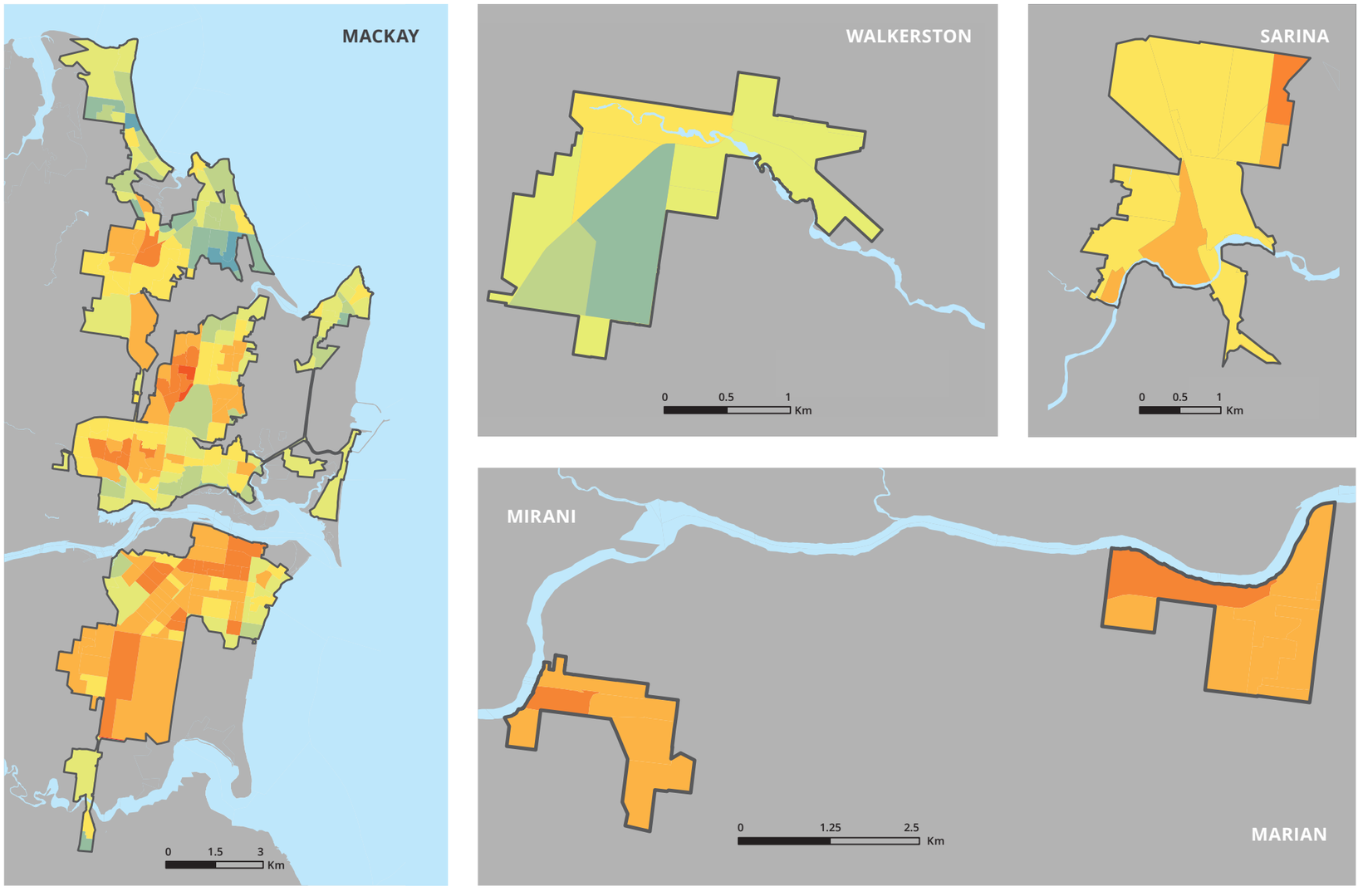
- site constraints, including the presence of underground infrastructure
- locations of highest pedestrian use
- community requests or feedback
- funding opportunities
- opportunities to partner with community programs, business and developers, and
- alignment with other council objectives.



PRIORITY AREAS FOR URBAN GREENING

SIGNIFICANT PLANTINGS

1953 – Significant trees planted for the Coronation of Queen Elizabeth II.



Priority Score - Canopy cover 2021 and SA1 trend (2015-2021)

- 1 Lowest priority (highest cover, increasing cover trend)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 Highest priority (lowest cover, decreasing cover trend)

Mackay Urban Greening Area

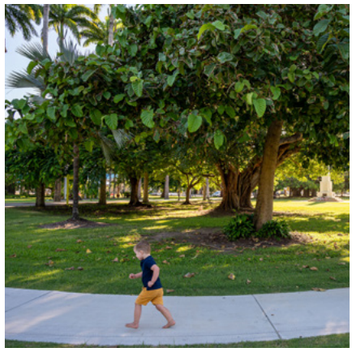
As a starting point, a high level prioritisation map has been prepared that provides a priority score of 1-10 for each neighbourhood area (SA1 census area). Neighbourhoods with low levels of tree cover in 2021 and a trend of losses over the previous five years scored highest and were coloured red. Neighbourhoods with higher canopy cover in 2021 and a trend of recent gains scored lowest and were coloured blue. Areas with a high score (red) may be targeted for planting projects as a high priority if further analysis also supports these locations.

Map group 5: Priority score at SA1 area based on level of canopy and trend of increase or decrease from 2015 - 2021

TARGETS

To help embed the vision and guide actions in day-to-day work, this strategy has set key performance targets, which will help guide the annual urban greening programs but also capital or one-off projects.

BY 2042, THE TARGETS ARE TO ACHIEVE:



An average of 40 per cent tree canopy cover over public pathways (up from 16.8 per cent in 2021). We will achieve an average of 50 per cent over park pathways to align with our open space policy.

An average of 40 per cent tree canopy cover over parks and open spaces (up from 33.6 per cent in 2021).

An annual net gain of public tree numbers ensuring more trees are planted than removed.

To keep us on track in delivering on these targets, we will focus on our four key objectives, which are to:

01 **Grow greener and cooler neighbourhoods**

02 **Protect and nurture our valued green assets**

03 **Build community stewardship and partnerships**

04 **Adapt and learn**

Within each of these objectives we have articulated a range of actions, timeframes and relative costings for us to achieve over the next two decades. We will work together with our community and other stakeholders to help us deliver these actions, while ensuring we improve our programs and decision making in line with best practice.

We will continue to monitor our progress in delivering these actions and refine our budgets and resourcing to maximise our ability to achieve our overall vision.

ACTION PLAN

Strategy Objectives	Actions	Timeframe	Cost
1. Grow greener and cooler neighbourhoods	Develop and implement Pilot Greening Projects		
	1. Shadeway Pilot - Park pathway planting	Short	$$
	2. Greening the Gaps Pilot - Priority habitat corridor via a community planting event	Short	$
	3. Cool Streets Pilot - targeting shade hungry “walk to destinations”	Short	$$
	Develop and implement a prioritised annual tree planting program that will create cooler streets, shaded pathways, green the gaps in our biodiversity corridors with local native species, create avenues, and reverse losses in canopy cover	Short then ongoing	$$
	Expand tree replacement program to ensure that a new tree is planted to replace every tree that is removed where feasible and succession planting is planned for	Short then ongoing	$$
	All Council projects and designs will adopt and apply the planting rates prescribed in Mackay Regional Council policies.	Short then ongoing	$$
	Embed tree protection and tree planting objectives and practices into all relevant council asset works and programs to contribute towards the tree canopy cover targets	Short then ongoing	$$
	Develop streetscape guidelines and specifications that seek to optimise opportunities in all Council works for innovative designs and solutions for trees	Long	$$
	Explore opportunities for greening and pathways in drainage corridors, alongside creeks and in old railway corridors	Long	$$
	Continue to review the Mackay Planning Scheme 2017 and update relevant components for better urban greening outcomes	Medium then ongoing	$
	Review and continually update council’s List of Plant Species suitable to the specifics of Mackay’s bioregion and in consideration of future climate	Medium then ongoing	$
	Ensure Council is planting good quality tree stock	Short then ongoing	$
	Expand the tree planting program to include three years of establishment care for every newly planted tree	Short then ongoing	$
	Update Mackay Landscape Guidelines to include best practice tree and species selection, planting and maintenance guidelines for developers	Medium then ongoing	$

Strategy Objectives	Actions	Timeframe	Cost
2. Protect & nurture our valued green assets	Continue to complete the tree asset database for all street and park trees in Mackay, Mirani, Marian, Walkerston and Sarina and incorporate into Council’s asset management system	Short then ongoing	$$
	Review and update the Significant Tree Register	Medium then ongoing	$
	Develop and endorse a Tree Management Policy including Corporate Standards for tree protection, removal and replacement protocols	Short then ongoing	$
	Develop a targeted pest species removal program that aligns with and supports the Natural Environment Plan actions for weed and biosecurity management - e.g. African Tulips	Medium then ongoing	$$
	Review and update the proactive and regular tree inspection and maintenance program for existing trees	Short then ongoing	$
	Develop and endorse a Mackay Tree Valuation Methodology for incentivising the protection of street and park trees during construction works	Short then ongoing	$
	Explore the use of monetary bonds and fines using the Mackay Tree Valuation Methodology to protect public trees impacted or removed by development	Short then ongoing	$
	Update disaster response guidance to allow rapid and accurate tree loss data collection for NDRA funding following weather events	Medium then ongoing	$
	Explore potential mechanisms for protection of trees on private property	Long	$
3. Community Stewardship and Partnerships	Develop a suite of communication tools that aim to educate, engage and inspire the community around urban greening	Medium then ongoing	$
	Develop regional partnerships for delivering and funding urban greening outcomes with businesses and organisations in the region	Short then ongoing	$
	Attain agreement or MoU with Department of Transport and Main Roads about provision of landscaping or vegetation in State Controlled Road corridors and along pathways	Short	$
	Develop pilot collaborative community tree planting projects whereby community take part in planning for and planting out prioritised sites	Short	$
	Build upon the current plant giveaway program and explore and implement feasible incentives for encouraging landholders to plant on their own property e.g. free horticultural/arboricultural advice, workshops, gardens for wildlife program	Medium	$
	Explore the use of a citizen science program such as wildlife counts, species counts, maintenance works, species suitability evaluations to aid Council in data collection	Medium	$$
	Review existing and update governance structure for volunteer activities	Medium	$
	Explore the development of an awards and competition program to celebrate those in the community helping to green our city	Medium	$$
	Develop easier processes for residents and community organisations to nominate or request a street tree or suggest areas for planting projects	Short	$

Strategy Objectives	Actions	Timeframe	Cost
4. Learning and Adapting	Report annually to Council on progress towards Strategy and actions achieved	Ongoing	$
	Communicate regularly to the community about projects completed and in celebration of our trees	Ongoing	$
	Explore opportunities to partner with neighbouring LGAs and research institutions in climate ready species trials and other innovations.	Ongoing	$
	Measure and track tree canopy cover every 5 years and report to Council on progress towards targets	Ongoing	$$
	Continue to monitor diversity and health of street and park trees and track tree planting and tree removal numbers	Ongoing	$

Timeframe Legend

Short = within 2 years

Medium = within 4 years

Long = within 6 years

Cost Legend

$ = low cost of existing budget

$$ = medium cost

$$$ = high cost

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