Waterwise streetscapes

An implementation guide for local government

WATER CORPORATION

Acknowledgments

Waterwise streetscapes has been prepared by Josh Byrne & Associates and is supported by DevelopmentWA, Department of Water and Environmental Regulation and City of Cockburn.

Government of **Western Australia**
Department of **Water and Environmental Regulation**

DevelopmentWA

City of Cockburn

JOSH BYRNE & ASSOCIATES LANDSCAPE SUSTAINABILITY COMMUNICATIONS

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Waterwise streetscape

Introduction

This guide provides practical advice to local governments on how to create waterwise verges at a street scale. Lawn has been the preferred option for many years. However, the benefits of replacing lawn with low water use plants has led to residents creating waterwise verge gardens. Beneficial urban greening outcomes improve when establishing verge gardens at a larger scale.

Local governments can use this guide with their own policies, guidelines and rebate/incentive schemes to create a waterwise streetscape.

The guide builds on our programs and publications:

- Waterwise Greening Scheme
- Creating a waterwise verge
- Selecting the right tree

Waterwise streetscape

Waterwise streetscapes that incorporate shade trees and diverse understory plantings can help to save water, create cooler micro-climates, provide ecological benefits, and create opportunities for food production and play.

Benefits of waterwise urban streetscapes

Verges are important green spaces that provide ecological and social benefits. They are an extension of our homes and connect our suburbs and cities.

Verges are also shared spaces for access and services including:

- Utilities
- Crossovers
- Municipal rubbish collection
- Footpaths
- Road barriers
- Street trees

Replacing lawn with low water use plants can increase urban greening. A well-designed and managed waterwise verge garden can provide many urban greenspace benefits.

Manage stormwater

Vegetation can increase local infiltration, reduce runoff and improve water quality.

Shade

Verge street trees provide shade, filter air pollution and restore and enhance the urban forest. Verge trees are important in areas where tree removal has occurred on private property due to urban development.

Cooler urban areas

Waterwise verge gardens provide shade and transpiration which reduces urban heat impacts. Cooler urban areas reduce artificial cooling requirements, energy costs and carbon emissions. Negative health impacts from heat waves are also reduced.

Increase biodiversity

Waterwise verge gardens can provide habitat for local wildlife and increase biodiversity.

Improve amenity

Waterwise streetscapes can improve amenity, aesthetics and increase property prices.

Local food production

Verge gardens can include food producing trees and plants. The local community can share the fresh local produce.

Improve wellbeing

Access to urban green space can improve physical health and mental wellbeing. Waterwise verges also provide a place to connect with nature.

Healthy communities

Cool and pleasant streets encourage travel smart options such as walking and cycling. This leads to healthy and active communities.

Connected neighbourhoods

Waterwise streetscapes provide a place for neighbours to connect and play. This results in positive health and wellbeing benefits for adults and children.

OneOneFive Hamilton Hill Waterwise Streetscape

OneOneFive Hamilton Hill waterwise streetscape project area

The OneOneFive Hamilton Hill Waterwise Streetscape demonstrates best practice implementation of waterwise verges in the streets next to the OneOneFive Hamilton Hill infill development by DevelopmentWA, in the City of Cockburn.

The project set out to understand the requirements for the broader roll out of waterwise streetscapes for enhanced urban greening and liveability outcomes. The project emerged from DevelopmentWA's commitment to including the local community in the infill development project and desire to better integrate and demonstrate the sustainability and liveability vision for the area. To achieve this, the Waterwise Streetscape established a demonstration waterwise verge and assisted residents to undertake their own verge transformations.

Examples from the Waterwise Streetscape process are included within this guide to provide a practical example of how verges can be transformed into cooler, greener, waterwise gardens at a larger streetscape scale for enhanced urban greening and improved urban space outcomes.

Developing a waterwise streetscape

Verges make up a large part of public open space. They contribute to the available urban green space for local communities. Verge garden transformations a streetscape level increase social and ecological benefits. Waterwise streetscapes can also define and reflect the culture of an area.

Local governments play an integral role in demonstrating and promoting waterwise streetscapes. They also support residents to develop their own waterwise verge gardens and streetscapes.

Consider why your local government should develop a waterwise streetscape. What are the intended benefits or outcomes and who is the project for? Recognising and communicating benefits can help you to determine the project purpose. Knowing this will help to guide internal discussions and approvals.

Consider whether your local government will install a demonstration project. Or will it be resident led? If so, how do you intend to offer support to residents?

Waterwise streetscape

Consider your strategic direction

Think about the strategic direction or plans for your local government and community. What is the local vision and values, and how will a streetscape project fit with that?

Understand your strategic direction and plans for urban greening. Is there an urban forest strategy or plan in place? Have you identified ecological corridors? What is the waterwise council status? Is there a current waterwise verge policy? Is the local government area (LGA) benchmarked as part of the Water Sensitive City Index? Consider these to help position the streetscape project as part of a broader vision. If the direction on urban greening is unclear, then focus on strengthening this.

Local governments are responsible for developing and implementing waterwise verge policies and guidelines. These determine how verges in their neighbourhoods should look. The guidelines also specify whether residents need approval for verge garden transformations. Make sure your current verge policy and guidelines support waterwise streetscape projects. If not, you should update these documents.

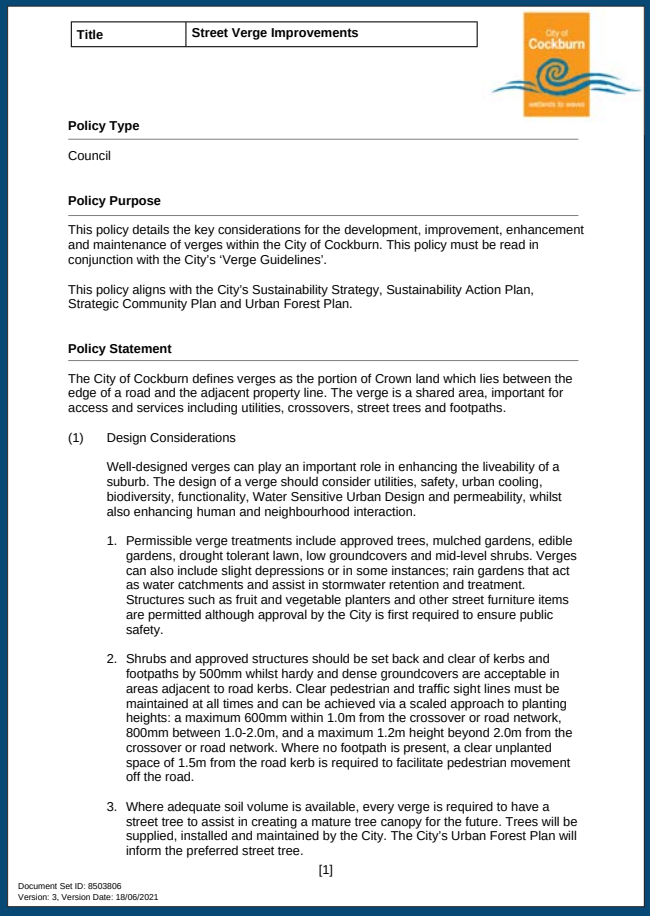
OneOneFive Hamilton Hill Waterwise Streetscape: Local government participation

The City of Cockburn is a key project partner in the Waterwise Streetscape Project. The project aligns with the City's strategic direction, as per:

- Waterwise Council Program
- Sustainability Strategy 2017-2022
- Urban Forest Plan 2018-2028
- Public Open Space Strategy 2014 – 2024

In addition, the City supports viable community urban greening projects and the development of ecological corridors. The City is also involved in the OneOneFive Hamilton Hill development, as part of local government planning processes, as well as participants in the OneOneFive Waterwise Exemplar program.

The City of Cockburn revised their Waterwise Verge policy in 2019 with input from the local community via a community engagement process. The policy is supported by an expansive "Improving your verge" web page which provides residents with guidelines and advice on creating waterwise verge gardens, including how to create a community verge.



Title	Street Verge Improvements

Policy Type

Council

Policy Purpose

This policy details the key considerations for the development, improvement, enhancement and maintenance of verges within the City of Cockburn. This policy must be read in conjunction with the City's 'Verge Guidelines'.

This policy aligns with the City's Sustainability Strategy, Sustainability Action Plan, Strategic Community Plan and Urban Forest Plan.

Policy Statement

The City of Cockburn defines verges as the portion of Crown land which lies between the edge of a road and the adjacent property line. The verge is a shared area, important for access and services including utilities, crossovers, street trees and footpaths.

(1) Design Considerations

Well-designed verges can play an important role in enhancing the liveability of a suburb. The design of a verge should consider utilities, safety, urban cooling, biodiversity, functionality, Water Sensitive Urban Design and permeability, whilst also enhancing human and neighbourhood interaction.

1. Permissible verge treatments include approved trees, mulched gardens, edible gardens, drought tolerant lawn, low groundcovers and mid-level shrubs. Verges can also include slight depressions or in some instances; rain gardens that act as water catchments and assist in stormwater retention and treatment. Structures such as fruit and vegetable planters and other street furniture items are permitted although approval by the City is first required to ensure public safety.

2. Shrubs and approved structures should be set back and clear of kerbs and footpaths by 500mm whilst hardy and dense groundcovers are acceptable in areas adjacent to road kerbs. Clear pedestrian and traffic sight lines must be maintained at all times and can be achieved via a scaled approach to planting heights: a maximum 600mm within 1.0m from the crossover or road network, 800mm between 1.0-2.0m, and a maximum 1.2m height beyond 2.0m from the crossover or road network. Where no footpath is present, a clear unplanted space of 1.5m from the road kerb is required to facilitate pedestrian movement off the road.

3. Where adequate soil volume is available, every verge is required to have a street tree to assist in creating a mature tree canopy for the future. Trees will be supplied, installed and maintained by the City. The City's Urban Forest Plan will inform the preferred street tree.

[1]

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City of Cockburn Street Verge Improvement Policy

Key locations and opportunities

Identify a suitable location once you have decided to go ahead with a project.

Local conditions

Keep in mind the reason for the project:

- Where is the space you want to increase urban greening?
- Why have you chosen this space?
- How is it currently used?
- Is it safe?

Understand potential locations within the context of your LGA:

- Where are you located?
- What are the characteristics of the built form and street typologies?

Strategic priorities

Understanding environmental and community needs and aspirations will help you identify project locations.

Identify beneficial areas for the project such as:

- Areas of high urban heat
- Areas with no street trees
- High traffic areas
- Low socio-economic areas
- New developments
- Areas that are part of a water sensitive urban design strategy

Consider how the waterwise streetscape project can support ecological networks in your LGA. Open space network analysis can also lead to project locations. It is easiest to start with streets with some existing greenery rather than areas with a lot of concrete. A simple street upgrade can lead to a more ambitious project next time. When considering location, it is also worth identifying potential barriers early on.

Planting waterwise plants

Roles and responsibilities

Designing and implementing a waterwise streetscape project requires a multi-disciplinary team. Roles and tasks include:

- Assessment of sites and suitability for different verge treatments/street tree requirements
- Streetscape verge design
- Plant and tree species selection
- Community engagement
- Site preparation
- Irrigation design and install (if required)
- Planting
- Maintenance
- Promotion

Use in-house knowledge and expertise within your local government throughout the project.

Find a champion to help carry the project and foster a supportive team.

Engage external stakeholders to support the project if you need extra expertise. These stakeholders can reduce project costs and provide capability where required. Local businesses, developers and community can all play a role. A project brief will help to explain the project when contacting external stakeholders. Explain the location selection so stakeholders can align with their own objectives.

Involve local government representatives who have experience in implementing similar projects. Use existing examples, case studies, skills and resources where possible.

Get to know the local community better. A group of neighbours or a local conservation or 'Friends of' group might be willing to take on a project.

OneOneFive Hamilton Hill Waterwise Streetscape: Local government in house expertise

Staff from the City of Cockburn's Sustainability and Environment team contributed in many ways to the Waterwise Streetscape project. They participated in community events; reviewed and contributed to all project material provided to residents; provided up to date information on grants and rebates available to City of Cockburn residents; provided an up-to-date waterwise verge policy and guidelines/ resources available online; provided guidance on street tree selection and supply of required street trees (including additional requests) and were available at all times to provide technical support, local knowledge and guidance.

City of Cockburn staff supervising tree planting

OneOneFive Hamilton Hill Waterwise Streetscape: Stakeholder involvement

Contribution	Benefit
Water Corporation	
Project funding to support residents to upgrade their verges, demonstration verge implementation and development of the guide. Provided project direction and assistance, including available waterwise verge resources such as: Water Corporation (2020) How to create a waterwise verge: guidance for householders. Water Corporation (2020) Waterwise verge best practice guidelines: guidance for local government.	Support the uptake of the Waterwise Greening Scheme. Utilise and communicate the recently updated Waterwise tree list and requirements for asset protection. Deliver actions as part of Waterwise Perth Action Plan. Promote best practice urban greening and cooling initiatives via waterwise verge implementation.
DevelopmentWA	
Project funding for initial community engagement activities and development of verge concept designs. In-kind contribution and support to residents with verge preparation assistance, updating fact sheet material/ designs, making resources available online via the OneOneFive project website, and responding to resident's queries and issues.	Demonstrate best practice urban infill development by involving the existing community for maximum waterwise and urban greening outcomes.
City of Cockburn	
In-kind contribution and support for verge implementation via participation in engagement activities, providing information on grants and rebates available to residents (note: applications were assessed via normal due process). Provided guidance on preferred street trees and plantings, plus supplied advanced trees. Provided technical support, local knowledge and guidance.	Demonstrate local government leadership in urban greening and waterwise verge initiatives.
Department of Communities	
In-kind contribution and support to assist with the conversion of seven Department of Communities verges into waterwise demonstration verges, including the conversion of existing sprinkler irrigation to drip irrigation.	Demonstrate best practice verge garden design for Department of Communities properties, with the aim for broader roll out if costs are within or lower than usual maintenance budget.
Josh Byrne & Associates (JBA)	
Facilitated project delivery via overall project management, stakeholder engagement, technical advice, concept design, development of case study material, writing and designing the Guide and dissemination of learnings.	Achieving on-ground sustainability and liveability outcomes via innovative design and a considered processes for implementation and learning.

Community engagement

Community engagement activities will be ongoing for the project. Consider appropriate engagement activities during:

- Early planning
- Project implementation
- Maintenance
- Ongoing assessment of tree and plant growth
- Project evaluation

Ensure engagement activities are at a convenient time and location for community members. Engaging the community at the project location can help residents to understand the project rationale. Discuss the proposed role for residents and outcomes. This is an important step if you have identified the location, not the residents.

Residents may need information on the benefits of waterwise verges and urban greening. Develop fact sheets or hold a community event to explain the urban greening benefits of a streetscape approach.

OneOneFive Hamilton Hill Waterwise Streetscape: Resident engagement

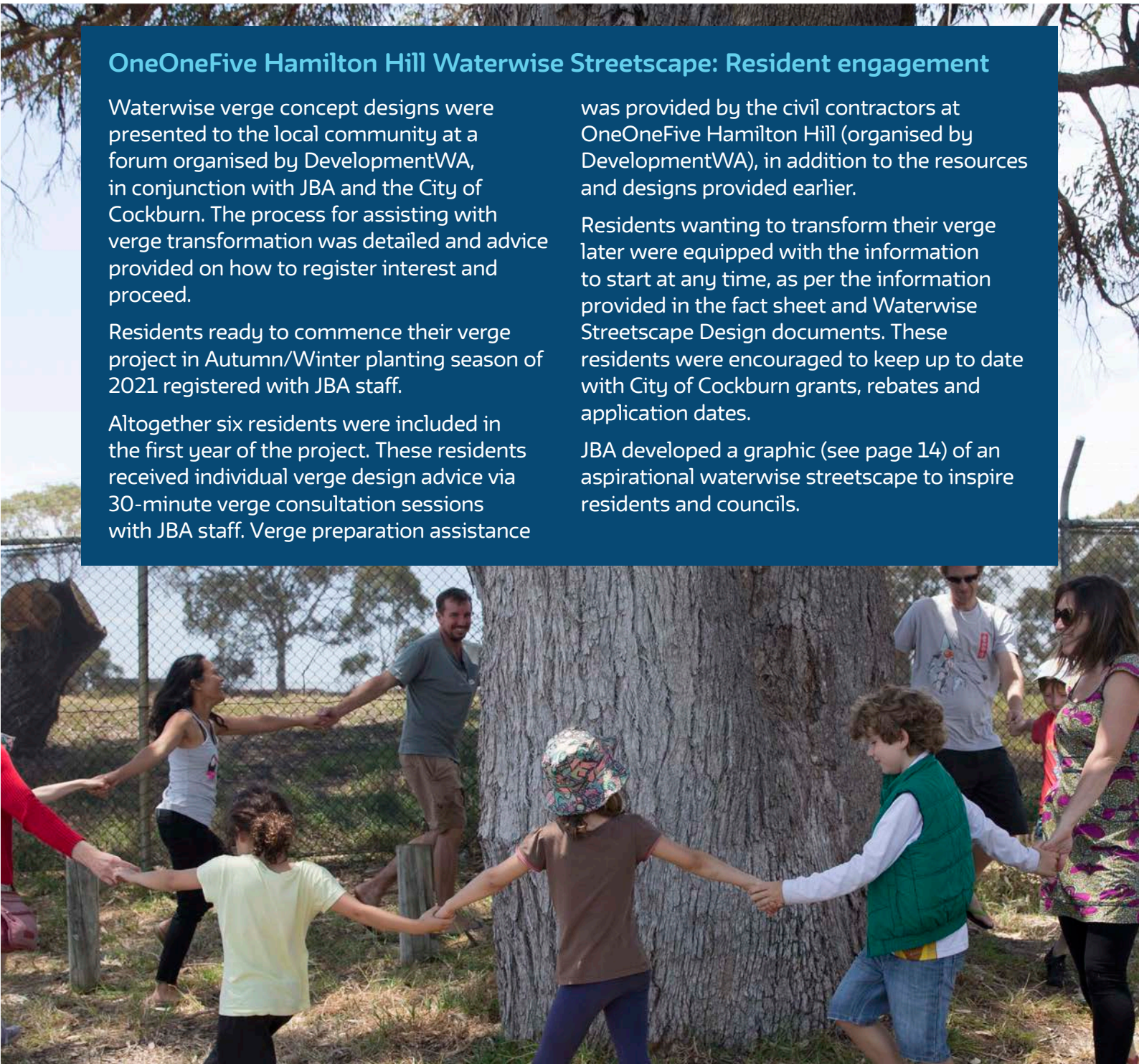
Waterwise verge concept designs were presented to the local community at a forum organised by DevelopmentWA, in conjunction with JBA and the City of Cockburn. The process for assisting with verge transformation was detailed and advice provided on how to register interest and proceed.

Residents ready to commence their verge project in Autumn/Winter planting season of 2021 registered with JBA staff.

Altogether six residents were included in the first year of the project. These residents received individual verge design advice via 30-minute verge consultation sessions with JBA staff. Verge preparation assistance was provided by the civil contractors at OneOneFive Hamilton Hill (organised by DevelopmentWA), in addition to the resources and designs provided earlier.

Residents wanting to transform their verge later were equipped with the information to start at any time, as per the information provided in the fact sheet and Waterwise Streetscape Design documents. These residents were encouraged to keep up to date with City of Cockburn grants, rebates and application dates.

JBA developed a graphic (see page 14) of an aspirational waterwise streetscape to inspire residents and councils.



OneOneFive Hamilton Hill Waterwise Streetscape: Demonstration verge

Initial site investigation identified seven Department of Communities (DoC) verges located on Purvis Street as a suitable location for a demonstration project. Given the presence of lawn (Winter Green couch grass), use of mains water for irrigation, and only a small number of street trees. DoC staff agreed to participate in the project, due to their interest in understanding the time, skills and costs required to deliver and maintain a waterwise verge, as a possible future approach for other DoC properties instead of the standard practice of turf treatments.

This approach was approved by DoC. The JBA landscape architects progressed detailed design of the verges. DoC informed residents of the seven properties of the upcoming verge transformations as part of a demonstration project for the Waterwise Streetscape Project. Ongoing liaison between all project partners took place to approve demonstration verge designs, specifications and timing for verge preparation forward work and location of street trees.

OneOneFive Hamilton Hill Waterwise Streetscape - artist impression

Project cost and available funding

The project will need a source of funding. A local government demonstration project will cost more than a resident led project. You may need to develop a business case to get internal approval for a streetscape project. The early project planning steps will assist with this.

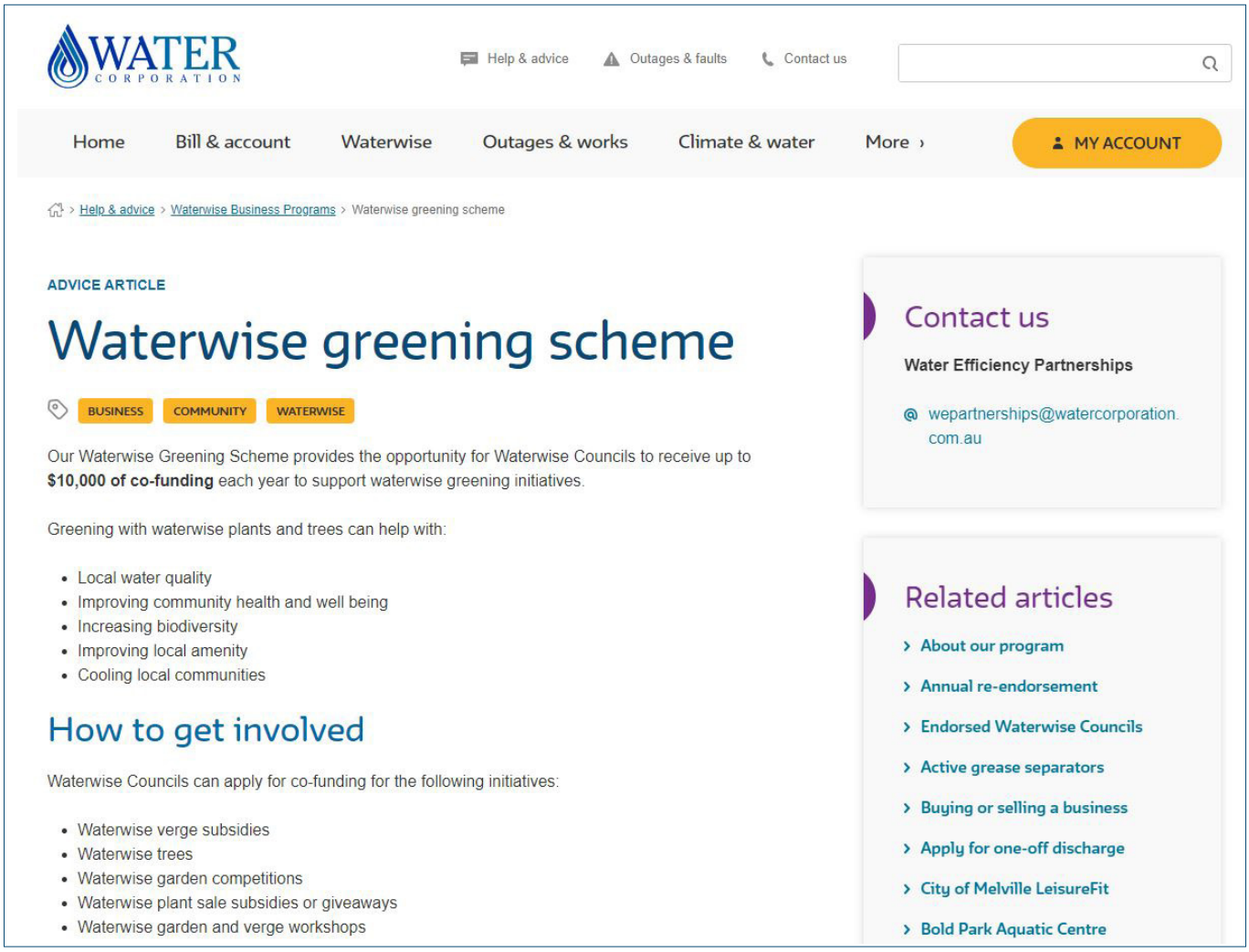
Consider your annual budget for urban greening initiatives. Include budget for maintenance activities for local government demonstration projects. Remind residents undertaking their own projects that they are responsible for verge maintenance. Waterwise verges maintenance should be less onerous than regular lawn mowing.

If possible, make grants available to residents to assist with their project delivery. Remember to promote council's available rebates and subsidies. Extra funding opportunities might be available, depending on the project aims and stakeholders.

Remember our Waterwise Greening Scheme can provide Waterwise Councils with up to $10,000 of co-funding each year to support waterwise greening initiatives.

To be eligible, councils must:

- Be an endorsed Waterwise Council
- Promote a waterwise verge policy that is consistent with Waterwise Verge Best Practice Guidelines
- Adhere to the terms and conditions of each initiative



Water Corporation waterwise greening scheme web page

OneOneFive Hamilton Hill Waterwise Streetscape: Demonstration project cost estimate

The landscape team from JBA developed cost estimates for the design and installation of the demonstration verge to ensure expanding the original scope from one demonstration verge to seven was doable. Understanding the project costs, including maintenance costs, as well as insights into other social and environmental benefits, will help to inform whether there is a sound business case for DoC to replace their traditional irrigated turf verges with waterwise verges, at a larger scale. Ongoing conversations between the project team, maintenance contractors and DoC will help to understand the maintenance requirements and ongoing costs for waterwise verges.

OPINION OF PROBABLE COST FOR SEVEN VERGES

ITEM	DESCRIPTION	QTY	UNIT	RATE	TOTAL
1	Mobilisation	1	Item	$1,500.00	$1,500.00
2	Cautious hand excavation around existing Jacaranda roots and irrigation	32	Item	$10.00	$320.00
3	Removal and disposal of turf (provisional sum)	1	Item	$1,000.00	$1,000.00
4	Gravel mulch - in front of each letterbox	7	m2	$30.00	$210.00
5	Native organic mulch - 75mm thick	324.2	m2	$12.00	$3,890.40
6	Trees - 45L - incl tree stakes	7	Each	$150.00	$1,050.00
7	Planting - tubestock - 3 per m2 - planting setback 0.75m from path/kerb	273	m2	$9.00	$2,457.00
8	Soil conditioner - 25mm thick - blended into top 250mm	324.2	m2	$6.00	$1,945.20
9	Provisional sum for repairs to existing spray irrigation	1	Item	$1,000.00	$1,000.00
10	Drip irrigation - design	1	Item	$640.00	$640.00
11	Drip irrigation - setback 0.5m from path	298	m2	$20.00	$5,960.00
			Sub Total Construction		**$19,972.60**
			GST	**10%**	**$1,997.26**
			TOTAL inc GST		**$21,969.86**

Streetscape timeline

Develop a timeline and project schedule before the project commences. A timeline should consider:

- Time to prepare and reach agreement on a streetscape design. This includes street tree and plant selection
- Due dates for rebate or subsidy applications
- Verge preparation work. This can begin as early as summer to begin removing existing grass. Some locations need more extensive earthworks and soil preparation
- Installation of any extra features, such as larger rocks, logs and stepping stones
- Planting of street trees and verge plants
- Design and installation of waterwise drip irrigation (if required)
- Maintenance and weed control
- Promoting the completed project (s) via identified channels

A timeline will help to understand what the allocated budget can achieve.

OneOneFive Hamilton Hill Waterwise Streetscape timeline

The project took approximately 18 months and included the following stages.

Jan 2021

Prepare Waterwise Streetscape Guidelines and project factsheet.

Mar 2021

Notify residents in Purvis and Ralston street of the project, including letter drop of factsheet and Waterwise Streetscape Design guide.

30th Mar 2021

Conduct Waterwise Streetscape Resident Information Session at OneOneFive Hamilton Hill.

Apr–Sep 2021

Provide practical support and on-site consultation to residents to assist with implementation in the planting season for the first year of the project.

Apr–Jun 2021

Identify demonstration verge. Liaise, design, implement and maintain.

Sep–Oct 2021

Prepare verge perspective graphic.

Early 2022

Update factsheet to provide relevant information on City of Cockburn rebates and grant applications and notify residents on Purvis and Ralston street ahead of 2022 planting season.

Apr–Jun 2022

Provide practical support to residents to assist with implementation in the planting season for the second year of the project.

Jul–Aug 2022

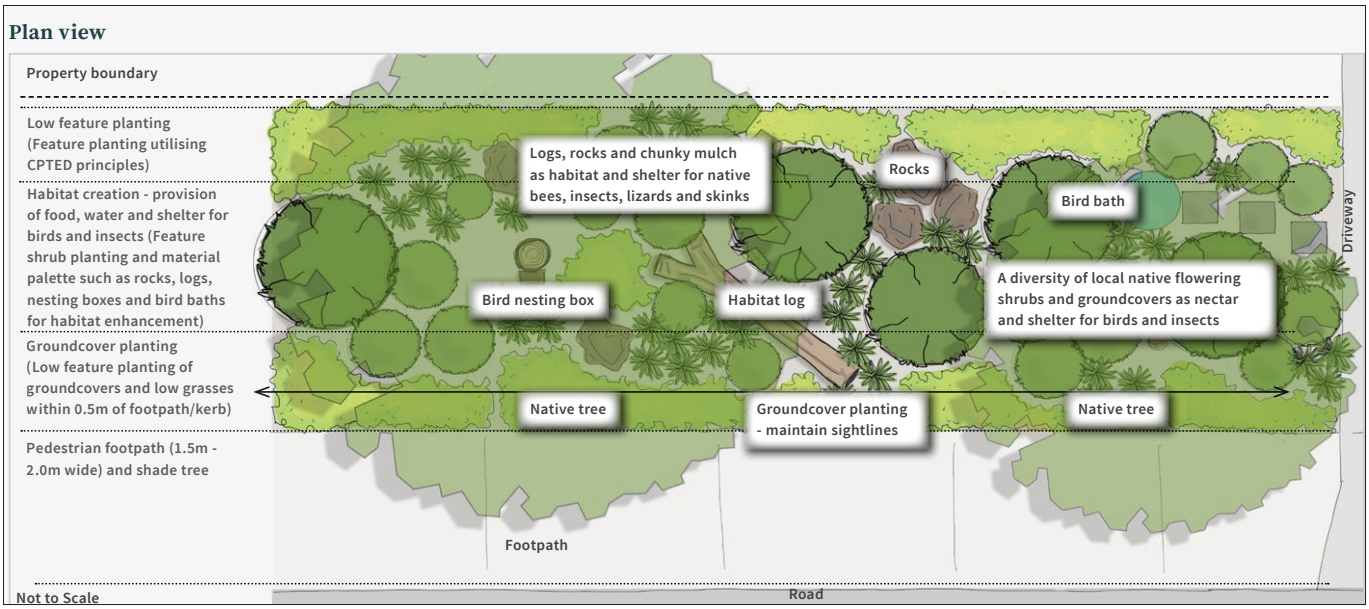
Develop Waterwise Streetscapes guide for local government.

Design

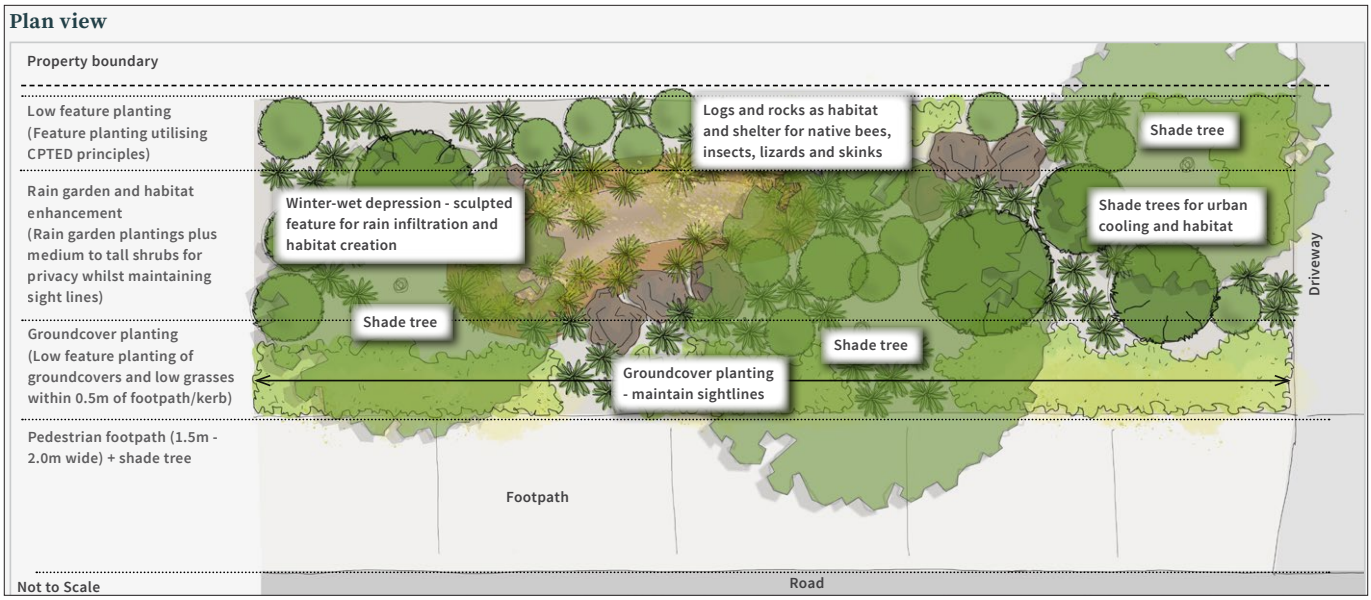
Consider whether your local government will provide sample streetscape verge designs. These should reflect what residents want to achieve as per community engagement outcomes. Alternatively, consider using existing design guidance provided in your waterwise verge guidelines. Or contact other local governments for permission to use their designs.

Residents may want to create their own verge designs. Provide clear advice on approval processes in policy and guidelines. This is important if streetscapes include street furniture or play equipment.

Verge designs can vary along the street, depending on the proposed outcomes. For example, if the aim is to create an urban food street then all verge designs will need to provide opportunities for growing food. If the intent is to improve biodiversity, then provide advice on suitable plants. Also consider street tree selection. Designs also need to consider individual lot requirements such as bin location, parking and pathways.



Habitat themed verge garden design



Waterwise themed verge garden design

OneOneFive Hamilton Hill Waterwise Streetscape: Design guide

The project team conducted site visits to Ralston and Purvis street, adjacent OneOneFive Hamilton Hill, to develop verge design concepts based on location and a preliminary understanding of resident requirements. Guidance material was then developed to assist residents to upgrade their own verge to a waterwise garden.

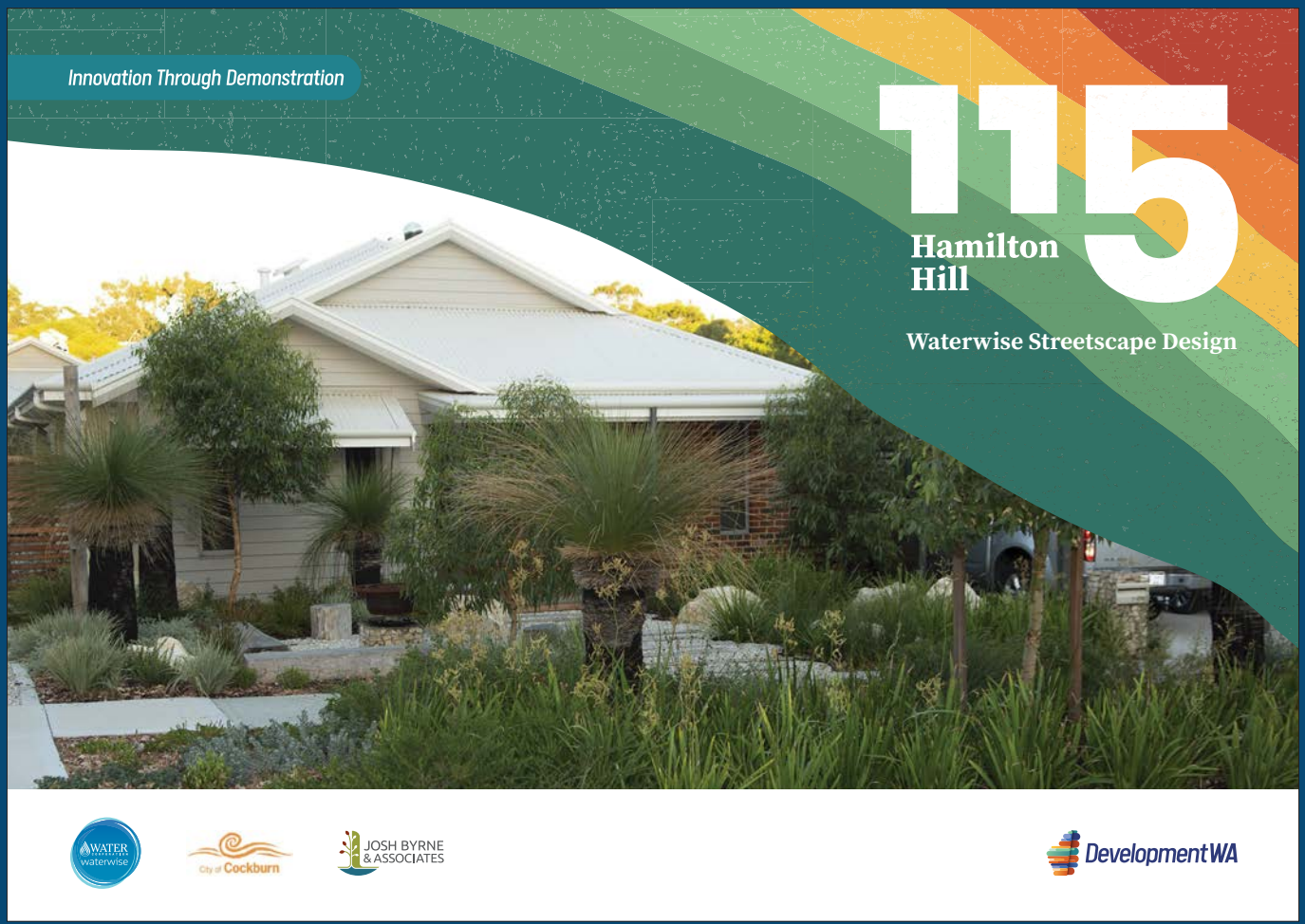
To facilitate the process of verge transformation, all residents were provided with:

- OneOneFive Hamilton Hill Waterwise Streetscape Design guide
- Waterwise Streetscape for Residents: Fact Sheet. This included information on how to create a waterwise verge and additional resources from us and City of Cockburn such as required approvals and available support/rebates/subsidies to assist in verge transformation

The design guide was developed by JBA landscape architects to provide residents with information on:

- Planning principles
- Example design themes based on early analysis: waterwise, habitat, productive/ connected, and associated diagrammatic sections, plans and plant palettes
- Advice on applying planning principles and design themes
- Verge trees and the City of Cockburn's vision for their Urban Forest Plan (2018-2028)
- Advice on waterwise plant selection
- Step by step verge planting guide summary

All materials were produced using DevelopmentWA branding for consistency and all stakeholders contributed to the content and review.



OneOneFive Hamilton Hill Waterwise Streetscape Design guide

Implementation and support for residents

Local governments should provide ongoing support to residents implementing a streetscape project. This could include:

- Provision of street trees
- Preferred native plant species lists
- Native plant subsidies
- Maintenance
- Education programs

Ensure resources such as waterwise verge policy and guidelines are accessible. Provide residents with specific design advice if there is available budget. This could include location-specific design consultation or help in selecting suitable plants.

Make our resources known to residents:

- How to create a waterwise verge: Guidance for householders
- Residents should also be made aware of the importance of contacting 'Before You Dig Australia' before embarking on their project to minimise disruption to existing street tree root systems and utility alignment

OneOneFive Hamilton Hill Waterwise Streetscape: Resident support

Residents involved in year one of the project continued to transform their verges at their own pace. JBA had ongoing engagement with residents to provide updates on available rebates/ resources, remind residents to plant soon after preparation work was completed and to progress additional street tree requests in areas identified by JBA/City of Cockburn.

Project partners provided additional in-kind support to residents throughout their verge transformation process to assist with any unforeseen disruptions due to utility upgrades and provide replacement plants, assist with footpath repairs, accommodate additional street tree requests and provide mulch top-up and general street tidying services.

Preparation commenced during early 2022 to recruit residents to participate in a second year of the program, including updating the fact sheet and drafting a project update and recruitment letter. DevelopmentWA distributed these materials to residents in April 2022, with the intention of providing residents with the same information as those participating in 2021, albeit with the OneOneFive Hamilton Hill Waterwise Streetscape Design Guide now available online via the OneOneFive Hamilton Hill project website. Both Purvis and Ralston street were again targeted. As a result only two residents were interested in transforming their verges in 2022, with none ready to participate in a design advice consultation. Despite this, residents may continue to transform their verges outside the delivery of the project.

OneOneFive Hamilton Hill Waterwise Streetscape: Demonstration verge installation

The demonstration verges were installed in July/August 2021 by a commercial landscape contractor under the supervision of JBA. Installation involved mechanical removal of the couch grass, addition of soil conditioner, installation of dripline (retaining the existing irrigation valves mainlines and controller), planting with native shrubs, groundcovers and grasses, and mulching in line with our Waterwise Verge Best Practice Guidelines. Advanced native street trees were planted on the verges where there were no street trees present.

Planting tube stock on water efficient drip irrigation

Maintenance

Residents are responsible for maintenance and upkeep of their own verges. It is best practice to provide advice to support residents to keep their verges neat, tidy and safe. Waterwise verge gardens need minimal maintenance. Activities include occasional weeding, pruning and mulching, litter removal, infill planting and top-up mulching.

Local governments are responsible for the maintenance of street trees. You may also be responsible for the maintenance of a waterwise streetscape project. This is likely if you have a demonstration project or one located near managed public open space, parks and gardens. A coordinated maintenance program for efficiency and consistency will deliver the best outcomes.

Well maintained waterwise verge

OneOneFive Hamilton Hill Waterwise Streetscape: Verge maintenance

Maintenance contractors were appointed to conduct regular maintenance activities at the Waterwise Streetscape demonstration verge.

City of Cockburn are responsible for the care and establishment of the street trees and water these as part of their street tree watering program.

The previous regime for the irrigated verges included monthly activities such as lawn mowing, garden bed maintenance, weed removal. Annual or biannual activities include shrub pruning, and fertiliser and herbicide application.

The new maintenance program (outlined below) is the responsibility of DoC, their contractors, and the property tenants. Requirements are substantially less than the previous regime, and should decrease over time.

Task	Frequency / timing	Specification
Prune shrubs, groundcovers and native grasses	As required; Year 2 onwards	Light prune only as required to keep plants compact and tidy. The planting density and placement shouldn't result in crowding. Dead plants should be removed and replaced.
Removal of weeds and litter from planted area[1]	As required Requirement will decrease as plant coverage increases	Annual weeds should be hand pulled. Perennial weeds including couch grass should be sprayed using Fusilade Forte by a licensed contractor at the specified rate and time of year. Herbicide application to follow DoC guidelines.
Removal of weeds and dirt from footpath and crossover	As required Ongoing	Weeds to be removed from paving, including footpath by either mechanical or chemical means in line with DoC guidelines.
Irrigation check	Each visit, except when system is inactive Ongoing	Run verge stations, flush each verge at flush point, check drippers are flowing and repair any damage. Disturbed driplines should be straightened and secured in place with pins and covered with mulch. Switch off system in May. Switch on system in November.
Mulching	As required Requirement will decrease as plant coverage increases	Cover bare soil and exposed dripline in between plantings with weed-free, coarse, woody mulch to AS 4454-2012. Mulch to be min. 75mm and max. 100mm thick and kept beneath the edge of the surrounding kerb, crossover and footpath.
Fertilising	2 x per year May and September Year 1-3 only	Apply granular native formula fertiliser as per manufacturers recommendations.
Replacement planting	1 x per year May Years 2 and 3 only	Replacement plants to be selected from the plant list on JBA Waterwise Demonstration Verges Landscape Plan (2021). Plants to be 140mm pot size or similar and in good condition at the time of planting, watered in, fertilised and mulched.

1 Residents should be encouraged to remove weeds and litter to improve presentation and reduce work for DoC maintenance contractors.

Evaluate

Was the project a success? If not, seek to understand what to improve for next time. Consider location, approach and timing.

Gain insights on the process and outcomes and keep a record to avoid repeating mistakes.

Contact residents transforming their own verges to find out how they are going. Assess whether they have been able to complete their projects on their own. Note whether they required extra resources and help. Find out what type of verge gardens residents created for their street and why. Were they able to achieve their goals, such as only using waterwise local native plants, or growing food for local residents.

Keep track of how the street is being used by residents, visitors, and passersby.

Conduct surveys with residents to understand whether their social interaction has increased. Also note whether their health, wellbeing and levels of outdoor activity have improved from a streetscape approach to verge gardening.

Note the presence of wildlife. Are birds, lizards and frogs making the most of their new greenspace? Conduct plant and animal surveys to understand biodiversity outcomes.

OneOneFive Hamilton Hill Waterwise Streetscape: Demonstration verge documentation

The project team kept track of the Waterwise Streetscape transformation by taking photos. Residents shared photos of their own projects, including images of disruptions by utility works. Considering that residents transformed their verges at their own pace, the transformation of the DoC verges helped demonstrate to residents what a streetscape approach to verges could look like.


Before construction

Lawn removal


Improving the soil


Drip irrigation installed


Newly planted waterwise verges


Maturing waterwise verge gardens

Share and celebrate

Share the learnings and outcomes of local streetscape projects. Highlight the outcomes in relation to the early strategic location identification and selection. For example, was the project targeting a local urban heat hot spot? If so, explain how the streetscape project has increased shade and infiltration to create a cooler street.

Celebrate the positive outcomes. Utilise the following to share stories:

- Local government publications
- Local paper
- Newsletters
- Presentations
- Urban greening conferences or forums
- Social media

Include 'before' and 'after' photos of streetscape verge transformations.

Word of mouth is important. Encourage those participating in projects to talk about their experience. Explore opportunities to showcase streetscape projects. Consider tours for internal staff, other local government staff, interested industry and community.

Sharing outcomes provides a learning opportunity. Remember to include details of the challenging aspects as this will assist others.

L-R Water Minister Dave Kelly, City of Cockburn Mayor Logan Howlett and Dr Josh Byrne

Waterwise streetscape checklist

- [ ] **Step 1: Why have Waterwise streetscapes?**
  Discuss the idea of implementing a waterwise streetscape project with your team and management.

- [ ] **Step 2: Consider the local vision and strategic direction**
  Understand your council's strategic vision and direction for urban greening, and how a waterwise streetscape fits.

- [ ] **Step 3: Identify key locations and opportunities**
  Start with easier, less complex streets first, and consider community and environmental needs.

- [ ] **Step 4: Roles and responsibilities**
  Find a project champion.

  Consider in-house expertise that can be utilised.

  Identify and engage with internal and external stakeholders.

- [ ] **Step 5: Community engagement**
  Identify community engagement opportunities.

  Support residents to understand the benefits and requirements for creating waterwise streetscapes.

- [ ] **Step 6: Project costs and available funding**
  Create a budget.

  Consider grants, funding arrangements and in-kind contributions.

- [ ] **Step 7: Project timeline**
  Develop a timeline that includes time for design, applications, prep work, installation, maintenance and promotion.

  Consider the seasons for waterwise streetscape implementation.

- [ ] **Step 8: Design**
  Design the waterwise streetscape to meet your intent.

- [ ] **Step 9: Implementation and support for residents**
  Support residents with advice, materials, or assistance with preparation and maintenance.

  Make sure council's waterwise verge policy and guidelines are up to date.

- [ ] **Step 10: Maintenance**
  Support residents with advice on maintenance (keeping in mind it is council's responsibility to maintain street trees).

- [ ] **Step 11: Evaluate**
  Review the waterwise streetscape project and use the outcomes to inform further projects.

- [ ] **Step 12: Share and celebrate**
  Share the learnings and outcomes of project and celebrate your waterwise streetscape.

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