CITY OF SUBIACO

Environmental Plan

2019 – 2023

Contents

Introduction

The City of Subiaco is a leader in environmental innovation and sustainability. The City uses its resources and capabilities to improve the local environment for the benefit of current and future generations. The role of Local Government is to establish local environmental policies and regulations, and play a vital role in educating, mobilising and responding to the public to promote environmental sustainability.

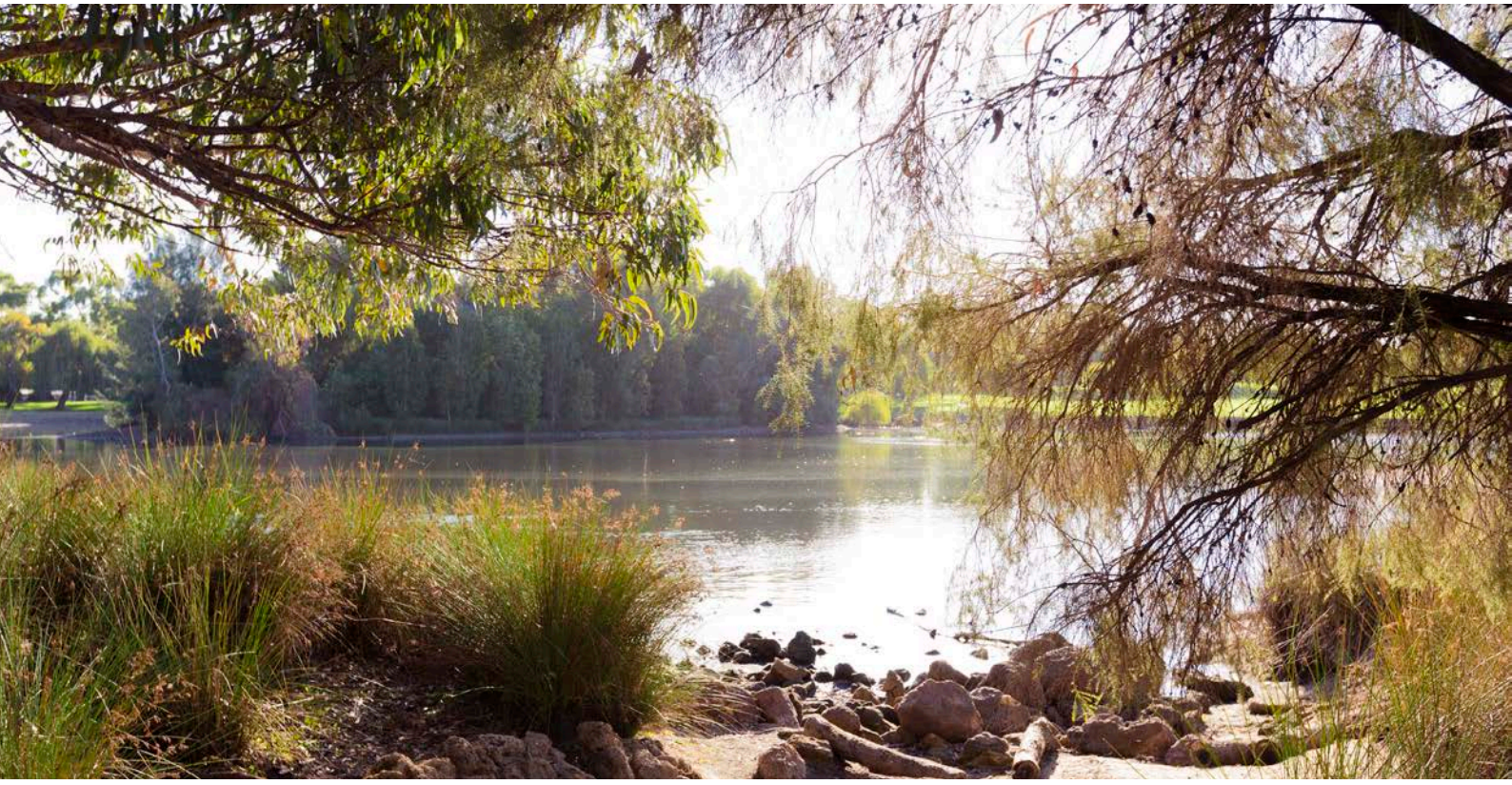
The *Environmental Plan 2019 – 2023* identifies the key directions and actions the City and its community will take to adapt its environment under current changing climatic condition.

Executive summary

The *Environmental Plan 2019 – 2023* presents a range of clear objectives and actions focused on water reduction and water quality improvements. It targets the increase in flora, fauna and green corridor connections through the City. It encompasses actions that support community involvement in achieving these objectives.

Key programs and initiatives identified in the *Environmental Enhancement Plan 2012 – 2016* will be continued under this new plan, where they are confirmed in budgets and operational plans. When necessary, new initiatives under the actions below can be introduced in response to changing priorities and community aspirations:

- Reduce water use within parks and open spaces
- Increase water re-use and use of fit-for-purpose water sources
- Maintain, or where possible improve, water quality in wetlands and water bodies
- Increase flora, fauna and green corridor connections across and beyond the City
- Minimise the spread of plant pathogens, and manage their effects
- Provide environmental leadership to the community and other stakeholders
- Enable and support community action towards environmental priorities



Background

3.1 Previous plans

The City's Environmental Plan was first adopted in May 2000 as a framework for guiding its environmental projects and initiatives. A review of the Environmental Plan resulted in the formulation of the *Environmental Strategy 2006*. The *Environmental Enhancement Plan 2012 – 2016* was adopted by Council on 3 December 2012 and detailed new initiatives building upon past successes. The plan was comprehensive and has guided the City's environmental works program to date. This led to the development of additional management plans and activities, notably the *Wildlife Enhancement Plan 2014 – 2019* and the *Plant Pathogen Management Plan 2015 – 2019*.

The *Environmental Plan 2019 – 2023* consolidates the actions in the Wildlife Enhancement Plan and the Plant Pathogen Management Plan to reduce duplication and build on progress. This plan further streamlines relevant actions identified in the Sustainability and *Resilience Action Plan 2016 – 2021*, and supports the delivery of specific objectives identified in the *Urban Forest Strategy 2018 – 2022*.

3.2 Strategic context

The City's *Strategic Community Plan 2017 – 2027* allows for Council and the community to track the City's progress in delivering its environmental objectives and implementation actions (Figure 1).

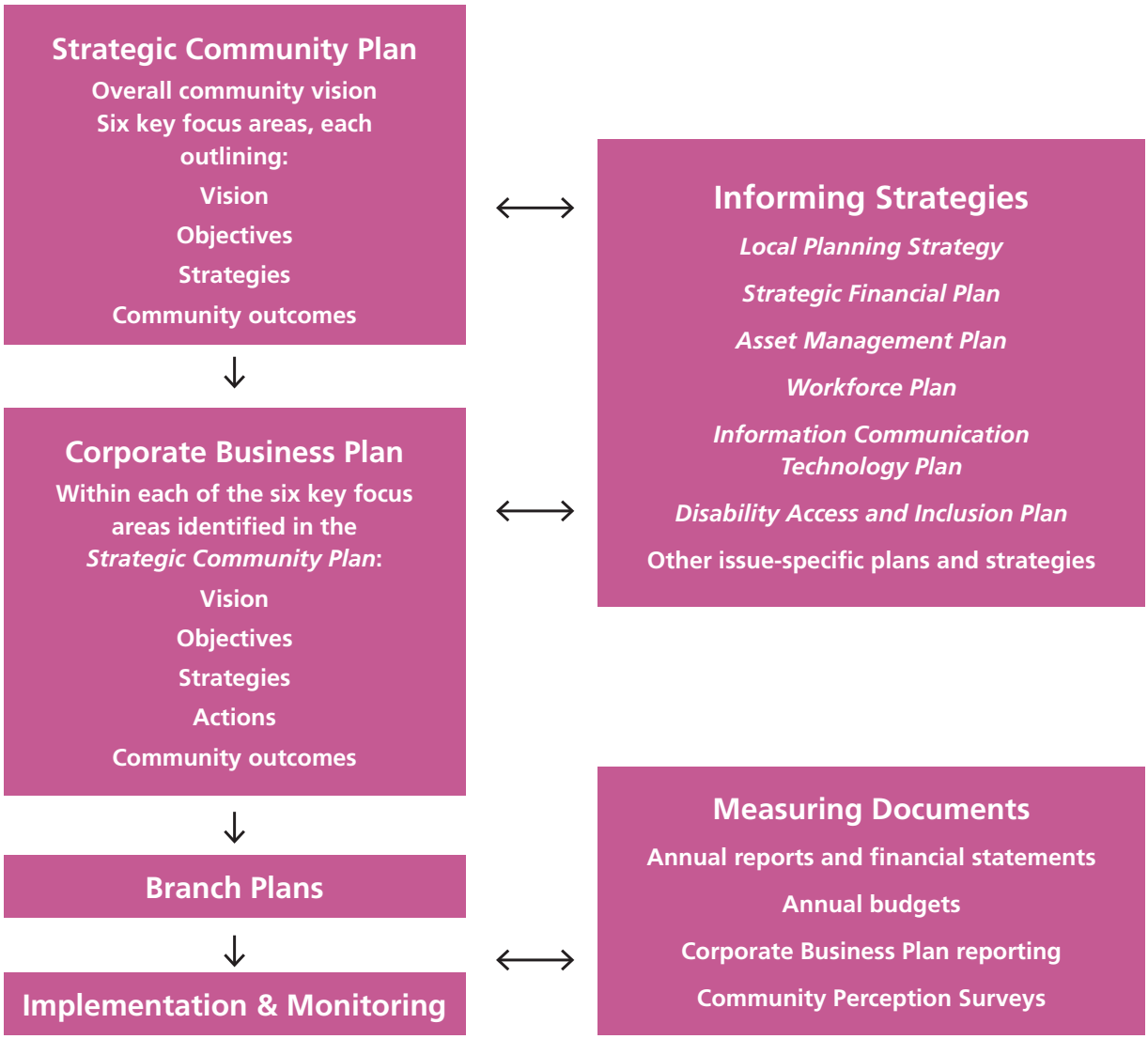


Figure 1: *Strategic context for the Environmental Plan 2019 – 2023*

The framework is informed by the community aspirations and vision set out within the City's *Strategic Community Plan 2017 – 2027*. Following 2016 community consultation, the focus was given to an increased access to a diverse and sustainable range of parks, streetscapes, open spaces and public places.

The City has operational and strategic documents that will be utilised in the ongoing delivery of the Environmental Plan, in particular the *Corporate Business Plan 2018 – 2021*. These plans are further supported by City policies and protocols.

Key progress and achievements

4.1 Waterwise Leadership

The Subiaco community has reduced its potable (drinking) water use by twenty-five per cent since 2015. In 2018, the City was awarded Platinum Waterwise Council of the Year by the Water Corporation, for demonstrating leadership in waterwise operations and an ongoing commitment to create a water-sensitive community through various projects and programs.

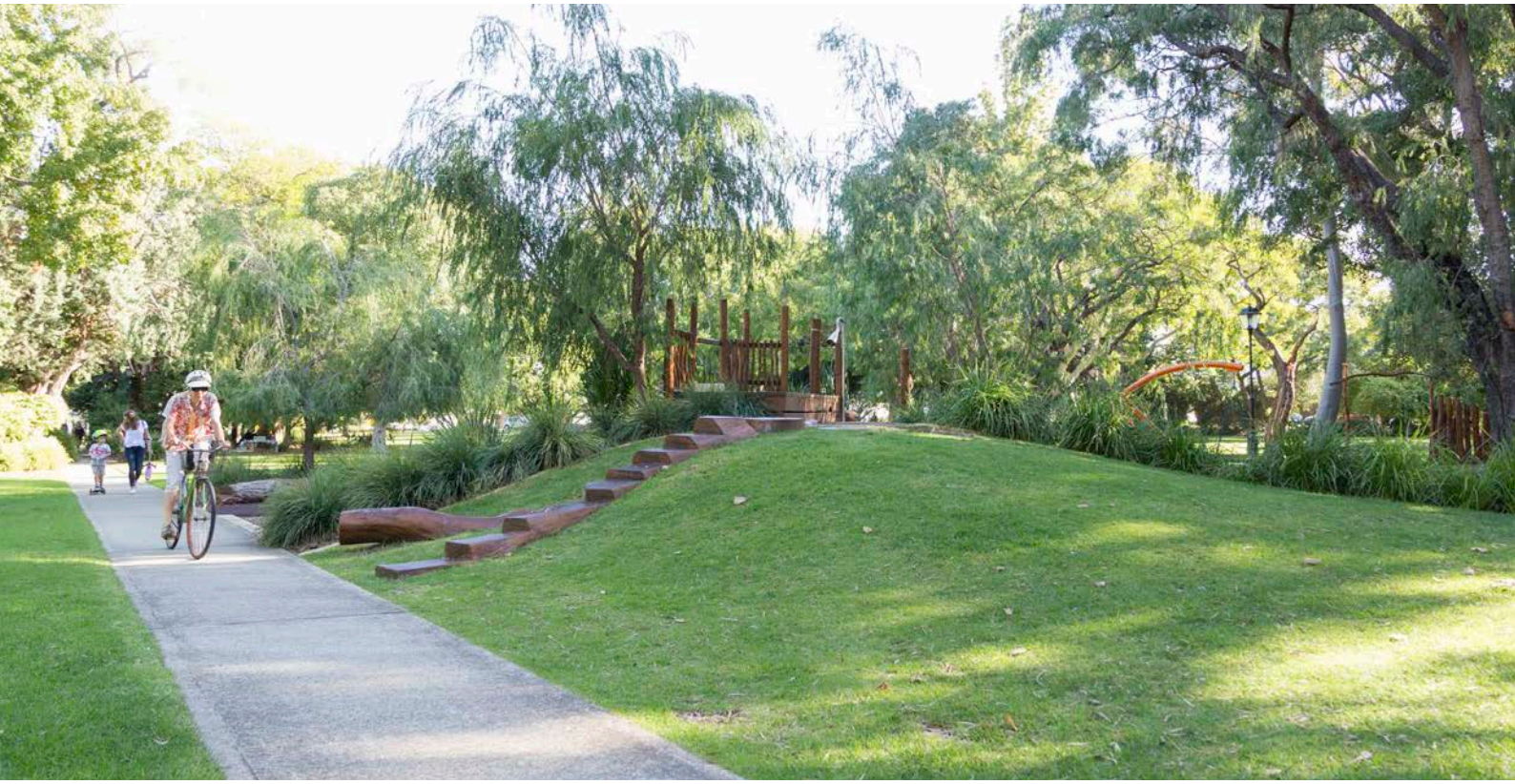
The City has undertaken a strategic eco-zoning program since 2016, starting with Mabel Talbot Reserve. Eco-zoning is the practice of grouping vegetation types with similar watering needs, to enable more efficient and responsible use of irrigation water.

The ongoing transformation of Dom Serra Grove is an outstanding example of the City's *Open Space Management in a Drying Environment Policy* in action. The policy was developed to ensure parks and gardens can cope with tighter water restrictions and increasing environmental challenges. The key waterwise elements of this project included the conversion of 0.25 hectares of grassed area into a more usable space and the use of limestone sand paths. The result is a more usable community space that has reduced irrigation water requirements from 1 500 kilolitres (kL) to 350 kL per annum.

4.2 Connecting nature and play

The City has recognised the importance of the connection between the natural environment and play elements for children. Playspace can be created through the incorporation of natural materials and elements such as planting, sand-pits, mounding, rock features, textured and patterned pathways and surfaces and sound sculptures. Following an extensive community consultation process, the City has replaced several playgrounds with a nature play experience which can be found at the following parks:

- Subiaco Common
- Mueller Park
- Theatre Gardens
- Jersey Street Park



4.3 Community participation and education

Every year, the City runs community education programs including an environmental volunteers program, awards, community planting events, waterwise gardening workshops, demonstration gardens and waterwise assistance programs for verge gardens. A snapshot of what the City and the community achieve together each year:

3 500
trees and shrubs planted on National Tree Day by an average of 50 volunteers

20
residential verges restored with waterwise mulch and native plants

2 000
plants supplied through the Native Plant Subsidy Scheme

1 000
plants planted by volunteers

The City works with a group of environmental volunteers who meet on the last Friday of every month to undertake activities including native plant planting, weeding, rubbish pickup in parks, nest box building and auditing. The City is particularly proud and grateful to their environmental volunteers, for their invaluable work which contributes to the restoration and maintenance of the City's native vegetation.


Tim Tam
Original

Environmental and community context

This section summarises the key environmental values associated with the City's parks, natural places and spaces, and some of the key issues, threats and opportunities arising from these. These are the attributes the City seeks to protect and improve through this Environmental Plan.

5.1 Urban forest

The public open space managed by the City comprises approximately 78 hectares of parks, gardens and reserves and approximately 15 000 trees. Street verges and private gardens make a significant contribution to the urban forest. An urban forest includes all the trees and shrubs on all public and private land in and around urban areas, including bushland, parkland, wetlands, gardens and street trees. The urban forest provides essential ecosystem services such as air and water filtration, wildlife habitat, nutrient cycling, carbon removal and local cooling.

The City has identified over 150 significant trees and 13 significant avenues of trees based on their botanic, cultural, historical and aesthetic value. Aerial photographs of urban tree canopy cover in the Perth and Peel regions demonstrate that the City has high canopy cover (20%), compared with the majority of suburban areas.

Due to local government area boundary changes in 2016, the City no longer has areas of remnant bushland. These remaining fragments of remnant habitat are still important linkages to support the movement of wildlife, though they are no longer under the direct control and management of the City.

5.2 Green corridors and wildlife

The City's local and regional green corridors connect significant areas of bushland, wetlands and open space and aid in the movement of wildlife (refer to Figure 2). The City revegetates green corridors with local native species and uses seeds sourced locally where possible for restoration works.

Preserving a diversity of native fauna is essential to ensure healthy ecosystem function and maintain a region's biodiversity. Many fauna species have adapted to the urban environment and are known to reside, feed and breed within the City; some of these are listed as endangered or vulnerable.

The impact of climate change on the natural environment is expected to be a substantial threat to native fauna. The anticipated increased temperatures and reduced rainfall, combined with extreme weather events, will impact the habitats and food sources of many fauna. Extreme weather is also likely to result in physical impacts such as loss of habitat trees and mortality of native fauna through trauma.

Figure 2: *The City of Subiaco's local and regional green spaces, places and linkages*

5.3 Water source and use

Our climate has been changing for several decades, but this change has become more noticeable in the past ten years. The City is preparing to adapt to reduced water resources as a result of a drying climate. Reduced rainfall and changes in rainfall timing have greatly reduced run-off into dams around Perth and the recharge of groundwater supplies. The maximum level of sustainable extraction of groundwater in the Subiaco region has been fully allocated by the Department of Water and Environmental Regulation. The City is currently entitled to a total annual draw of 487 400 kilolitres of groundwater per annum to use for irrigation and land management. It is anticipated that this figure will be reduced in the period of this Plan.

5.4 Aboriginal cultural significance

Prior to European settlement the City consisted primarily of Tuart *(Eucalyptus gomphocephala)* and Jarrah *(Eucalyptus marginata)* forest interspersed with Banksia woodland and wetland habitats, however, today no significant natural areas remain within the City. Aboriginal land management practices once ensured plentiful wildlife and plant foods throughout the year.

In the tradition of Aboriginal spiritual dreaming the wetlands, connected by underground streams, are of religious significance to the Noongar people. The Noongar people of the Swan River and Swan Coastal Plains are the traditional owners, keepers of knowledge, custodians and carers of the land and waterways.

The wetlands were a source of water and food for Aboriginal groups who lived in and around this area, moving with seasonal changes along the Swan River and Swan Coastal Plains. The Noongar people today remain connected to the lakes through their beliefs and work closely with the City to protect and maintain the wetland system. This includes Jolimont Swamp, now known as Mabel Talbot Park, the lower lying sections of Stokes and Sadlier Parks in Daglish and Lake Jualbup in Shenton Park.

The City has Aboriginal interpretive signage at Mabel Talbot Reserve to recognise the importance of these sites as historical hunting grounds.

5.5 Plant pathogens

Pathogens affect native and non-native plant species. The City focuses on controlling the spread and minimising the impact of diseases, which applies to any emerging plant pathogens in the City. Dieback is one of the key pathogens the City manages. Appendix A contains further information about distribution of key plant pathogens.

Activities that have the potential to introduce or spread pathogens include earthworks, tree pruning, tree removal, mulching and planting, purchase of contaminated plants or mulch, vehicle movement, and irrigation installation and maintenance.

Current analysis suggests that plant pathogens have not spread significantly over the last five years and the high risk areas are well known (see Figure 3). The City no longer revegetates with susceptible dieback species.

Figure 3: *Map of plant pathogen spread in the City of Subiaco*

5.6 Wetlands

The City has two parks which contain wetlands; Mabel Talbot Park and Lake Jualbup. The wetlands and surrounding habitat including trees and understory plants support long-necked turtles and a range of native birds, frogs, fish and macro-invertebrates, the latter of which are considered to represent stable and functioning ecosystems. The City's wetlands and riverine areas are also used by migratory birds such as rainbow bee-eaters and red-necked stints on a seasonal basis

5.7 Feral and domestic animals

The City is home to a variety of feral species such as foxes, rabbits, rainbow lorikeets and mosquito fish which impact native wildlife through habitat destruction, competition for resources and food or predation. Domestic cats and dogs also threaten native fauna by causing stress through chasing, disturbing nests and predation. The City works with the Western Suburbs Regional Organisation of Councils (WESROC) to implement a cross-boundary approach and ensure effective control of feral species.

5.8 Reduction of chemical use

The City currently utilises pesticides in accordance with Australian Pesticides and Veterinary Medicines Authority Regulations and Manufacturers Specifications for weed and pest control. We recognise our communities concern over the use of pesticides and are actively seeking alternatives.

5.9 Community education and engagement

Private property forms the largest area of land within the City, and the community can play an important role in the success of actions contained within this plan. It is important to keep the community informed and engaged in matters relating to the conservation of native fauna and fauna habitat within the City. The City has a diverse range of wildlife within its urban area for everyone to experience and enjoy. Fostering a connection with nature is vital for individuals to develop an appreciation of wildlife and the natural environment.

5.10 Collaboration with surrounding councils

The City is part of the Western Regional Organisation of Councils (WESROC), along with the Towns of Claremont, Cottesloe, Mosman Park, the Shire of Peppermint Grove and the City of Nedlands. WESROC works as a voluntary partnership on projects across or on shared boundaries and to address cross-boundary regional issues. Environmental issues and management often require this sort of cross-boundary collaboration. Since its formation in 1995, WESROC has undertaken various projects and commissioned some important studies. The City delivers a number of projects in partnership with WESROC, including the creation of a Greening Plan, feral animal control, stormwater infiltration and groundwater restoration.

Objectives and actions

Clear objectives and targets for environmental enhancement help to keep activities focused and relevant to the City's desired outcomes identified in the *Strategic Community Plan 2017 – 2027* are:

- A sustainable environment that is green and leafy
- A wide range of well-used parks, open spaces and places

The Environmental Plan has a key focus on the City's own operations. However the City considers the following partners to be important contributors in achieving environmental objectives:

- Residents
- Workers
- Businesses
- Visitors
- Land and property owners
- Surrounding local government areas
- State and federal government agencies
- Industry bodies

An objective of the Environmental Plan is to support increased biodiversity and the conservation of native flora and fauna habitat within the City's local environment.

Key programs and initiatives identified in the Environmental Enhancement Plan will be continued under this new Plan, where they are confirmed in budgets and operational plans. When necessary, new initiatives under the actions below can be introduced in response to changing priorities and community aspirations.

6.1 Measuring progress

Through strong policy and commitment, the City aims to implement, meet and exceed the action plan outlined below:

1. Reduce water use within parks and open spaces						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Define new locations for the City's hydrozoning and eco-zoning program, and implement in line with agreed needs and schedules.	A decrease in the use of scheme water.	✓	✓	✓	✓	✓
Continue to support standards, policies and/or other land use planning mechanisms to assist and facilitate water sensitive urban design.		✓	✓	✓	✓	✓
Implement the City's Groundwater Operating Strategy.		✓	✓	✓	✓	✓

2. Increase water re-use and use of fit-for-purpose water sources.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Investigate options for increasing the use of alternative water sources, such as rainwater capture, stormwater harvesting and wastewater reuse. Identify suitable projects to test and monitor initiatives.	Alternative water sources are being implemented/used.		✓	✓	✓	✓

3. Maintain, or where possible improve, water quality in wetlands and water bodies.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Implement relevant at-source pollution controls for identified key/significant water bodies.	A long term management protocol for wetland and water body quality has been developed and implemented.	✓	✓	✓	✓	✓
Identify sites for stormwater improvement to manage at-source introduction of inputs and capture surface runoff prior to discharge into water bodies, including devices such as gross pollutant traps, bio-filters (tree pits, raingardens, swales) and construct as necessary.		✓	✓	✓	✓	✓

4. Increase flora, fauna and green corridor connections across and beyond the City.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Identify and develop new areas for fauna habitat within parks and reserves. Enhance habitat through appropriate strategies where necessary, for example retained tree hollows, infill planting and constructed nest boxes.	An increase in green corridor connection has been achieved (m^2).	✓	✓	✓	✓	✓
Redevelop Lake Jualbup and surrounding parkland.	An increase in verges restored through the Waterwise Verge Restoration Program (m^2 and number of native plants planted).		✓	✓		
Identify new parkland sites that require a management plan and develop target timeframes.				✓	✓	
Identify high-risk locations for wildlife crossing and develop appropriate signage and controls.			✓		✓	
Develop and implement a fortnightly wetland monitoring program which covers wildlife, invasive weeds, water quality and algal blooms.		✓	✓	✓	✓	✓
Develop and where necessary/possible revegetate regional and local green corridors.		✓	✓	✓	✓	✓
Identify opportunities to regenerate degraded local natural resource stocks (e.g. soils, trees, fisheries) in partnership within the Western Suburbs Regional Organisation of Councils (WESROC).				✓		✓

5. Minimise the spread of plant pathogens, and manage their effects.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Carry out visual inspections (audits) in parks, reserves and street trees for the presence of disease. Confirm suspected plant pathogens by laboratory analysis to ensure correct control measures.	A management plan for pathogen control has been implemented.	✓			✓	
Develop a short hygiene checklist for high risk pathogen areas within the City to ensure relevant staff are aware of high risk pathogen areas prior to undertaking works and maintenance.	There is no increase in plant pathogens.	✓				
Identify, and where possible implement, planning controls for proposed property development projects located near high risk areas.			✓			
Provide hygiene protocols for staff and contractors undertaking high risk activities; specify in contract conditions and monitor compliance.			✓	✓	✓	✓
Implement phosphite stem injection and foliar spray schedule for dieback-affected parks, reserves and street trees.		✓		✓		✓
Undertake specific pathogen control measures for individual diseased trees as necessary, including for example, phosphite stem injections, removing fruiting bodies, removing diseased plants.		✓	✓	✓	✓	✓

6. Provide environmental leadership to the community and other stakeholders.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Review existing policies and identify opportunities for planning controls to support achievement of Environmental Plan objectives and targets. These may include guidelines for green corridors and water sensitive urban design.	Maintain Gold Waterwise Council accreditation.		✓			
Identify strategic innovation initiatives that embed environmental behaviours and practices into council activities, including for example stormwater infiltration and implementing water sensitive urban design.		✓	✓	✓	✓	✓
Maintain accreditation and recognition as a Waterwise Council by the Water Corporation.		✓	✓	✓	✓	✓
Ensure transparency of the City's environmental performance and benchmark against other local governments through publicly available reporting.				✓	✓	✓
Stay informed of new environmental management measures through relevant knowledge-sharing forums, including, but not limited to: • Industry events • Workshops • Participation in relevant forums		✓	✓	✓	✓	✓
Reduce reliance on pesticides for pest and weed control.	Reduce Glyphosate use within the City.	✓	✓	✓	✓	✓

7. Enable and support community action towards environmental priorities.						
Action	KPI	2018-19	2019-20	2020-21	2021-22	2022-23
Introduce natural play elements in parks and wetlands to foster children's interaction with nature.	An increase in the number of community members reached through key community activities (workshops, awards, volunteers and incentive schemes).	✓	✓	✓	✓	✓
Develop education programs and maintain any relevant signage in relation to key risk areas or targets associated with this plan.		✓	✓	✓	✓	✓
Support community incentives and subsidies, awards and rewards programs for sustainable verge gardens, and adapt as necessary to changing needs and participation rates.		✓	✓	✓	✓	✓
Support the formation of local community greening groups and continue to support the City's environmental volunteers.		✓	✓	✓	✓	✓
Involve the community in tree planting, wildlife protection and a range of environmental protection activities considered in this plan.		✓	✓	✓	✓	✓
Facilitate access to environmental education events, programs, materials and assistance to residents, schools and businesses including, but not limited to, workshops, brochures and digital information.		✓	✓	✓	✓	✓
Provide or replace cultural interpretive and/or wildlife signage and artwork at appropriate locations, as required.		✓	✓	✓	✓	✓
Review and update environmental information on the City's website on issues related to the urban forest and local wildlife, including management practices and contact organisations.		✓	✓	✓	✓	✓
Partner with universities to offer student placements/ scholarships, where possible.		✓	✓	✓	✓	✓

Reporting and review

7.1 Reporting

Progress on the actions in the Environmental Plan will be reviewed annually and reported through the following Key Result Areas (KRA) in the *Corporate Business Plan 2018 - 2021*, Focus Area Two: Parks, Open Spaces and Places:

Strategy 2.1.1 Preserve, enhance and maintain the urban forest

Strategy 2.1.2 Continue to be at the forefront of supporting sustainable verges

Strategy 2.1.3 Manage the City's parks and infrastructure in a way that is sustainable

Strategy 2.1.6 Be proactive and innovative in its approach to environmental, sustainability and climate change

Strategy 2.2.1 Ensure that parks, streetscapes, open spaces and public places are developed and utilised to maximum benefit for current and future community members.

Highlights of achievements will be included in the City of Subiaco Annual Report.

The plan is designed to be a living document that allows for continuous improvement as new information emerges on outcomes, as well as risks and their management. The plan will be formally reviewed and revised as necessary at the end of the four-year implementation period.

7.2 Relationship to other plans, policies and protocols

The following operational documents, plans and strategies have relevance for the environment and interface with the delivery of the Environmental Plan:

7.2.1 Key operational documents

- *Significant Tree Register 2013* (parks and reserves)
- *Significant Tree Register 2012* (streetscapes)
- *Street Tree Master Plan*
- *Managing Public Open Space in a Drying Climate Policy*
- *Hydrozoning Policy*
- *Street and Reserve Trees Protocols*

7.2.2 Related plans and strategies

- *Local Planning Strategy 2014*
- *Sustainability and Resilience Action Plan 2016 – 2021*
- *Urban Forest Strategy 2018 – 2022*
- *Western Suburbs Regional Organisation of Councils (WESROC) Climate Change Risk Assessment and Adaptation Plan 2010*

Definitions

Biodiversity refers to life and its processes, including the variety of living organisms, genetic differences among them, and the communities and ecosystems in which they occur.

Canopy cover refers to all living vegetation above three metres.

Eco-zoning is the conversion of under-utilised turfed areas into waterwise native garden areas.

Evapotranspiration refers to the loss of water from the soil both by evaporation from the soil surface and by transpiration from the leaves of the plants growing on it.

Green corridor is a strip of vegetated land that supports the habitat and movement of wildlife, connects to larger natural areas and/or reserves, often within an urban environment.

Plant pathogen is an organism such as fungi, bacteria, viruses and mould that cause diseases in plants, either native or non-native species.

Stormwater is the water draining off a site from rainfall (on roads, rooftops and land), and everything it carries with it. This material may include soil, organic matter, litter, fertilisers from gardens and oil residues from driveways.

Tree is defined by the City as a woody perennial plant generally having a single stem or trunk which will grow to a height of approximately four metres or more.

Understory plants refers to vegetation layer growing under the tree canopy.

Urban forest is a population of trees and vegetation growing within an urban setting for the purpose of improving the liveability of that urban setting whilst providing social, economic and environmental benefits to the community as a whole.

Water sensitive urban design is an approach to the planning and design of urban environments that is 'sensitive' to the issues of water sustainability, resilience and environmental protection. The approach integrates the urban water cycle (including potable water, wastewater and stormwater) into built and natural landscapes to provide multiple benefits to society.

Waterwise refers to actions, behaviours, products or initiatives that save water or improve water use efficiency, particularly potable water.

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Appendix A Plant Pathogen List

The following plant pathogens either exist, or are at risk of being introduced in the City's urban forest:

Dieback *(Phytophthora sp.)*

Dieback is an introduced water mould that causes disease of plant roots, stems and foliage, resulting in the rapid death of plants or a slow decline in the health of the tree crown. Dieback survives in soil and plant tissue, making it easy for it to spread, with warm and moist soil providing optimum conditions for growth. The key causes of spread of dieback are construction and maintenance activities, and the use of infected plant stock and mulch.

Honey fungus *(Armillaria luteobubalina)*

Honey fungus is a parasitic soil borne fungus that causes collar and root rot, surviving off both living and dead hosts across a variety of vegetation types and plant families. Honey fungus reduces the function of plant roots and affects the internal structure of a tree, often resulting in eventual death after a slow decline in health. Honey fungus is most commonly spread through root-to-root contact rather than through soil, as it usually requires plant material to reproduce and survive.

Canker disease *(Quambalaria coyrecup and Botryosphaeria sp.)*

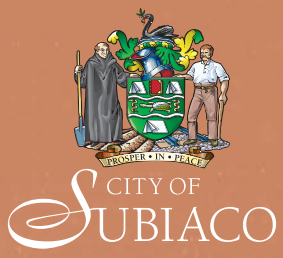
Canker diseases are fungal pathogens that are endemic to Western Australia. Canker diseases cause small lesions beneath the bark known as cankers, which exude red gum and girdle entire stems, eventually causing tree death. Infections can occur following the onset of suitable conditions or a trigger stress event (e.g. hailstorm or drought). Over-pruning of limbs and unnecessary wounds can be a catalyst for the development of cankers. The pathogen is largely spread through air, water or wind.

Sphaeropsis blight *(Sphaeropsis sapinea)*

Sphaeropsis blight causes the infected tips and needles of pine trees to brown, and the canker of stems and branches. The fungus is present in dead needles, leaf sheaths, twigs, and cones on an infected tree or on the ground. Trees are most susceptible to infection following a trigger stress event or declining health (e.g. natural senescence). The pathogen generally spreads during wet conditions when spores are released and scattered by wind, rain splash, animals, or pruning equipment.

Myrtle rust *(Puccinia psidii)*

Myrtle rust is an introduced fungus that causes the death of leaves, or entire plants in the Myrtaceae family. Although myrtle rust is not known to be present in Western Australia, it has spread rapidly throughout the eastern states since detected in 2010. The disease is highly transportable and can infect plants through spores dispersed by wind, honey bees, contaminated clothing or contact with other diseased plants.



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