



CITY OF VINCENT

SUSTAINABLE ENVIRONMENT STRATEGY

2019 – 2024

ENHANCED
ENVIRONMENT





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MAYOR'S MESSAGE

The City of Vincent's latest Sustainable Environment Strategy will guide us over the next five years as we make critical decisions about energy and water use, waste, transport, emissions reduction and greening.

This Strategy is filled with comprehensive, positive actions for delivering a sustainable natural and built environment for our Vincent community.

The five key focus areas of energy, transport, water, waste and urban greening and biodiversity each has a set of ambitious outcomes underpinned by a range of strategies to help us get there.

Since the adoption of our first Sustainable Environment Strategy in 2011, we have made really strong steps in the right direction, including:

- reducing the amount of energy we use from fossil fuels,

- increasing our tree canopy cover on public land through more tree planting and eco-zoning,
- being one of the first two Waterwise Councils to be awarded platinum status for sustainable water,
- management by the Water Corporation, and
- setting a target of zero waste to landfill by 2028 under our Waste Strategy.

We have some really impactful and positive changes for our community underway, like our plans to introduce a FOGO three bin system next year to divert about 55 per cent of the contents of our general waste bin from landfill.

We know that the impacts of climate change are a major concern for our community and we want to lead by example on this front too. While we are a small inner city Council, we believe that local action and organisational change is an important part of the solution.

That's why we will strive for an ambitious target of zero net greenhouse gas emissions from our City's energy use, transport and waste by 2030.

We can also lead by example and provide advice, education and programs to support our residents and local businesses.

Working together, we can achieve local change for a more sustainable community.



EXECUTIVE SUMMARY

David MacLennan | CEO

A global challenge

We live in a time of global climate emergency. Current global greenhouse gas emissions put the world on a trajectory to be 3°C hotter by the end of this century than it was before the industrial revolution.¹

In Australia we are experiencing the effects of a rapidly warming climate, with droughts and bushfires on an unprecedented scale.

Locally we are seeing a drying climate with declining rainfall, accompanied by increasing

severity of heat waves and damaging storm events. The impacts of these changes are compounded by decreasing ground water resources, which are essential to the health and growth of green infrastructure such as parks, wetlands, streetscapes and gardens.

Why we will respond

The City of Vincent supports taking action on climate change because in addition to the environmental harms, the social and financial impacts of climate change affect every part of our community. Heat and air quality changes impact directly on community health. Decreased amenity and comfort of outdoor spaces reduce participation in outdoor activities and active transport, leading to more sedentary lifestyles and vehicle emissions. Rising average temperatures, heat waves and declining rainfall drive up utility costs through increased energy and water use. Storm impacts drive up maintenance and repair costs.

To preserve the active outdoor lifestyle valued by our community and to support our community's social and economic sustainability, we need to mitigate our City's climate impact and also adapt to changing trends.

We need to respond to a drying climate to ensure we can continue to keep our sport fields, parks and

gardens green for our community by being more water efficient.

We need to adapt our energy use by increasing efficiency and moving toward renewable energy sources. This makes sense economically as we can reduce our energy costs for community buildings and facilities.

We need to plant more trees to keep our parks and streets cool and green, which encourages active transport and reduces our infrastructure maintenance costs.

By adopting new technologies and practices that reduce resource use and waste generation, we will also reduce our running costs over time. Reducing our running costs for energy, water and waste will help us to maintain financial sustainability too.

We embed the principle of sustainability into everything we do as a local government. We prioritise sound environmental, financial and resource management to ensure our decisions and operations meet our commitments to the community we serve.

What we have been doing

Since the adoption of our first Sustainable Environment Strategy in 2011 we have been

1. 2100 Warming Projections – Climate Action Tracker www.climateactiontracker.org/global/temperatures/

working to manage our natural resources and public assets in a manner which ensures equitable outcomes for future generations. We have implemented numerous measures to minimise negative environmental impacts from our City's operations as well as from our community. We have worked to reduce greenhouse gas emissions and the depletion of natural resources; and delivered programs and projects that preserve and enhance our environment as well as our long-term financial sustainability.

These initiatives have helped to mitigate against global climate change as well as build resilience against its unavoidable impacts.

Since 2011 we have:

- completed energy and water saving retrofits to our infrastructure,
- planted thousands of trees,
- put in place sustainable design requirements for new developments,
- engaged our community in greening our city and reducing household waste through programs such as Adopt a Verge and composting/worm farming, and
- provided funding and assistance to schools and community groups to complete environmental projects and start environmental programs of their own.

Yet there is still a long way to go and much more to do. Australia remains among the largest per capita emitters of greenhouse gases in the world. Western Australians remain the largest emitters in Australia.²

What we'll be doing next

Through the Imagine Vincent campaign our community affirmed its desire to protect and enhance our environment and to make the best use of natural resources.

In our City's Strategic Community Plan 2018 – 2028 we committed to work toward the vision created by our community and recognised that we would need to be clever, creative and courageous to achieve it.

Our approach is to focus on direct actions in the first instance. These are actions we can take as a local government to directly improve both operational and community impacts on the environment.

We understand the importance of 'walking the talk' by being environmentally responsible in our operations but also recognise that our operational impact is dwarfed by the combined impact of our community.



2. Australia's emissions: what do the numbers really mean? – The Climate Institute www.climateinstitute.org.au/verve/_resources/TCI_Australias_Emissions_Factsheet_Final-LR.pdf

OUR KEY TARGETS:

Energy

City operations: Greenhouse gas emissions reduced to net zero by 2030

Community: Household electricity use reduced by 10% and solar installed on 15% of all dwellings by 2024

Transport

City operations: The City's passenger vehicle fleet to reduce its tailpipe emissions by 50% by 2024 and achieve zero tailpipe emissions by 2030

Community: Ownership of zero emission vehicles increased by 15 times to 1%

Water

City operations: Groundwater use to be reduced by 5% by 2024 and 8% by 2029. Facility upgrades to achieve a 15% scheme water use reduction

Community: Groundwater use to be reduced by 5% by 2024 and 9% by 2029. Scheme water use to be reduced by 7% by 2024

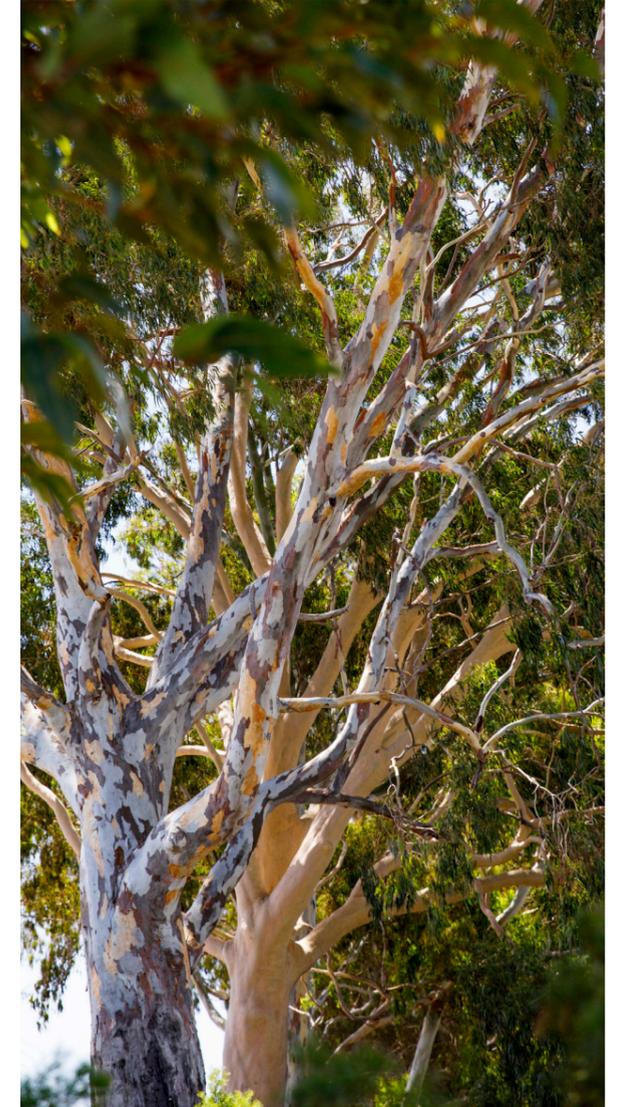
Waste

City operations & Community: Zero waste sent to landfill by 2028 and waste-associated greenhouse gas emissions to be reduced by 90%

Urban Greening & Biodiversity

City operations: Tree planting on public land to achieve 23% canopy cover by 2023 and 35% by 2050

Community: Halt and reverse net tree canopy loss on private land to achieve 7.5% canopy cover by 2023 and 12% by 2050



For this reason, Sustainable Environment Strategy 2019 – 2024 identifies both operational and community outcomes and sets target relating to both City operations and community impacts. The actions to achieve these targets are set out in a five-year Implementation Plan.

Building community awareness and empowering community action will be essential to achieving meaningful long-term outcomes.

We will use the lessons learned and the knowledge gained through our direct actions to leverage broader community outcomes in areas where we have less control and influence. We will do this by engaging and partnering with our community, to encourage, incentivise and empower actions by individuals, households, businesses, community groups and schools.

We will also seek partnership opportunities with other organisations to trial new and innovative approaches to protect and enhance our environment and to create opportunities for our community to do likewise.

Further, we will continue to advocate to State and Federal governments to remove barriers, show leadership and provide support for environmental initiatives.

Sustainable Environment Strategy 2019 – 2024 was adopted by Council in July 2019, committing the City to delivering its outcomes and targets over the next five years. The Implementation Plan that accompanies the Strategy is a live document and will be reviewed annually to ensure that it remains up to date with the latest developments in technology and regulation. This will increase flexibility and enable us to take advantage of new opportunities that deliver outcomes more effectively and efficiently. The actions identified in the Implementation Plan will inform and be formalised through the City's Annual Budgets, Corporate Business Plan and Long-Term Financial plan to ensure delivery.



WHY WE NEED A HEALTHY ENVIRONMENT

Our local environment contributes greatly to the health, well-being and lifestyle of our community. We want to protect and enhance the environment so that it can continue to provide these benefits. But what does environmental sustainability actually mean and how do we know if we have achieved it?

A sustainable environment is one in which human needs are met without compromising the long-term capacity of the environment to meet the needs of future generations. This capacity is measured in terms of planetary boundaries.³

Successful stable societies and their economies depend on the ongoing provision of natural resources (including clean air, water, food and materials) and on the efficient processing and reuse of waste (both natural and synthetic) to prevent their accumulation in the environment.

Societies that use natural resources faster than they can be replenished and generate waste faster than it can be processed exceed their planetary

boundaries. This is the current scenario for many developed countries, including Australia.

According to the Global Footprint Network, if everyone lived like the average Australian, four planet Earths would be required to support the current global population.⁴

The overarching objective of the City's Sustainable Environment Strategy is to move both our organisation and our community closer to living within our planetary boundaries.

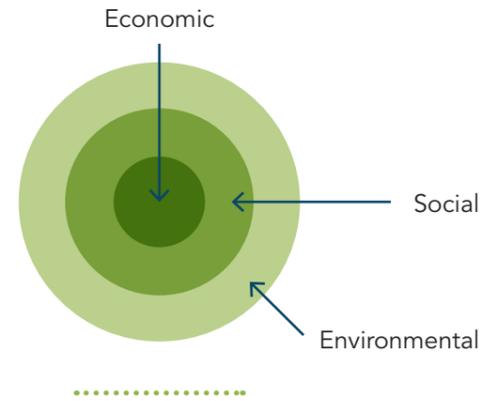


Figure 1.

Societies and economies exist within and are dependent for their survival on a sustainable environment.

When vital natural resources are depleted or the capacity of the environment to absorb and recycle waste and pollutants is exceeded, the health of societies and economies begins to break down.

Conversely, when economies and societies are weakened, the environment often suffers from the resulting changes in human behaviour.

WHAT IS THE SUSTAINABLE ENVIRONMENT STRATEGY

Under the Local Government Act 1995, every Local Government in Western Australia must develop a Strategic Community Plan, as part of an Integrated Planning and Reporting Framework, illustrated in Figure 2 below.

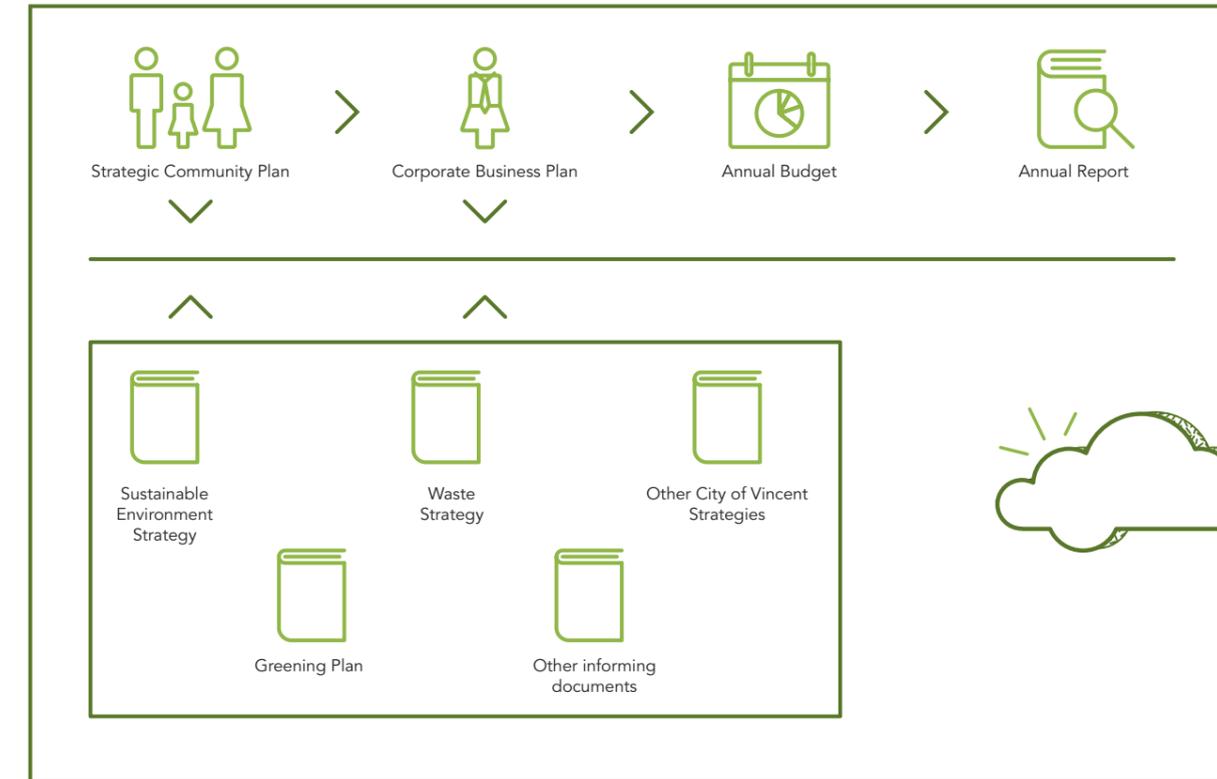


Figure 2.

The City's Strategic Community Plan 2018-2028 clearly defines the Council's strategic priorities, actions and initiatives for the coming decade – linked to the community's aspirations for the future.

The Sustainable Environment Strategy is the City's roadmap for delivering a sustainable natural and built environment for our community. It addresses the following priority areas of the Strategic Community Plan: Enhanced Environment, Accessible City, Sensitive Design and being Innovative and Accountable. It will guide our actions for the next five years to ensure that as an organisation we protect and enhance our environment and make the best possible use of our natural resources for the benefit of current and future generations.

3. The nine planetary boundaries – Stockholm Resilience Centre www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html
 4. Country trends, Australia – Global Footprint Network www.data.footprintnetwork.org/#/countryTrends?cn=10&type=earth

SUSTAINABLE ENVIRONMENT STRATEGY OVERVIEW



Our Vision How we see ourselves in the future	We are a smart and sustainable City that: <ul style="list-style-type: none"> values, protects and enhances our natural environment, minimises waste and makes the best possible use of our natural resources, facilitates safe, convenient, and low emission transport options, and fosters sustainable living and consumption within our community. 				
Overall Objective What we are trying to achieve	To act in an environmentally sustainable manner in all of our City's operations and to empower, encourage and support our community to live in an environmentally sustainable way.				
Values To guide delivery of our objective	<ul style="list-style-type: none"> Meeting the needs of the present without compromising the ability of future generations to meet their own needs. Pursuit of progress toward the United Nations Sustainable Development Goals relating to the environment. 				
Strategic Pillars Key opportunity areas for successful delivery of the objective	Energy <ul style="list-style-type: none"> Reduced use of energy derived from fossil fuels 	Transport <ul style="list-style-type: none"> Increased use of public and active transport 	Water <ul style="list-style-type: none"> Reduced use of scheme water and ground water 	Waste <ul style="list-style-type: none"> Reduced waste generation and increased resource recovery 	Urban Greening & Biodiversity <ul style="list-style-type: none"> Increased tree canopy
Outcomes Outcomes or initiatives to support each strategic imperative	<ul style="list-style-type: none"> Reduced greenhouse gas emissions from energy use Improved energy efficiency and increased use of renewable energy 	<ul style="list-style-type: none"> Shift to vehicles powered by renewable energy 	<ul style="list-style-type: none"> Increased water capture and reuse Progress toward becoming a water sensitive city 	<ul style="list-style-type: none"> Substantial reduction in landfill and associated greenhouse gas emissions Progress toward a circular economy 	<ul style="list-style-type: none"> Increased habitat and biodiversity
KPIs Measure of performance and success	<ul style="list-style-type: none"> Proportion of energy use from fossil fuels versus renewable energy Greenhouse gas emissions from energy 	<ul style="list-style-type: none"> Mode share shift to public and active transport Adoption of zero emission vehicles 	<ul style="list-style-type: none"> Ground water and scheme water consumption Water Sensitive Cities Index score 	<ul style="list-style-type: none"> Waste to landfill Waste recycled Greenhouse gas emissions from landfill 	<ul style="list-style-type: none"> Tree canopy cover Length of Greenways planted Area of eco-zoning completed
Enablers Supporting processes, governance, technology, capability	<ul style="list-style-type: none"> Engaged, informed, competent and motivated staff Executive support and guidance Clear pathway to delivery (Corporate Business Plan, Long Term Financial Plan, Annual Budget) Available resources to deliver Stakeholder engagement and relationship management Streamlined / automated monitoring and reporting processes State Government support 				



HOW WE DEVELOPED THIS STRATEGY

To develop the Sustainable Environment Strategy 2019–2024 we:



*The baseline year used throughout this document is 2017/18 because this is the most recent year for which complete sets of data relating to most opportunity areas were available at the time of document preparation.

KEY OPPORTUNITY AREAS, WHAT THEY ADDRESS

ENERGY	Electricity and natural gas used to power the City's and the community's stationary (non-transport) activities, and the associated greenhouse gas emissions.
TRANSPORT	Modes of transport used by the City's operations and by the community, plus the associated greenhouse gas emissions.
WATER	All forms of water that pass through our municipal boundaries including scheme water, ground water and environmental water, plus any associated contamination and pollution.
WASTE	All material that is disposed of or discarded within our municipal boundaries, plus any associated contamination, pollution and greenhouse gas emissions.
URBAN GREENING & BIODIVERSITY	Vegetation and wildlife that contributes positively to the health of our local environment.

AND THE OUTCOMES WE WILL WORK TOWARDS

- Use of energy derived from fossil fuels is reduced through energy efficiency and the use of renewable alternatives
 - Greenhouse gas emissions from energy used by the City's operations are substantially reduced
 - The community is supported to implement energy efficiency and adopt renewable energy technologies
 - New developments are required to demonstrate best practice in reducing greenhouse gas emissions from energy use
- Public and active transport are the modes of choice for staff and community
 - Car dependency is reduced
 - Greenhouse gas emissions from the City's vehicle fleet are substantially reduced
 - The community is supported to adopt electric cars and other technologies that reduce vehicle emissions
 - New developments support the adoption of zero emission vehicles
- The use of scheme and ground water is reduced and water capture and reuse is increased
 - Water sensitive urban design is implemented on both public and private land
 - The community is encouraged to understand the local water cycle and to value and protect receiving waters
 - New developments are required to demonstrate best practice in reducing scheme water use and maximising the capture and use of alternative water sources
 - Contaminants and pollutants are prevented from entering the environment and from reaching receiving waters
- Waste generation is reduced through avoidance
 - Waste recovery is increased through a suite of cost effective, sustainable and contemporary waste services
 - Waste to landfill and associated carbon emissions are substantially reduced
 - Hazardous waste is prevented from entering the environment
 - The community is informed and engaged in waste avoidance and recovery and is progressing toward a "circular economy"
 - The City works collaboratively on waste with other local governments and government agencies
 - New developments are required to demonstrate best practice in reducing waste associated with the construction and maintenance of buildings
- Loss of urban vegetation and tree canopy is reduced and the planting of additional trees and shrubs is increased
 - Urban tree canopy is protected and enhanced to increase habitat and biodiversity
 - New development is required to plant trees to achieve a minimum site coverage of landscaping and tree canopy
 - The community is encouraged to value biodiversity and supported to plant appropriate species of trees and shrubs

HOW THIS STRATEGY IS SET OUT

The five sections that follow are each dedicated to one Key Opportunity Area. Each section starts by setting out the strengths, weaknesses, risks and opportunities associated with the relevant Key Opportunity Area. It goes on to present the baselines and targets identified for that Opportunity Area, the associated outcomes and the strategies we will employ to achieve them.

OUR GREENHOUSE GAS EMISSIONS TARGET

One important outcome that cuts across several Key Opportunity Areas is the reduction of greenhouse gas emissions. While separate targets relating to greenhouse gas emissions are captured under the Key Opportunity Areas of Energy, Transport and Waste, the City has set an overarching target of net zero greenhouse gas emissions from its operations by the year 2030.

This target will primarily be achieved through efficient resource management, use of renewable energy, adoption of emerging technologies and innovation. Any residual greenhouse gas emissions will need to be offset through the purchase of carbon credits.

Beyond 2030 we will continue to support our community on its journey toward net zero greenhouse gas emissions. At the same time we will collaborate with the community to adapt to the unavoidable impacts of climate change and to build climate resilience.

The context for our greenhouse gas emission target:

- In 2019 the world is 1°C hotter than it was before the industrial revolution
- Current global greenhouse gas emissions put the world on a trajectory to reach 3°C above pre-industrial levels within the next 80 years
- Once the world exceeds 2°C of warming, large-scale irreversible disruptions to human and natural systems are likely
- Global leaders (including Australia) have committed to limiting the global temperature rise to well below 2°C – aiming for 1.5°C by 2100
- The target of 1.5°C by 2100 will require the world to achieve net zero greenhouse gas emissions by 2050

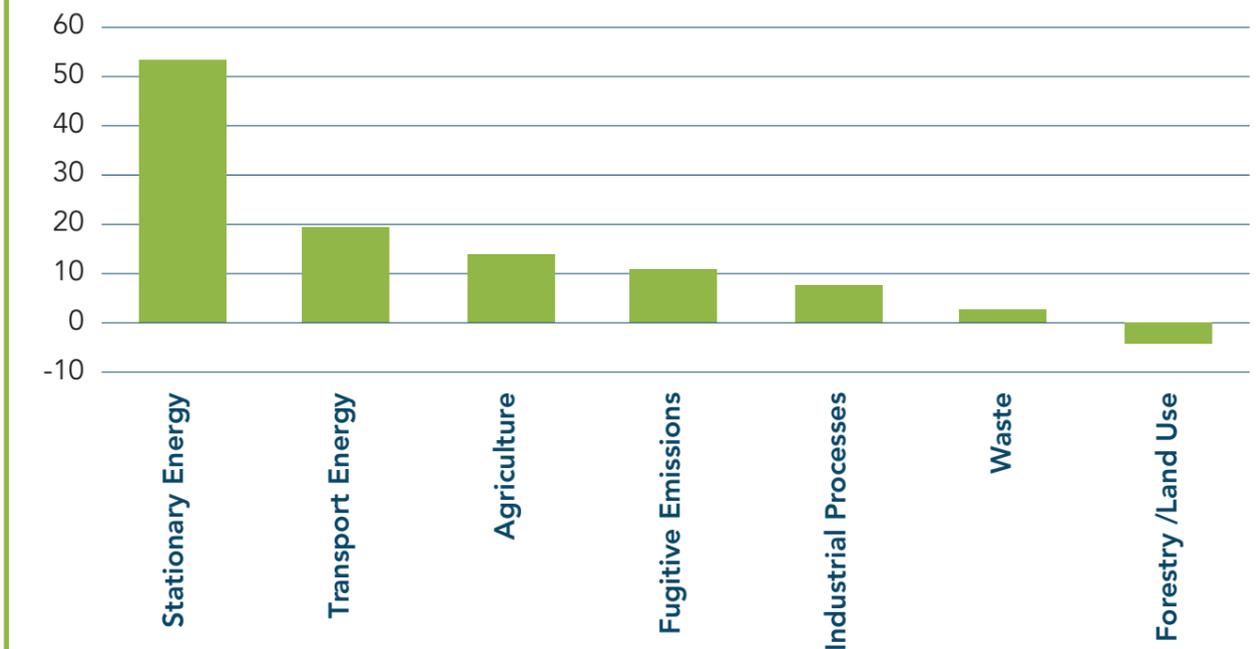
*Summary for Policymakers - IPCC Special Report on Global Warming – Intergovernmental Panel on Climate Change, www.ipcc.ch/sr15

ENERGY

Stationary or non-transport related energy is used throughout the City's operations and by the community to power activities such as heating, lighting, air conditioning and the operation of electrical equipment. Burning of fossil fuels (coal, gas and oil) to generate heat and electricity is a major source of greenhouse gas emissions and non-greenhouse gas air pollutants.⁵ To do our part in mitigating global climate change and air pollution, we must minimise the use of energy derived from fossil fuels through a combination of energy efficiency and the use of renewable energy.

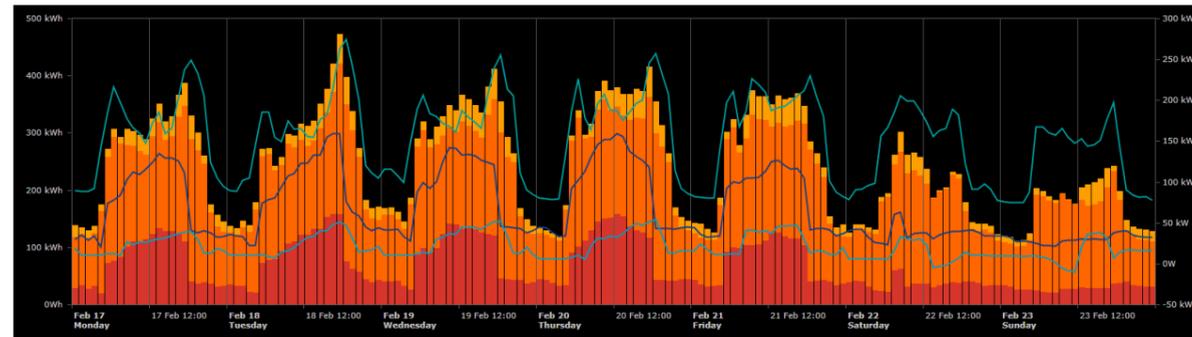
Figure 3. 53% of Australia's greenhouse gas emissions result from stationary energy generation.⁶

Emissions Contribution by Sector – Australia (Year to December 2017)



⁵ How much Australia emits – Parliament of Australia www.aph.gov.au

⁶ Australia's rising greenhouse gas emissions – Climate Council www.climatecouncil.org.au/wp-content/uploads/2018/06/CC_MVSA0143-Briefing-Paper-Australias-Rising-Emissions_V8-FA_Low-Res_Single-Pages3.pdf



City Operations

Since the adoption of our first Sustainable Environment Strategy in 2011 the City has proactively reduced its use of energy derived from fossil fuels through energy efficiency upgrades and the utilisation of renewable energy sources.

As Figure 4 shows, 22% of the City's current energy use is obtained through on-site renewable energy sources. These being a combination of geothermal heating, solar hot water and solar electricity generation. The remaining 78% of energy is derived from non-renewable sources in the form of grid-based electricity and natural gas. This produces 5,374.85 Tonnes of CO₂ equivalent greenhouse gas emissions per year, which accounts for 64% of the City's total greenhouse gas emissions (Figure 5). It contributes to human induced climate change and is costly for the City financially. To address this the City is setting targets to reduce grid supplied electricity and natural gas use (Table 1).

Energy efficiency and renewable energy technology is constantly evolving and becoming more affordable, presenting opportunity for ongoing performance improvements. Any residual fossil energy use that cannot be eliminated through these measures will need to be offset to achieve net zero emissions from the City's operations.

In order to reduce indirect greenhouse gas emissions resulting from the City's financial investments, Council has adopted a divestment approach, shifting funds away from financial institutions that support coal, oil or gas projects.⁷

⁷ Review of Investment Policy – Ordinary Meeting of Council, 12 December 2017
www.vincent.infocouncil.biz/Open/2017/12/CO_20171212_MIN_3115.PDF

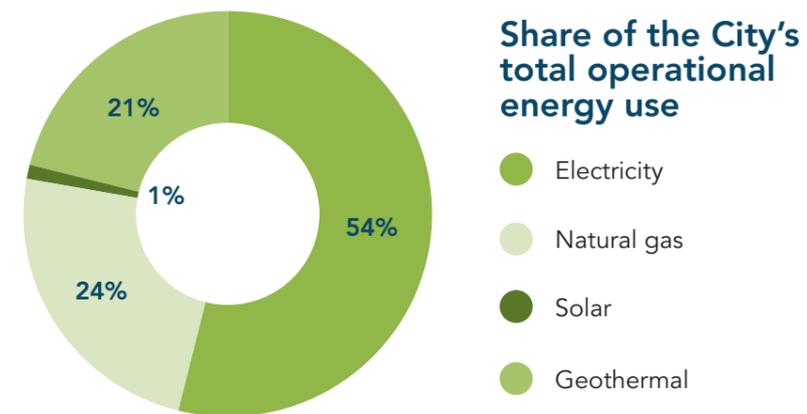


Figure 4.
Operational energy use for the baseline year of 2017/18

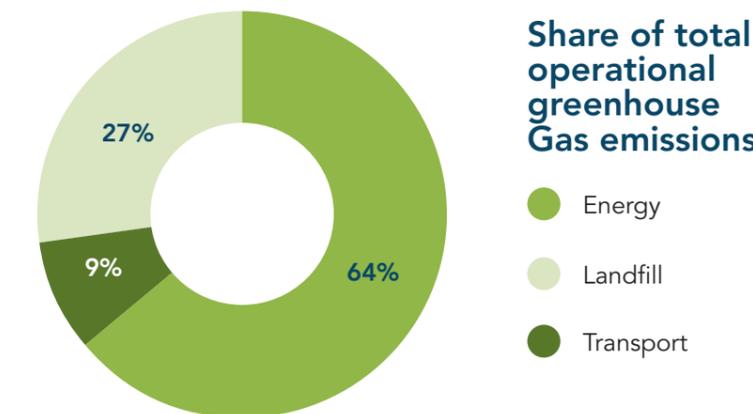


Figure 5.
Greenhouse gas emissions for the baseline year of 2017/18

Table 1. City Operations – Baselines and Targets for energy and associated greenhouse gas emissions

CITY OPERATIONS	Baseline (2017/18)	Target
Total grid-supplied electricity	6,401.8 Megawatt hours per year (23,406 Gigajoules per year)	<ul style="list-style-type: none"> 10% reduction by 2024
Total natural gas	10,327.73 Gigajoules per year	<ul style="list-style-type: none"> 80% reduction by 2024
Solar PV installed on City-owned buildings Solar energy generation on City-owned buildings	<ul style="list-style-type: none"> 37.5 Kilowatts 58.7 Megawatt hours per year 	<ul style="list-style-type: none"> 400 Kilowatts* by 2024 589.8 Megawatt hours per year by 2024
Greenhouse gas emissions from electricity and gas used by the City's operations	5,374.85 Tonnes of CO ₂ equivalent per year	<ul style="list-style-type: none"> 17.5% reduction by 2024 100% reduction by 2030

*To be confirmed by further solar feasibility studies.

Community

The unavoidable impacts of global climate change are likely to see energy demand rise, particularly for air conditioning as temperatures trend upward and heatwaves become more frequent.

Education and resources provided by the City to help our community retrofit energy efficiency and renewable energy into existing dwellings have been well received. Despite this only 16.9%⁸ of free-standing and semi-detached dwellings (where strata permission is not a barrier) have rooftop solar installed, compared to an average of 20–30% for the wider Perth metropolitan area.

With the price of solar falling rapidly, and low interest finance for solar installations readily available, cost does not appear to be a major

factor in our community's take-up of solar. The high number of rental properties⁹ (close to 50%) is more likely to be a key contributor. Technologies are now emerging that will enable landlords to sell solar energy to tenants and solar-owning households to sell to non-solar households via peer-to-peer energy sharing, making solar more accessible to Vincent residents in future.

To ensure that new developments produce significantly less greenhouse gas emissions than business-as-usual, the City's Built Form Policy mandates high energy performance standards across a range of development types.¹⁰

What our community wants us to do:

- Increase the use of renewable energy sources at City owned buildings
- Increase renewables as a source of energy throughout Vincent
- Mandate more sustainable development to help reduce our community's carbon emissions

The City's solar resources page provides information and advice about installing solar and overcoming barriers for businesses, strata and rental properties.

Visit www.vincent.wa.gov.au/solar to find out more.



Table 2. Community – Baselines and Targets for energy share and associated greenhouse gas reductions

COMMUNITY	Baseline (2017/18)	Target
Average grid-supplied household electricity use	13.26 Kilowatt hours per day	10% reduction by 2024
Percentage of free-standing and semi-attached dwellings with solar PV systems	• 16.9%	• 25% by 2024
Percentage of all dwellings with solar PV systems	• 10.5% (1,759 domestic PV systems installed)	• 15% by 2024 (2,845 domestic PV systems installed)
Estimated installed solar capacity	• 7,638 Kilowatts	• 12,355 Kilowatts by 2024
Estimated electricity displaced from the grid by Vincent households using solar PV	• 12,266.6 Megawatt hours per year	• 19,842.4 Megawatt hours per year by 2024
Greenhouse gas emissions avoided	• 9,200 Tonnes of CO ₂ equivalent per year	• 14,882 Tonnes of CO ₂ equivalent per year by 2024

⁸ Mapping Australian Photovoltaic Installations – Australian Photovoltaic Institute www.pv-map.apvi.org.au

⁹ Census of Population and Housing – Australian Bureau of Statistics www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1001.0~2016-17~Main%20Features~The%202016%20Census%20of%20Population%20and%20Housing~10009

¹⁰ Policy 7.1.1 – Built Form – City of Vincent Policies www.vincent.wa.gov.au/council/governance/policies.aspx

Table 3. ENERGY – outcomes we will work towards and the strategies to deliver them

THE OUTCOMES WE WILL WORK TOWARDS	STRATEGIES TO DELIVER OUTCOMES
<ul style="list-style-type: none"> Use of energy derived from fossil fuels is reduced through energy efficiency and the use of renewable alternatives Greenhouse gas emissions from energy used by the City's operations are substantially reduced The community is supported to implement energy efficiency and adopt renewable energy technologies New developments are required to demonstrate best practice in reducing greenhouse gas emissions from energy use 	1. Reduce the energy demand of City-owned buildings through physical modifications
	2. Increase the efficiency of energy use in City-owned buildings by upgrading energy using plant and equipment
	3. Increase solar energy generation on City-owned buildings
	4. Increase the use of renewable energy sources for water heating in City-owned buildings
	5. Increase the use of ground source geothermal energy at Beatty Park Leisure Centre
	6. Reduce grid-supplied energy use for public open space and carpark lighting through energy efficiency and solar power
	7. Increase the energy efficiency of street lighting
	8. Embed energy efficient behaviours within the City's operations
	9. Promote and facilitate energy efficiency in the community
	10. Promote and facilitate the adoption of solar energy in the community
	11. Advocate to both State and Federal Government for higher building design standards for new builds and retrofits (all building types)
	12. Advocate to State Government to require increased energy performance standards in new developments
	13. Advocate to State Government and relevant government agencies in relation to energy sharing and renewable energy technologies
BENEFITS <ul style="list-style-type: none"> Climate change mitigation and reduced air pollution Reduced corporate and community expenditure on gas and electricity Enhanced climate resilience for buildings 	

TRANSPORT

Perth like most Australian cities is heavily car-dependent. Sprawling suburbs make it difficult and costly to implement well-connected and efficient public transport networks. As the population of metropolitan Perth grows, road congestion and parking pressures continue to increase. This is felt most acutely in inner-city areas such as Vincent, which funnel much of the commuter traffic from outer suburban areas into the central business district.

Alternative commuting options such as walking, cycling and public transport are more accessible in inner-city areas like Vincent, but the perceived safety risks and reduced amenity associated with increased vehicle traffic causes many local commuters to choose the relative safety and comfort of driving. This contributes further to congestion and to atmospheric fuel particulate loads, which are the main source of air pollution in Vincent. Greenhouse gases emitted by cars also contribute around 10% of our community's global warming impacts.¹¹

City Operations

While the City's Active Transport program provides electric bicycles and Smart Rider cards for work-related travel by administrative staff, some staff need to drive as part of their daily work activities. These include parks, rangers, engineering and waste crews. Their operational transport energy use accounts for 9% of the City's greenhouse gas emissions. A number of options are being explored to minimise the environmental impacts of fleet vehicles. For the passenger vehicle fleet, hybrid and fully electric options are now the default choice. For the utility and heavy vehicle fleet, lower emission vehicles are being prioritised in the short term. In the long term, renewable and alternative fuel sources will be explored as they become available.



Table 4. City Operations – Baselines and Targets for Transport

CITY OPERATIONS	Baseline (2017/18)	Target
Percentage of the City's passenger vehicle fleet with tailpipe emissions	97% (3% fully electric)	<ul style="list-style-type: none"> 50% by 2024 0% by 2030

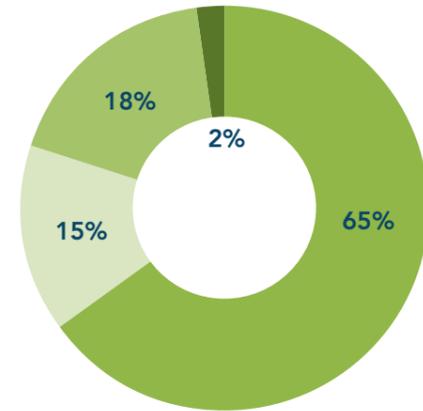
¹¹ Vehicle Emissions Discussion Paper 2017 – Western Australian Local Government Association
www.walga.asn.au/getattachment/Policy-Advice-and-Advocacy/Infrastructure/Urban-and-Regional-Transport/Vehicle-Emissions/Vehicle-Emissions-FINAL.pdf.aspx?lang=en-AU

Community

Vincent residents have access to more public and active transport options than average for the Perth metropolitan area. As a result, they cycle and walk to work four times as often and use buses twice as often as other metropolitan residents.¹²

Despite this, car use remains high as shown in Figure 6, with more than 65% of Vincent residents who commute to work choosing to drive (compared with 80% for the metropolitan average).

Our community has told us that they would be more likely to leave their cars at home if there were more bike lanes with better interconnections, better public transport connectivity and pedestrian improvements that increase safety and amenity for walkers. The City's Integrated Transport Plan being developed in 2019 will be the roadmap for delivering the above improvements and comprehensively addressing transport mode shift into the future.



Community commute mode share

- Car
- Active Transport (Walk/Cycle)
- Public Transport (bus/train)
- Other

Figure 6. Transport mode share for our City's community (census data 2016)

¹² Australian Bureau of Statistics census data 2016



Table 5. Community – Baselines and Targets for Transport

COMMUNITY	Baseline (2017/18)	Target
Percentage of Vincent residents who use active or public transport to commute	33%*	Targets for mode share shift to be set by the City's Integrated Transport Plan
Percentage ownership of zero emission vehicles by the community	0.065% ¹³	1.0% by 2024

* Active transport (walk/cycle) 15%; Public transport (bus/train) 18%.



¹³ 1) Motor Vehicle Census, Australia, 31 Jan 2018 – ABS (2018). 2) Australian Electric Vehicle Market Study (2018) – Energeia (Report prepared for ARENA and the CEFC)

What our community wants us to do:

- Install more bike lanes
- Improve public transport links
- Improve the pedestrian environment to make it safer and easier to get around

Table 6. TRANSPORT – outcomes we will work towards and the strategies to deliver them

THE OUTCOMES WE WILL WORK TOWARDS	STRATEGIES TO DELIVER OUTCOMES
<ul style="list-style-type: none"> Public and active transport are the modes of choice for staff and community Car dependency is reduced Greenhouse gas emissions from the City's vehicle fleet are substantially reduced The community is supported to adopt electric cars and other technologies that reduce vehicle emissions New developments support the adoption of zero emission vehicles 	1. Support and encourage City employees to use public transport, active transport and car sharing
	2. Support and encourage the community to increase use of public and active transport
	3. Reduce the use of petroleum-based fuels in the City's vehicle fleet via renewable alternatives and increased fuel efficiency
	4. Facilitate investment in electric vehicle charging infrastructure
	5. Facilitate the establishment of electric micro-transport in the city
	6. Develop, adopt and implement an Integrated Transport Plan to set the future course for mode share, car parking and the City's bike network
	7. Encourage and support the transition to zero emission vehicles by the community
	8. Work with the State Government to improve public transport services in Vincent
	9. Advocate to State Government for the promotion of electric vehicle charging and management infrastructure in new developments
BENEFITS <ul style="list-style-type: none"> Climate change mitigation and reduced air pollution Reduced corporate and community expenditure on transportation Enhanced resilience to peak oil 	

WATER

Water is essential for life. Clean, reliable drinking water supplies support human health. Clean, reliable environmental water supplies are essential to the health of environments that contribute to community wellbeing and our city's active outdoor lifestyle. Healthy green parks, gardens, recreation areas, playing fields, streetscapes and public open spaces depend on a healthy water cycle to support them.

In 2017 the City of Vincent was one of the first two Waterwise Councils to achieve platinum status, acknowledging the City's demonstrated leadership in sustainable water management. In 2018 the City benchmarked itself against the Water Sensitive Cities Index and began charting the path toward becoming a water sensitive city. Water sensitive cities minimise the depletion of fresh water resources, increase the use of alternative and recycled water sources, enhance community connection to the local water cycle and improve the quality of stormwater, groundwater and receiving environments such as rivers and wetlands. Figure 7 shows the continuum of states from a basic water supply City through to a water sensitive City.¹⁴



¹⁴ For more information about the Water Sensitive Cities index, the various water-related states and how cities are benchmarked against the index visit www.watersensitivecities.org.au/solutions/wsc-index/

City Operations

As Figure 8 shows, groundwater use for irrigation accounts for approximately 90% of the City's total operational water use. Between 2013 and 2018 groundwater use decreased by 15%, reflecting water efficiency improvements associated with the City's eco-zoning program and careful prioritisation and allocation of water to playing fields and reserves.

Scheme water use reduction at City-owned facilities has been more challenging. Many City-owned buildings are leased, which means that the City has no control over on-site water use behaviour. Leaks are often hidden, resulting in significant losses before anomalies are picked up on water bills. There is an opportunity to further explore and address these issues.

Climate change predictions indicate that the south west of Western Australia can expect reduced amounts of rainfall in future. This means the City will become increasingly reliant on irrigation to maintain green spaces at the same time as groundwater becomes ever more limited. The City will need to find alternative fit-for purpose water sources that do not have a negative environmental impact. The use of recycled and fit-for purpose water is likely to be part of the solution. The City will need to maintain close collaborative relationships with Water Corporation and other water-related agencies to successfully implement such measures.

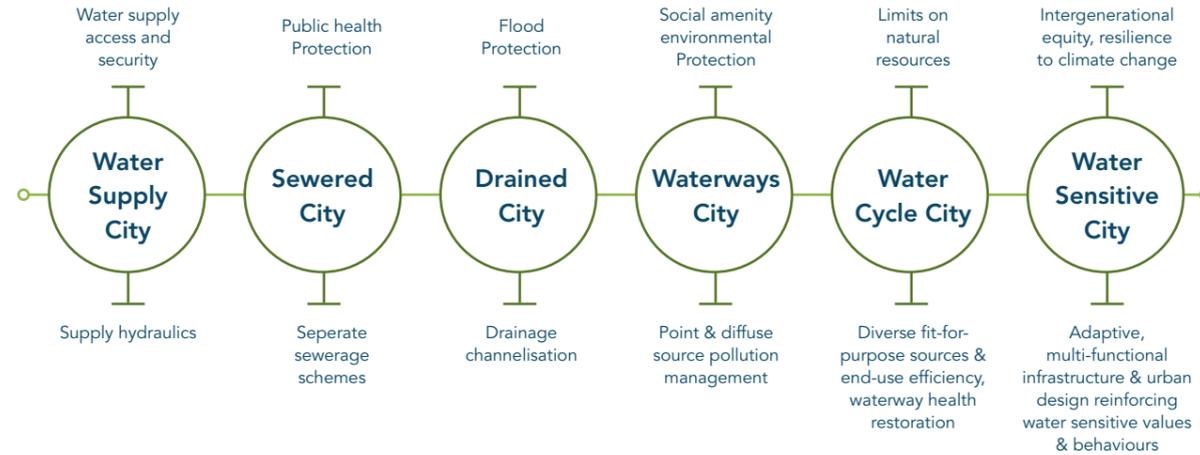


Figure 7. The Water Sensitive Cities city-state continuum (adapted from Brown, Keith and Wong, 2009)

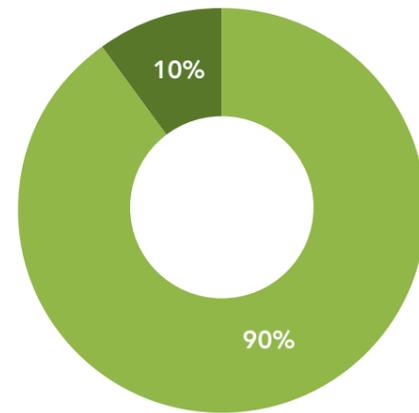


Figure 8. Operational water use for the baseline year of 2017/18

Share of operational water use

- Operational groundwater use (irrigation)
- Operational scheme water use (community facilities, depots and offices)

Table 7. City Operations – Baselines and Targets for Water

CITY OPERATIONS	BASELINE (2017/18)	TARGET
Total scheme water use by City-owned facilities	67,356 kilolitres per year	<ul style="list-style-type: none"> Facilities undergoing upgrades to achieve a minimum 15% scheme water use reduction following upgrade Facilities not undergoing upgrade to maintain scheme water use at or below baseline
Groundwater use (average across all irrigated areas)	<ul style="list-style-type: none"> 7,357 kilolitres per hectare per year (Total groundwater allocation of 672,450 kilolitres per year) 	<ul style="list-style-type: none"> 5% reduction by 2024 (<7,000 kilolitres per hectare per year) 8% reduction by 2029 (<6,750 kilolitres per hectare per year)

What our community wants us to do:

- Increase the number of waterwise native verges (grow the Adopt a Verge program)
- Increase native plants in our public open spaces (continue the eco-zoning program)



Community

Our community's per capita scheme water use is lower than the Perth metropolitan average. Water Corporation's target for community scheme water use by 2030 is 110 kilolitres per person per year, while our community's use is already well below this at 96.86 kilolitres per person per year. This is attributed to a larger proportion of high-density dwellings – apartment dwellers do not have large gardens to water.

As Figure 9 shows, the majority (80%) of our community scheme water use is residential, with the remainder attributable to businesses and government institutions.¹⁵ As Water Corporation already runs highly effective water saving programs targeting the latter two groups, the greatest gains in community water savings are to be made through education and support for the residential sector.

As our local climate continues to become hotter and drier, residents with gardens are likely to increase their scheme water and groundwater use. Community groundwater use is currently unmetered but estimates provided by the Department of Water and Environmental Regulation and by Water Corporation indicate that domestic bores in Vincent extract a similar amount of groundwater to the City's operations (Figure 10).

¹⁵ Community Water use data for the City of Vincent – Water Corporation (direct communication)

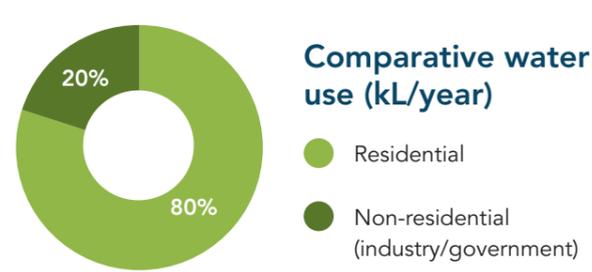


Figure 9. Share of community scheme water use

Ongoing community education and support around the use of drought-resistant native species and alternative water sources such as rain water and greywater will be part of the solution. At the same time, the City will need the cooperation of residents to protect the health of water-dependent ecosystems and to grow community awareness about the connection between water in the environment and green spaces throughout the City.

Table 8. Community – Baselines and Targets for Water

CITY OPERATIONS	BASELINE (2017/18)	TARGET
Community scheme water use	96.86 kilolitres per person per year	90 kilolitres per person per year by 2024
Domestic groundwater use	~628,408 kilolitres per year	<ul style="list-style-type: none"> 5% reduction by 2024 (<594,279 kilolitres per year) 9% reduction by 2029 (<573,055 kilolitres per year)
Water Sensitive Cities Index status	<ul style="list-style-type: none"> Water Supply City status 100% Sewered City status 100% Drained City status 100% Waterways City status 93% Water Cycle City status 41% Water Sensitive City status 19% 	<ul style="list-style-type: none"> Water Supply City status maintained at 100% Sewered City status maintained at 100% Drained City status maintained at 100% Waterway City status 100% by 2024 Water Cycle City status 100% by 2050 Water Sensitive City status to be determined

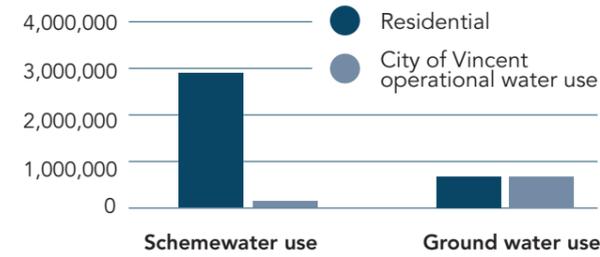


Figure 10. Residential water use compared to the City's operations

Table 9. WATER – outcomes we will work towards and the strategies to deliver them

THE OUTCOMES WE WILL WORK TOWARDS	STRATEGIES TO DELIVER OUTCOMES
<ul style="list-style-type: none"> The use of scheme and groundwater is reduced and water capture and reuse is increased Water sensitive urban design is implemented on both public and private land The community is encouraged to understand the local water cycle and to value and protect receiving waters New developments are required to demonstrate best practice in reducing scheme water use and maximising the capture and use of alternative water sources Contaminants and pollutants are prevented from entering the environment and from reaching receiving waters 	1. Increase water use efficiency in City-owned buildings by upgrading water-using fittings and fixtures and embedding water efficient behaviours within operations
	2. Increase groundwater use efficiency in the City's irrigation areas and work with the Department of Water and Environmental Regulation to prepare for further reductions in groundwater allocation
	3. Identify and utilise alternative (fit-for-purpose) water sources, in partnership with relevant government agencies where appropriate
	4. Implement the Action Plan developed at the City's 2018 Water Sensitive Cities Index benchmarking workshop
	5. Develop and adopt a Water Sensitive Urban Design (WSUD) Plan aligned with the Vision and Transition Strategy for Greater Perth (capture, use and infiltrate environmental water to benefit environment and community; make use of alternative water sources and better integrate water into green spaces)
	6. Facilitate WSUD in private development
	7. Expand the City's Adopt a Verge program and actively promote the program to encourage continued participation
	8. Encourage and assist residents and businesses to understand, apply for and install on-lot greywater systems
	9. Increase community water literacy, including the understanding of water efficiency, the local water cycle and connection to and ownership of local wetlands
	10. Advocate to both State and Federal Government for higher building design standards for new builds and retrofits (all building types)
	11. Advocate to State Government to require increased water performance standards in new developments and to facilitate greywater use
BENEFITS	<ul style="list-style-type: none"> Reduced depletion of environmental fresh water resources Reduced energy use and greenhouse gas emissions associated with the extraction, production, transportation and treatment of water Reduced corporate and community expenditure on potable water Improved quality of stormwater and groundwater Improved wetland health Increased connection between people and water in the environment Increased water-related environmental services

WASTE

Waste is an issue of concern for local governments around Australia. Landfilling is becoming less desirable as cities run out of suitable landfill sites and recognise that landfill-associated greenhouse gas emissions account for a significant share of global warming impacts. At the same time major international recyclers are placing restrictions on the materials they accept. This is leaving recyclable materials stranded around the country due to a lack of suitable processing and re-manufacturing plants in Australia.

Solutions are now being developed at Federal, State and local levels to address these issues. The City of Vincent is playing its part.

City Operations

The City has a vision to achieve zero waste to landfill by 2028 and aims to provide residents with cost effective, sustainable and contemporary waste services to achieve this. In line with this commitment the City has already increased diversion of waste from landfill from 39% in 2016/17 to 44% in 2017/18. The City's Waste Strategy 2018–2023 recognises that the management of waste poses

a number of risks for the City through growing population, rising landfill costs, environmental impacts and increased multi-unit development, which poses its own set of waste management challenges. The Waste Strategy focusses not only on increasing recovery to decrease waste to landfill, but also on decreasing waste generation itself. To achieve this, the City has committed to community education and engagement that aims to progress waste behaviour through the waste hierarchy, toward waste avoidance and minimisation as shown in Figure 11.

Community

Our community is doing well compared with the Perth metropolitan average, generating 7kg less waste per household per week. There is however room for improvement, with 29.5% of material in the general waste (green bin) found to be recyclable and with recycling bins (yellow lid) frequently contaminated with organic waste. Opportunities for improvement are being pursued through increased community education and the rollout of additional services such as a food organics and green organics (FOGO) collection.

What our community wants us to do:

- Help the community increase its recycling rates
- Help the community compost correctly and keep organic material out of the municipal waste stream
- Send less waste to landfill

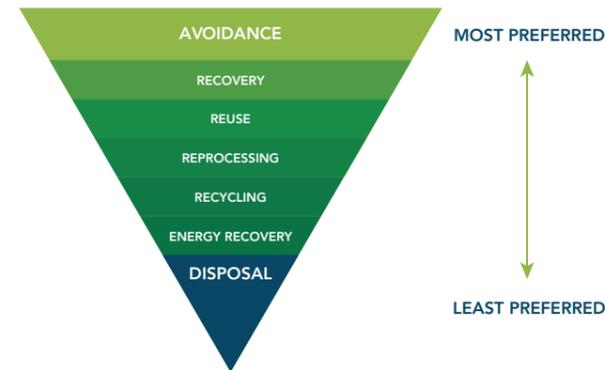


Figure 11. The waste hierarchy

Table 10. Combined municipal (City Operations and Community) – Baseline and Target for Waste

CITY OPERATIONS & COMMUNITY	BASELINE (2017/18)	TARGET
Total waste to landfill	9,530 tonnes (56% of all waste collected)	0 tonnes by 2028* (0% of all waste collected)
Greenhouse gas emissions associated with the breakdown of organic waste	2,235 tonnes of CO ₂ equivalent per year	223.5 tonnes of CO ₂ equivalent per year**

* The City's Waste Strategy 2018 – 2023 sets an overarching target of zero waste to landfill by 2028. Interim targets and separate targets for different categories of waste will emerge through the implementation of the projects set out in the Waste Strategy.

** This figure assumes that all organic waste will be composted using aerobic processes, resulting in a 90% reduction in greenhouse gas emissions.





URBAN GREENING AND BIODIVERSITY

Urban vegetation and trees in particular provide many environmental benefits. These include the removal of atmospheric carbon and particulate air pollutants, mitigation of the urban heat island effect, erosion control and improved quality of environmental water. In recognition of this, the City has a Greening Plan that focuses on opportunities to increase urban tree canopy and vegetation to support local biodiversity. It provides guidance and direction to the City’s strategic planning, parks and community partnerships teams. It also informs the City’s community about the types of greening activities they can expect to see and opportunities to get involved.

- What our community wants us to do:
- Prioritise native trees for planting in the public domain
 - Increase bird-attracting trees and understory plantings to support local biodiversity

City operations

The City adopted its first Greening Plan in 2014, though greening activities started some years earlier. From the baseline year of 2009 to the adoption of the Greening Plan in 2014, tree canopy cover on City managed land had already increased by 1.58%. This was assisted by a tree protection policy adopted in 2007 that prevents the removal of street trees. The City recognises verges as corridors that can be enhanced with trees and other vegetation to connect people to nature and to the City’s blue (water) and green (parks) spaces.

While recent canopy cover data is yet to be obtained, between 2014 and the review of the Greening plan in 2018, the City completed 25km of greenway plantings (verge and median trees) and 16,000 square metres (1.6 hectares) of eco-zoning. Eco-zoning is native understory planting to support local fauna through food and habitat.

There are a number of challenges to greening of the public realm. Balancing the growing need for active open spaces such as sporting fields against the need for increased tree canopy is one. Supporting trees to thrive in an urban environment with extensive use of paving and bitumen and competition for space from underground services is another. Options for increasing infiltration of rainwater and giving trees more room for healthy root development will need to be investigated and trialled.



Table 11. WASTE – outcomes we will work towards and the strategies to deliver them

THE OUTCOMES WE WILL WORK TOWARDS	STRATEGIES TO DELIVER OUTCOMES
<ul style="list-style-type: none"> • Waste generation is reduced through avoidance • Waste recovery is increased through a suite of cost effective, sustainable and contemporary waste services • Waste to landfill and associated carbon emissions are substantially reduced • Hazardous waste is prevented from entering the environment • The community is informed and engaged in waste avoidance and recovery and is progressing toward a “circular economy” • The City works collaboratively on waste with other local governments and government agencies • New developments are required to demonstrate best practice in reducing waste associated with the construction and maintenance of buildings 	1. Implement sustainable procurement practices to minimise waste generation within the City’s operations
	2. Maximise diversion of waste from landfill through existing waste collection processes
	3. Implement the City’s Waste Strategy 2018–2023
	4. Investigate and implement mechanisms to ensure that developments demonstrate best practice in reducing waste associated with construction and maintenance
	5. Provide feedback to the community about its waste impacts and support community waste projects that benefit the environment
<p>BENEFITS</p> <ul style="list-style-type: none"> • Reduced use of natural resources • Reduced greenhouse gas emissions • Reduced contamination of receiving environments 	

Table 12. City Operations – Baselines and Targets for Urban Greening and Biodiversity

CITY OPERATIONS	BASELINE (2017/18)	TARGET
Tree canopy cover on public land	21.45%*	23.33% by 2023 35% by 2050
Number of street trees	13,000	13,500 by 2023 (targets beyond 2023 to be determined)
Length of greenways established within the City	25km	26.5 kilometres by 2023 51 kilometres by 2050
Area of eco-zoning completed**	49,549 square metres	69,549 square metres by 2023

* Note: this is 2014 tree canopy data, which was the latest available at time of writing
 ** Between commencement of the City's eco-zoning program in 2011 and review of the Greening Plan in 2018

Community

The City's community is supportive of efforts to increase trees and vegetation in the public domain. Given the right information, incentives and support residents may also be encouraged to increase tree planting efforts within their own property boundaries.

While the City's community has expressed a desire to prevent the loss of trees on private land, in-fill development continues across the City, posing an ongoing challenge. Between the baseline year of 2009 and 2014 eight times more vegetation was lost from privately owned land than the City was able to plant through its eco-zoning program. Figure 12 shows the proportion of City-managed land and its tree canopy cover versus privately owned land.

In early 2017 the City introduced planning provisions aimed at halting and reversing permanent vegetation loss caused by development. The impacts of these policy settings are likely to become apparent only during the next mapping cycle, after 2019. The City will continue to engage with developers to ensure that the retention of trees is a priority and landscaping is maximised. Residents will also be supported to increase greening efforts within the private domain.

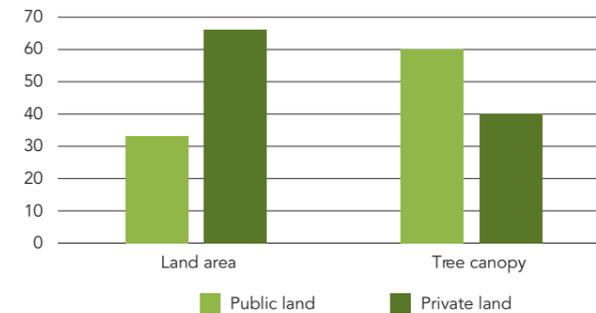


Figure 12. City managed land makes up 33% of the Vincent local government area but provides 60% of the total tree canopy.

Table 13. Community – Baselines and Targets for Urban Greening and Biodiversity

CITY OPERATIONS	BASELINE (2017/18)	TARGET
Tree canopy cover on private land	6.81%*	7.53% by 2023 12% by 2050

* Note: this is 2014 tree canopy data, which was the latest available at time of writing.

Table 14. URBAN GREENING AND BIODIVERSITY – outcomes we will work towards and the strategies to deliver them

THE OUTCOMES WE WILL WORK TOWARDS	STRATEGIES TO DELIVER OUTCOMES
<ul style="list-style-type: none"> Loss of urban vegetation and tree canopy is reduced and the planting of additional trees and shrubs is increased Urban tree canopy is protected and enhanced to increase habitat and biodiversity New development is required to plant trees to achieve a minimum site coverage of landscaping and tree canopy The community is encouraged to value biodiversity and supported to plant appropriate species of trees and shrubs 	<ol style="list-style-type: none"> Implement the City's Greening Plan 2018–2023 Implement the Action Plan developed at the City's 2018 Water Sensitive Cities Index benchmarking workshop to further support the growth of the City's tree canopy and improve connection between Vincent's "green" and "blue" assets
<p>BENEFITS</p> <ul style="list-style-type: none"> Improved local amenity Enhanced community well-being Removal of atmospheric carbon – climate change mitigation Mitigation of the urban heat island effect Increased resilience to climate change impacts Improved air quality and overall environmental health Storm and groundwater quality improvements Community ownership of the City's green assets 	

IMPLEMENTATION

To achieve the targets in the City of Vincent Sustainable Environment Strategy 2019–2024 the City intends to work collaboratively with the community and other key stakeholders and to lead by example in its operations. Within Administration, the City must ensure that its officers are fully aware of the environmental impacts of their work and supported to operate in accordance with environmentally responsible principles.

Information, incentives and support for environmental initiatives will be essential to nurture and grow the emerging culture of sustainability in our community. Meaningful engagement will be required to build connection and cohesion between community-led, City-led and other stakeholder-led activities and to promote a sense of shared responsibility for the health of our environment.

Actions to deliver the desired outcomes described in this Strategy and to progress the City and its community toward stated targets are set out in the Sustainable Environment Strategy 2019–2024 Implementation Plan. This Plan will be used to inform the City's Corporate Business Plan, Long Term Financial Plan and Annual Budgets for the period 2019–2024. It is intended to be a flexible document, allowing for new opportunities and technological solutions to be added as they arise over the life of the Strategy.



EVALUATION

The City's Sustainable Environment Strategy 2019–2024 will be reviewed and updated in 2024. In the interim the City's Administration will continually track the completion of actions and measure progress toward targets. Reporting will occur annually in the form of a Council Information Bulletin prepared at the end of each financial year. Our community will also be updated on the delivery of actions and progress toward targets via the City's Annual Report and through a range of community education initiatives.





WHO DO I CONTACT FOR MORE INFORMATION?

To find out more about our Sustainable Environment Strategy, or any of our programs, contact:

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