

City of Monash

Water Saving Feasibility Snapshot



Overview

In late 2018 and early 2019, a Water Saving Feasibility Study (WSFS) investigated water use by the City of Monash and found the city is not using excessive amounts of water. However, in a drying climate and population growth will likely trigger increased water usage in the future. The WSFS found increased demand for water could be met by ensuring water is used more efficiently in aquatic centres, open space irrigation and council buildings, and by accessing alternative sources of water such as stormwater.

Why is a Water Feasibility Study necessary?

Water is vital for ensuring the City of Monash maintains its “Garden city character”, where recreational and natural assets and remains an attractive place to live and work. The City of Monash is facing challenges to its water supply through **climate change** and **population growth**.

We are experiencing a drying climate with less rainfall. At the same time, Monash is growing by 3,000 to 4,000 additional residents each year. In 2019, the population is approximately 200,000 and this is expected to grow to 250,000 by 2041. These factors will stimulate a greater demand for water for swimming pools, toilets and irrigation of sports fields and open spaces during summer.

A Water Saving Feasibility Study was conducted to ensure the City of Monash has enough water now and in to the future for recreational facilities and to meet community expectations for maintaining healthy green open spaces, trees, grass and vegetation.

How the Water Feasibility Study relates to other council policies

The Water Feasibility Study delivers on Action 5.2.2a from the *Environmental Sustainability Strategy 2016-26* (ESS) – Complete a water saving feasibility study that identifies water saving and non-potable water recommendations for Council’s facilities and operations with a view to setting targets.

A reliable source of water is also the key ingredient in achieving goals from a number of important council strategies including *Integrated Water Management Plan 2014*, *Open Space Strategy 2018*, the *Monash Urban Landscape Character and Canopy Vegetation Strategy 2018*, *Monash Street Tree Strategy 2016*, the newly adopted *Urban Biodiversity Strategy*, as well as the *Monash Council Plan* and *Monash’s Municipal Strategic Statement* that articulates the City of Monash’s desire to retain and enhance the “Garden city character.”

Water and community values

The strategies listed above, and their related community engagement were reviewed to understand community values in relation to open space and water use. The review found strong support from residents to maintain and enhance the “Garden city character” and the following common community values:

1. Multi-use open space amenities
2. Healthy parklands and biodiversity
3. Maintenance of street trees and bushland areas for wildlife
4. Maintain and improve “garden city character”
5. Mitigate urban heat island effect
6. Concerns around development and town planning that will impact neighbourhood amenity.

The existing suite of strategies, policies and plans and the community values demonstrate a strong desire to see vegetation and open space maintained to a high standard. Despite the fact water is not identified as key enabler in these strategies, council needs to consider how the city can ensure it has enough water to meet community expectations for a green, cool city and climate resilient recreational facilities in the future.

What did the Water Saving Feasibility Study do?

The WSFS was conducted by environmental engineers and experts in sustainability and urban water management. It looked at water management in the City of Monash through the lens of Integrated Water Management (IWM), an approach that underpins *Water for Victoria*, the Victorian Government's 2016 strategic plan for water management.

What is Integrated Water Management?

A collaborative approach to planning that brings together all elements of the water cycle including sewage management, water supply, stormwater management and water treatment, considering environmental, economic and social benefits. Integrated water management achieves strategic outcomes for the long-term prosperity, liveability and resilience of Victoria's cities and towns. (*Definition from Department of Environment, Land, Water and Planning brochure What is integrated water management?*)

The WSFS involved conducting research, consulting with council officers and site visits to understand current water use, benchmark the council's performance and investigate options for more efficient water use in areas such as aquatic centres, irrigation and council buildings. Alternative sources of water such as stormwater and rainwater were also considered. This information was then used to produce a draft implementation plan detailing how to decrease water use across the municipality and reduce reliance on drinking water.

Current water use, and how this compares to other councils

Investigations found the council is currently exceeding its own water targets. The *2011 Environmental Sustainability Strategy* set a water reduction target of 20% below 2002/3 levels of water consumption by council. Analysis showed the City of Monash has used 32% less water than the 2002/3 level over the last three years.

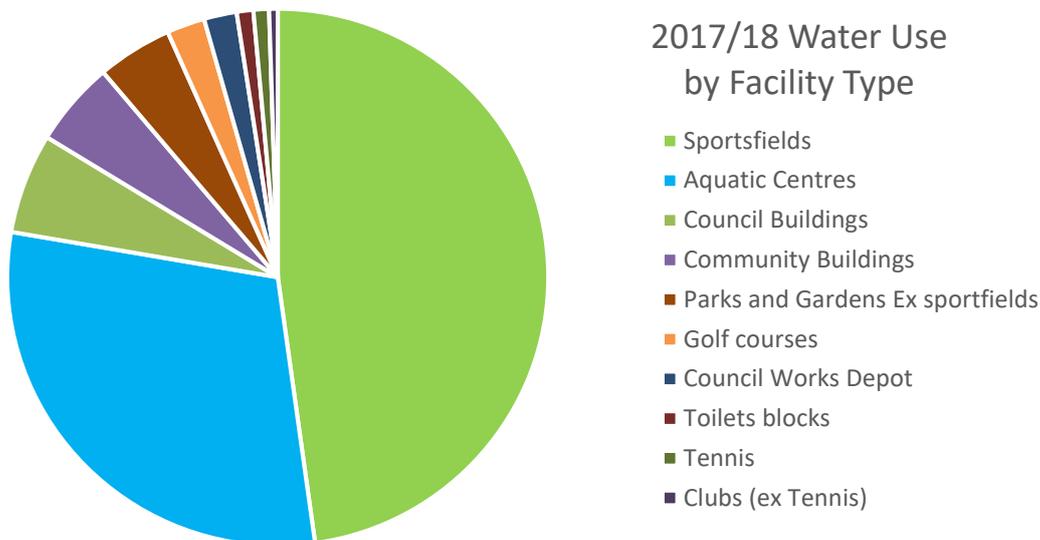
In addition to overachieving on the water target, the City of Monash compares favourably to other Local Governments in Australia and overseas considering its current water management targets, water use and achievements. However, a proactive approach is needed to maintain this status.

Review of current water use

The WSFS identified key areas with potential for water savings at aquatic centres, open space irrigation, building assets, alternative water provision and community action. Of these, aquatic centres and irrigation of sports fields are the biggest water users and offered the greatest potential to save water through more efficient water management.

The study considered alternative sources of water to drinking water and focused on using stormwater for open space irrigation. Collecting and using rainwater for passive irrigation through Water Sensitive Urban Design was also considered. Although the focus of the study was on council water use, it briefly examined the role council can play in influencing community water use by enforcing new Victorian Planning Provisions for stormwater management on private land.

Currently there is no dedicated resource which focusses on integrated water management.



Outcomes of the Water Saving Feasibility Study

- Set new water target linked to population, rather than a traditional from a water reduction target;
- Achieve our ‘Garden City Character’ outcomes through partnerships and leveraging external funding;
- Implement water savings initiatives for aquatic centres and sports fields where we use the most water;
- Reduce reliance on drinking water for irrigation by implementing passive irrigation through Water Sensitive Urban Design and expanding on current stormwater harvesting initiatives.

A new water target

The recommendation to move away from a water reduction target and introduce a new water target linked to population size acknowledges that council is already using water efficiently but needs a target that allows for water use to expand with the population. The study found a water savings reduction target is a blunt instrument which should not be used to override important community values such as the desire to maintain healthy parklands, mitigate against urban heat and maintain the “Garden city character.”

A new annual council water use **target of 1500L per head of population** is proposed to link community values and expectations with the impact a growing population will have on water demand. This target compares favourably to other local governments leading in integrated water management. It also recognises open spaces need a baseline reliable water resource to be maintained and avoids the unintended consequence of trying to do more with less (as can happen with a water reduction target) in the face of growing population and climate change.

Alternative water provision target

To assist with reducing demand for drinking water, an alternative water provision target is also recommended. The City of Monash already has several systems that harvest stormwater, groundwater and leachate from closed landfill for irrigation, as well as many rainwater tanks on buildings. These existing systems are estimated to save up to 120 million litres of drinking water per year.

There is an opportunity to source **an additional 30 ML alternative water by 2030**, if the City of Monash proceeds with three to four of suggested projects and continues to install rainwater tanks where feasible, allowing the council to save up to 150 million litres of drinking water per year. This study has identified 12

opportunities to harvest stormwater, however the priority would be to reduce our water use where possible before accessing alternative water.

Draft implementation plan

The WSFS provides a draft implementation plan which details 67 possible opportunities (including water savings, responsibility, frequency and cost) that Monash may take to use water efficiently and decrease the use of drinking water.

The plan reflects highlights that the City of Monash is already doing a good job implementing integrated water management approaches and offers further suggestions on how the city can build on current efforts to ensure sufficient water for future needs.

The actions detailed in the implementation plan vary from simple things the council could be doing, such as putting covers on all pools at night to avoid evaporation, through to options that require an investment, such as installing leak detection sub meters to ensure water leaks or unintended water use is attended to promptly.

Key prioritised actions for greater water efficiency

Twelve strategic actions have been identified to help council to meet these targets

<i>Area</i>	<i>Action</i>
<i>Overall</i>	<ul style="list-style-type: none"> Validation of water use data for all sites to ensure that the meter readings are an accurate representation of water use, particularly for sites with multiple assets such as open space and pavilions.
<i>Aquatic centres</i>	<ul style="list-style-type: none"> Undertake a backwash process audit and optimisation study at all aquatic centres.
<i>Open Space</i>	<ul style="list-style-type: none"> Continue conversion of sports fields to warm season grasses. Adopt a program to replace irrigation systems greater than 20 years old. Conduct regular audits of at least six irrigation systems a year. Upgrade water supply at sites where water pressure is not optimised. Achieve increased irrigation efficiency through monitoring of water use and responding to varying weather and site conditions.
<i>Buildings</i>	<ul style="list-style-type: none"> Adopt a Capital Works Sustainable Buildings Design policy to ensure future upgrades minimise use of drinking water. Conduct annual leak testing or install leak detection sub metering.
<i>Alternative water supply</i>	<ul style="list-style-type: none"> Investigate and develop business cases for stormwater harvesting opportunities from council stormwater drains for irrigation use at our active and passive reserves. Seek grant funding opportunities to invest in favourable projects through Water Authorities. Review and audit existing stormwater and ground water harvesting and rainwater tank systems to validate current reuse, document any issues and incorporating learnings into future designs
<i>Resourcing</i>	<ul style="list-style-type: none"> Develop a business case to invest or seek grant funding for a dedicated Integrated Water Management officer whose role is to championing water initiatives internally and externally. This will allow timely development of project designs, business cases, implementation of actions, access to grants and tracking towards targets and improved water use.

Monitoring, verification and evaluation will be a key component to supporting delivery of our targets.