



Water Action Plan

2015-2020

Adapting Council water use for climate change and water security



Executive Summary

The *Wyndham Water Action Plan 2015–2020* establishes Wyndham’s direction on water conservation and alternative water use for Council facilities and operations over the next five years. The plan builds on Wyndham’s previous Water Action Plan (2005) and reflects the water use objectives outlined in the Wyndham Environment and Sustainability Strategy 2011–2015.

Many of the successful programs and projects developed and implemented as part of Council’s original Water Action Plan are carried forward to form the basis of this updated plan.

The Plan’s vision is: *To improve the resilience of Council’s operations to drought and climate change through improved water use efficiency and use of alternative water sources.*

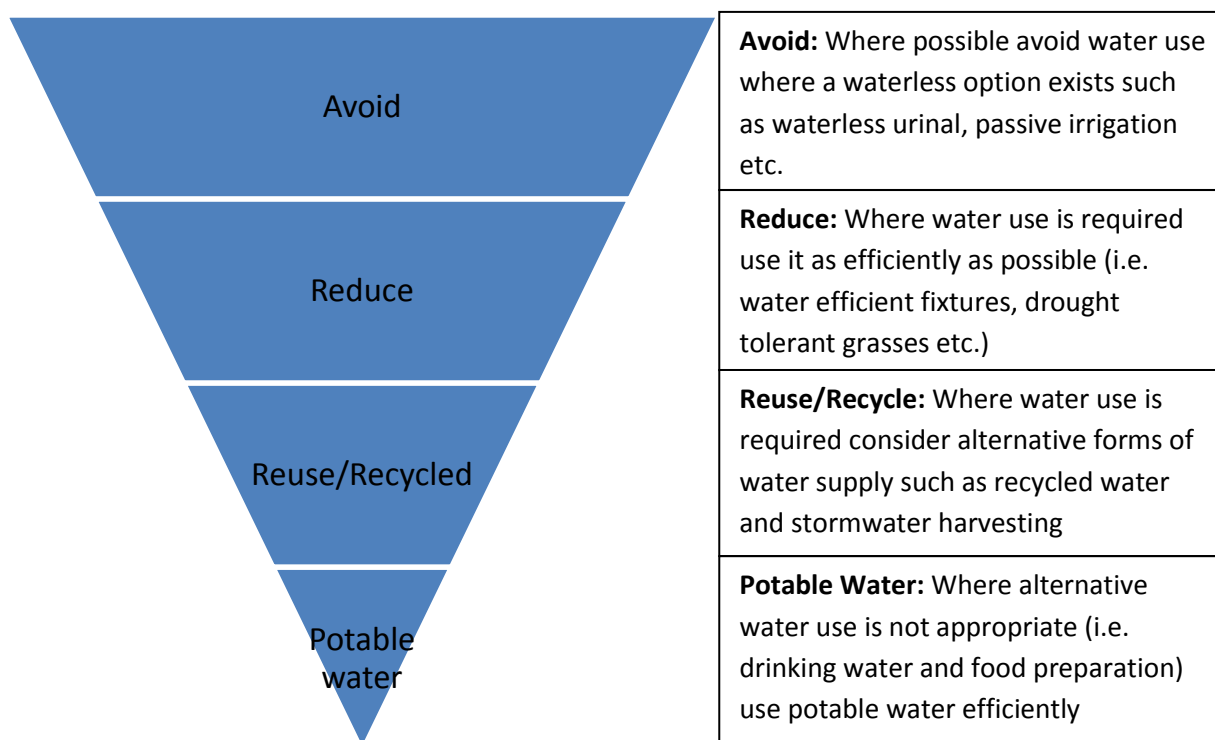
The Plan’s Objectives are to:

- Maintain and improve water use efficiency of key water use areas
- Increase the use of alternative water sources across council buildings and open space

The Plan consists of two parts. The first part sets out the current water context that has informed the Plan’s development and provides Council water use baseline data that will guide ongoing monitoring of the Plan.

The second part details specific actions to progressively embed sustainable water practices into Council’s key water use areas - Sports Reserves, Parks and Open Space, Buildings, Aquatic Centres and the Wyndham Refuse Disposal Facility.

The actions have been developed based on a hierarchy of avoiding and reducing water use as a first priority, followed by re-using and recycling water with the aim of minimising the use of potable water where other fit for purpose water sources are available.



Examples of key actions to be undertaken include:

- Upgrading of automated irrigation and monitoring systems for improved sports field irrigation efficiency
- Application of water efficiency specifications for fixtures and fittings in new building and refurbishment projects
- Recycled water connections and stormwater harvesting for new and existing sports reserves and open space
- Development of recycled water supply points for street tree watering
- Improvements to the RDF's rainwater harvesting systems to minimise the facilities use of potable water

The actions within the Plan define the desired outcome but provide some flexibility around the method of delivery or precise scope of the actions. This allows for advancements in technology and best practice to be incorporated over time. The action plan covers a five year time period and in recognition that many things change over time, sometimes quite significantly, Council will review the actions annually and adjust as required.

Over the next five years, Council will continue to invest in water conservation initiatives that will have many positive outcomes for the community. In addition to the conservation of a precious resource, other benefits include greater biodiversity, sustainable management of community assets, and improved local amenity.



Acknowledgements

This plan was developed by Wyndham City Council's Sustainable Development and Infrastructure Directorates. For further information contact Wyndham City Council on (03) 9742 0777 www.wyndham.vic.gov.au/

Wyndham City Council acknowledges the traditional owners and custodians of Wyndham, the Wathaurung, Bunurong and Boon Wurrung peoples of the Kulin Nation.

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1. Glossary

CERM PI - Centre for Environmental and Recreation Management Performance Indicators. CERM PI is a project run by the University of South Australia's Centre for Tourism and Leisure Management that compiles data from over 200 sport, leisure & aquatic facilities in Australia and New Zealand. CERM PI and industry partners have developed protocols for reliable data collection and have compiled a range of performance indicators for operational management, customer service quality (CSQ) and appropriateness of services for these types of facilities.

Millennium Drought - The Millennium Drought, also known as the *2000's Drought*, was one of Australia's most severe droughts recorded in recent history. The drought began in 1995 and continued Australia wide until late 2009 with the final areas in drought not receiving substantial rainfall until May 2012. Some areas of Australia have already returned to drought status in 2014.

Open space – Open space is land that is publicly accessible and has been designed for leisure, play, or sport. Uses of open space are categorized as active or passive. Active open space is used for sports, formal exercise or active play; passive open space is used for sitting, relaxing or light exercise. Open space can also be classified as land that has been set aside for the protection and /or enhancement of the natural environment. Several government agencies manage open spaces in Wyndham however for the purposes of this Plan open space refers to assets directly managed by Wyndham City Council.

Passive Irrigation - Watering plants by channelling rainwater or stormwater from nearby hard surfaces to them.

Urban Heat Island Effect - When building materials such as concrete and bricks absorb heat during the day and releasing it at night causing urban areas to be warmer than surrounding rural environments.

Water Sensitive Urban Design (WSUD) - WSUD looks to manage the impacts of storm water from development. WSUD works at all levels – at the lot level, street and precinct level, as well as regional scales – with the aim of protecting and improving waterway health by reducing storm water runoff from hard surfaces and mimicking the natural water cycle as closely as possible.

Water Sources:

Grey Water – Wastewater generated from wash hand basins, showers and baths, laundry, dishwashers and kitchen sinks which can be recycled on-site for uses such as toilet flushing and irrigation. Grey water does not include sewage or blackwater from toilet flushing.

Potable Water (Drinking Water) – Water that is safe enough to be consumed by humans as defined by the *Australian Drinking Water Guidelines*. In Melbourne potable water is sourced primarily from catchments to the east of Melbourne and distributed via the metropolitan water grid.

Rain Water - Rain that falls on a roof and is captured for use. It is usually cleaner than stormwater because it has not mixed with contaminants through the drainage system.

Recycled Water – Sewage waste water that has been treated to a standard acceptable for reuse. Recycled water is rated into three categories, Class A, B, and C. Recycled water used by Wyndham is Class A, sourced from the Western Treatment Plant. Class A recycled water is

suitable for use without a withholding period in accordance with *EPA Guidelines for Use of Reclaimed Water*.

Stormwater - Surface run-off from rain and storm events that enters the drainage system. It usually contains pollutants, including leaves, sediment, oil and other hydrocarbons.

2. Acronyms

BoM - Bureau of Meteorology

CERM PI - Centre for Environmental and Recreation Management Performance Indicators

ESD – Ecologically Sustainable Design

FY – Financial Year

KL - Kilo litres (1,000 litres)

ML – Mega litres (1,000,000 Litres)

RDF – Wyndham Refuse Disposal Facility

WELS – Water Efficiency Labelling and Standards Scheme

WLEC – Wyndham Leisure and Events Centre

WOOP – Wyndham Olympic Outdoor Pool

WSUD – Water Sensitive Urban Design

3. Introduction

Water is vital for sustaining our natural environment and supporting human activities. It delivers economic value through its allocation to towns, irrigation, agriculture and industry, while healthy waterways provide environmental, cultural and recreational value. However, the impacts of drought and climate change threaten Australia's limited water resources. Wyndham is among the driest municipalities in the Greater Melbourne area and has seen a decline in average annual rainfall in recent decades making sustainable water use of particular local importance.

To meet the challenge, we have to change the way we use, save and recycle water to ensure this essential resource is available for all of us and the environment. In this context, Council has reviewed the Water Action Plan (2005) and developed this updated Water Action Plan for 2015 to 2020.

The Water Action Plan 2015-2020 reflects the water use objectives outlined in the Wyndham Environment and Sustainability Strategy and outlines the key strategic actions that Council will undertake over the next five years to minimise its water consumption and replace potable water use with fit for purpose recycled water and stormwater.

Progress to date

Wyndham Council has progressively delivered water efficiency and alternative water use measures since adopting the *Wyndham Water Action Plan 2005-2008* and implementing recommendations from the *Wyndham Water Security Report (2010)*.

Some of the major achievements delivered to date include

- Setting up accurate water use monitoring across council assets using the Planet Footprint Environmental Data Management Service
- Connecting twenty of Wyndham's sports reserves to the Class A recycled water network
- Inclusion of a stormwater harvesting and reuse system at Saltwater Promenade Sports Reserve
- Over 100KL of rainwater tank storage installed across 13 sites
- Water sensitive urban design integrated into capital works projects including the civic centre refurbishment and several community centre car parks
- Water audits undertaken in more than 30 buildings leading to extensive water efficiency retrofitting of existing buildings
- More than 11,000 water efficient showerheads provided to Wyndham homes through the Showerhead Exchange Program in partnership with City West Water

4. Wyndham's Current Water Context

Urban Growth and Increasing Water Demand

Wyndham is Victoria's fastest growing local government area. The number of private dwellings in the municipality is predicted to increase from approximately 70,000 in 2013 to 124,000 in 2031. To support the needs of a growing population WCC is investing significantly in community infrastructure such as sports reserves, parks and community centres. As a result, Council's overall water demand will continue to grow in the near to mid-term. Implementation of this Water Action Plan will ensure that Council's growing demand for water is provided for in a sustainable manner.

Active Open Space

The Council maintains a range of open spaces that cater for active recreation for Wyndham residents and visitors. Demand for well-maintained sports grounds creates a high water supply demand. In a normal year 70% to 80% per cent of the water used by Council is used to maintain these spaces. To increase water security while maintaining these spaces it is important to ensure that no water is wasted and that a variety of alternative water supply sources continues to be developed.

Passive Open Space

During the millennium drought Wyndham City Council supported water restrictions by stopping the watering of non-sporting facilities. This action plus the use of recycled water on selected ovals means that Wyndham had generally low potable water usage during the drought period. The challenge now is to manage the living environment with an amenity where it is inviting for people to enter and use. Wyndham's naturally dry climate presents challenges in reducing potable water use whilst also presenting passive open space in a visually appealing manner. In this context the Water Action Plan's goal for Wyndham's passive open space is to maximise the use of alternative water and passive irrigation techniques to support a greener and more liveable west.

Climate Change

Over the coming decades changing climatic conditions are expected to have a significant impact on rainfall patterns. As seen in Figure 1, Wyndham has already experienced a period of below average rainfall since the mid 1990's. This data is consistent with CSIRO climate change predictions for Melbourne of a 5 to 20 per cent reduction in spring rainfall by 2020. Spring is when the largest amount of drinking water is collected in Melbourne's reservoirs and this reduced rainfall will reduce water yields across the state. This will increase the need for Wyndham to reduce its reliance on drinking water supplies.

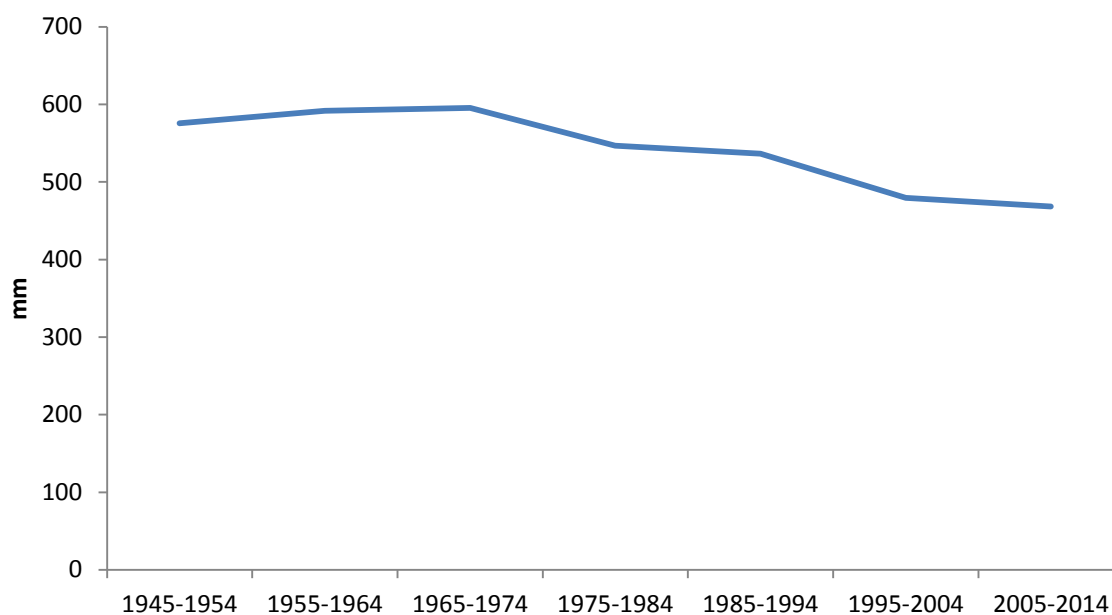
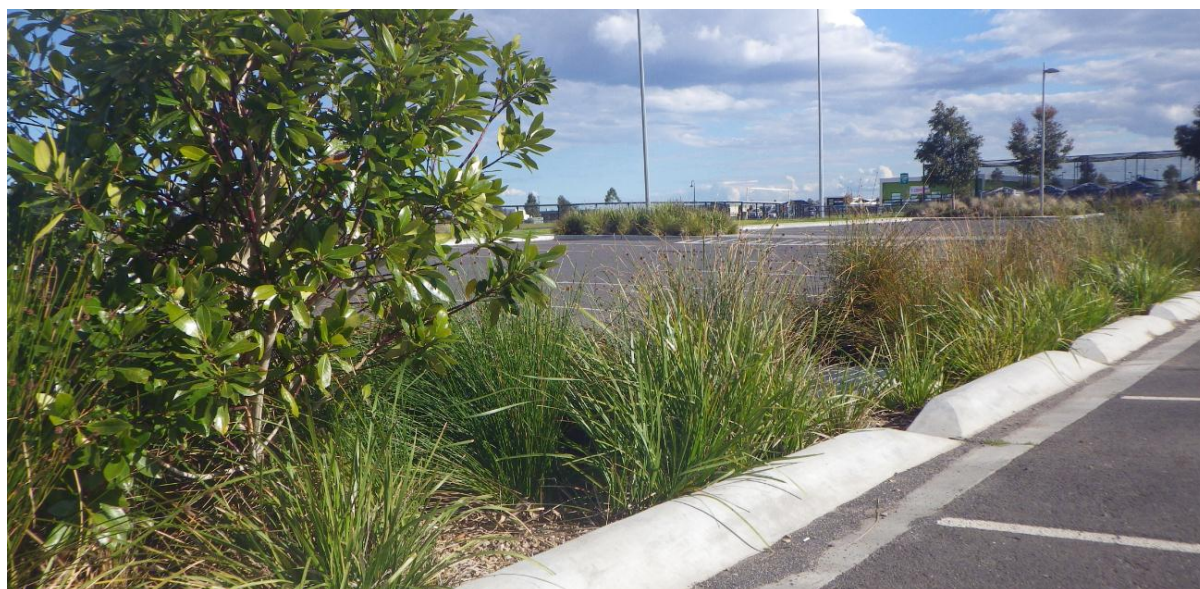


Figure 1: Wyndham annual rainfall 1945-2014 (source: BoM Laverton, decadal averages)

Urban Heat Island Effect

Urban development in Wyndham is replacing natural surfaces and vegetation with the dry, hard surfaces and structures of roads, footpaths and buildings. On sunny days, these surfaces accumulate and store solar heat energy. They are also impervious meaning that when it rains the water drains away rapidly leaving little moisture in the ground layer and consequently reducing evaporative cooling. Irrigation of open space and vegetation plays an important role in mitigating urban heat build-up and improving public amenity. In this context the Water Action Plan's goal for Wyndham's passive open space is to maximise the use of alternative water and passive irrigation techniques to support a greener and more liveable west.



5. Council water use

Overview

Council currently uses potable water, recycled water and on-site rain water harvesting across its buildings and operations. Potable water is used in buildings and open space irrigation, Recycled water is used on some sports reserves and harvested rainwater is used for landscaping irrigation and is connected to toilets in some community centres and toilet blocks. At the Wyndham Refuse Disposal Facility harvested rainwater is also used for dust suppression and irrigation of revegetation areas.

Overall Council water use has increased since 2010 (Figure 2). However recycled water use has also increased significantly as a portion of overall water use which has limited the need to meet rising demands with potable water. The overall increase in use is largely due to the lifting of water restrictions for sports reserves and open space irrigation in 2010, allowing the return of irrigation to all sports reserves in line with community need for active open space. Another factor has been the construction of several new sports reserves to cater for Wyndham's growing population. These reserves require a high initial water use whilst the playing surface turf is established for the first time. Recycled water use will continue to increase over the coming years as Council increases recycled water connections and infrastructure at existing and new open space assets.

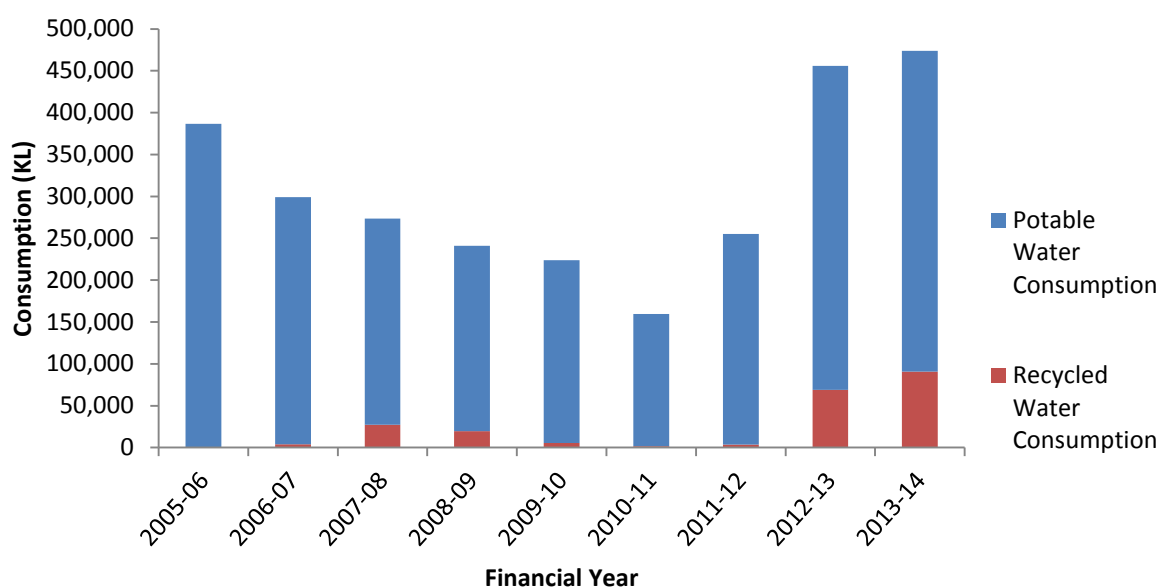


Figure 2: Total Council Water Use (Mains and Recycled) 2005-2014

Council Water Use profile

Figure 3 shows the profile of Council's water use by area in 2013/14. The profile highlights that sports reserve irrigation is by far Council's largest water use area. This is a typical feature of Council water use profiles in the metropolitan areas and is particularly prominent in Wyndham given its relatively low rainfall compared to other parts of Melbourne. Other significant areas of water use include parks, buildings and aquatic centres. It is this water use profile that has been used to determine the main focus areas for the Water Action Plan.

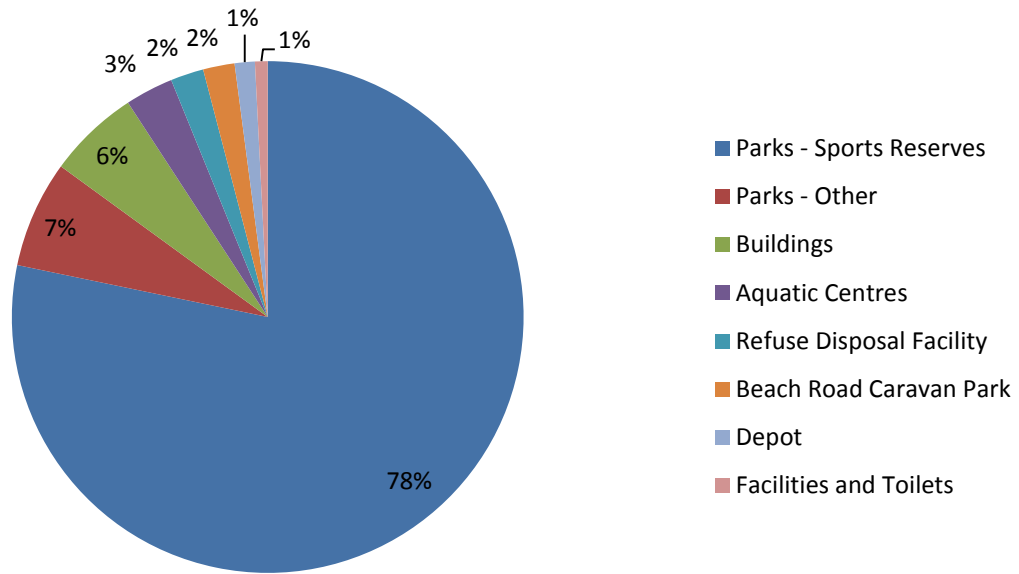


Figure 3: Council water use profile 2013-2014

Council Water Use Target

Council also monitors water use on a kilolitres used per resident basis (KL/Resident/Year). This is a useful measure for tracking municipal water use for areas such as Wyndham that are undergoing urban growth and is the measure on which Council’s water use target is based. As seen in figure 4, Council has been meeting its original water use target since 2006-2007 and remains well below the historical peak seen in 2005-2006 despite the recent lifting of water restrictions and new sports reserve construction. New water use targets have been set as part of this updated plan and are outlined in the following section.

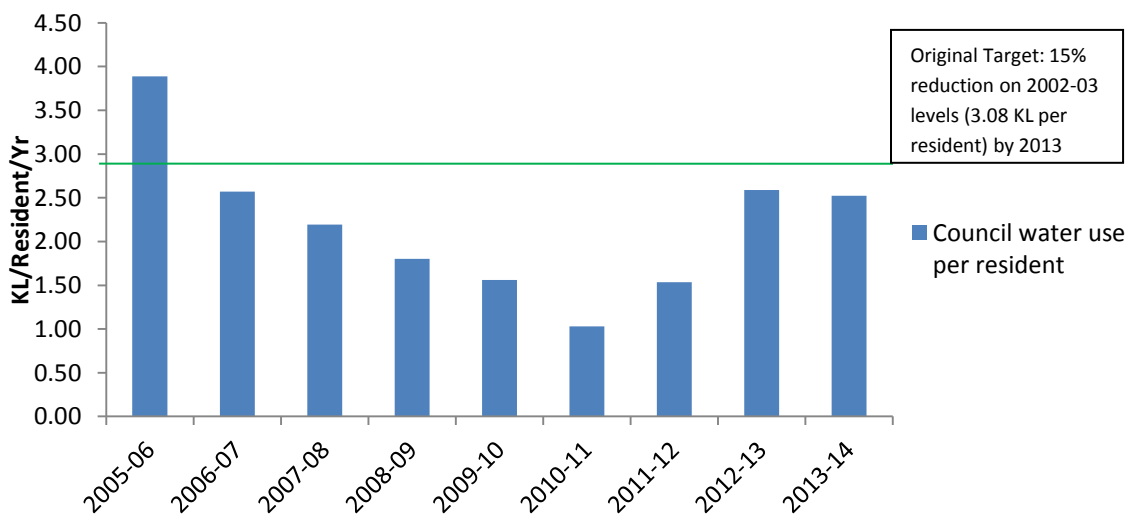


Figure 4: Council water use per resident (green line = original council water use target)

6. Wyndham's Water Use Vision and Objectives

The Water Action Plan 2015-2020 is based on a vision and two objectives. Achievement of the Plan's vision and objectives will be measured through the application of specific goals for each of council's key water use areas.

Vision

To improve the resilience of Council's operations to drought and climate change through improved water use efficiency and use of alternative water sources.

Objectives

- Maintain and improve water use efficiency of key water use areas
- Increase the use of alternative water sources across council buildings and open space

7. Wyndham's Water Use Goals

Progress towards the Plan's vision and objectives will be measured by applying the following goals.

Council Wide Goals

- **5% reduction in Council water use by 2020 calculated on a KL per resident basis**

Council's current water use is 2.52 KL/resident/yr. This goal requires reducing annual water use to 2.28 KL/resident/year by 2020 through the implementation of water efficiency measures.

- **To meet at least 30% of Council's water demand from alternative water sources by 2020**

Council is currently meeting 19% of its water demand with Class A recycled water (an alternative water source). Achieving this goal will require increasing the use of recycled water and diversifying Council's water supply to include stormwater harvesting and reuse.

Sports Reserve Irrigation Goals

- **Maintain and improve sports reserve irrigation efficiency**

Current efficiency ranges between 3200 and 4550 KL/Ha/yr depending on rainfall (see Appendix B for full baseline data)

- **Maximise the use of alternative water for sports reserve irrigation**

Currently meeting 24% of sports reserve irrigation water demand from alternative water sources

Passive Open Space Goals

- **Maximise the use of alternative water for passive open space irrigation**
- **Maximise the use of alternative water for street tree watering**

Buildings Goals

- **10% improvement in building water use efficiency by 2020 based on KL/M²/Yr.**

Current water use efficiency is 0.36 KL/M²/Yr. Achieving this goal requires reducing building water use to 0.32 KL/M²/Yr

- **New council buildings are provided with rainwater tanks where an appropriate use for the water can be identified and implemented**

Aquatic Centre Goal

1. **Maintain aquatic centre water use levels that meet or exceed industry benchmarks.***
 - a. **WOOP 236 Litres per visit.**
 - b. **WLEC 25 Litres per visit.**
2. **In 2017 review and adopt improved benchmarks if appropriate for WLEC and WOOP (after WLEC has reopened for at least 12 months).**

***Based on CERM Performance Indicators**

WOOP baseline is 190 L per visit (2010-2013 Average). WLEC Baseline is 46 L per visit (2009-2012 Average). Note: the WOOP baseline and benchmark is higher given it is an outdoor pool with higher evaporation rates and lower numbers of visits from seasonal usage, whilst WLEC is a permanent all year round indoor facility with very high patronage.

Refuse Disposal Facility Goal

- **Maximise the use of alternative water sources in RDF Operations**

8. What Wyndham Will Do – Water Action Plan for Council Assets and Operations

Sports Reserves					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
<p>Maintain and improve sports reserve irrigation efficiency</p> <p><i>Current irrigation efficiency ranges between 3200 and 4550 KL/Ha depending on rainfall levels (see Appendix B for full baseline data)</i></p>	<p>Develop turf management plans for established sports reserve assets including:</p> <ul style="list-style-type: none"> • maximum irrigation requirements for average and low rainfall years • water use monitoring and reporting framework for continuous improvement 	Area Leader Parks Assets / Sports Fields Team Leader	Sustainability Team	Plans to be developed and implemented by June 2015	Sports Field Management Plan
	<p>Update or replace the Computerised Irrigation Management System (CIMS) with consideration for water use efficiency features and install associated meters or monitoring devices for accurate water use measurement across all sports fields.</p>	Manager Open Space	Sports Fields Team	Scope business case for capital works programme in 15/16 FY. Subject to approval tender in 16/17 FY.	Ten Year Capital Works Plan

Sports Reserves					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
	Increase the number of weather stations connected to the CIMS from 1 to 5 to increase the accuracy of CIMS operation	Manager Open Space	Sports Fields Team	By 2020	
<p>Maximise the use of alternative water for sports reserve irrigation</p> <p><i>Currently meeting 24% of sports field irrigation demand with Class A Recycled Water</i></p>	<p>Develop internal guidelines for Council stormwater harvesting schemes that define:</p> <ul style="list-style-type: none"> - Acceptable ownership and operation arrangements - Feasibility Study Requirements - Design compliance requirements - Pro forma Business case 	Sustainability Team Leader/ Projects Officer	<p>Drainage and Water Management</p> <p>Manager Open Space</p> <p>Manager Urban Spaces and Civil Works</p>	Internal Guidelines completed by June 2016	Stormwater Management Plan (under development)

Sports Reserves					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
	Review sports reserve capital works schedule to identify recycled water and stormwater harvesting opportunities and implement, including exploration of external funding options*.	Manager Facilities and Recreation	Manager Open Space Coordinator Landscape & Urban Design Drainage and Water Management Engineer Manager Facilities and Recreation	Review to be completed by June 2017 Feasible options incorporated into Capital works plan from October 2017 onwards.	Ten Year Capital Plan Open Space Strategy (under development) Stormwater Management Plan (under development)

*Funding of stormwater harvesting projects may be eligible for funding or financing via State or Water Authority partnerships

Passive Open Space					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
Maximise the use of alternative water for passive open space irrigation	Review landscape capital works schedule to identify opportunities for stormwater harvesting and WSUD treatments and implement, including exploration of external funding options	Coordinator Landscape and Urban Design / Senior Landscape Architect	Open Space Planner Drainage and Water Management Engineer	Review to be completed by December 2017 Feasible options incorporated into Capital works plan from Oct 2017 onwards.	Ten Year Capital Plan Open Space Strategy (under development)
	Provide regular training opportunities and site visits to develop organisational capacity for designing, operating and maintaining WSUD assets	Sustainability Team Leader / Projects Officer	Urban Spaces & Civil Works Open Space Environment Team Major Projects Facilities and Recreation	Training and Events program to be arranged annually First event to be organised in early 2015 and program to be developed for 15/16 FY	Ten Year Capital Plan Storm Water Management Plan (under development)

Passive Open Space					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
<p>Maximise the use of alternative water for street tree watering where practical/possible</p>	<p>Advocate for recycled and alternative water supply points for street tree irrigation</p> <p>Step 1. Undertake assessment of additional infrastructure required to transition street tree, landscape and conservation watering to alternative water sources</p> <p>Step 2. Hold workshop with Arboriculture, Conservation and Horticulture team leaders to develop operational guidelines for street tree and horticultural Irrigation</p>	<p>Sustainability Team Leader / Projects Officer</p>	<p>Arboriculture, Conservation and Horticulture Team Leaders</p>	<p>Step 1. By June 2016</p> <p>Step 2. By December 2016</p> <p>Then ongoing development of required recycled and alternative water infrastructure in partnership with water industry</p>	<p>Ten Year Capital Plan</p> <p>Street Tree Policy (under development)</p>

Buildings					
Goal	Action	Lead	Support	Timeframe	Link to other Council Documents
<p>Achieve a 10% improvement in building water use efficiency by 2020 based on KL/M²/Yr.</p> <p><i>Current baseline is 0.36 KL/M²/Yr. Achieving this goal requires reducing building water use to 0.32 KL/M²/Yr</i></p>	Apply Water Efficiency Performance Standards in all new council building projects and refurbishments (see Appendix A for standards)	Facilities and Recreation /Buildings Engineer and Major Projects Engineer	Sustainability Team Leader / Projects Officer	Ongoing	Ten Year Capital Plan ESD Policy (under development)
	Apply Water Efficiency Performance Standards when replacing fixtures and fittings (see Appendix A for standards)	Building Maintenance Coordinator	Sustainability Team Leader / Projects Officer	Ongoing	ESD Policy (under development)
	Install water wise signage at key water using facilities to encourage water efficient practices – as a minimum this will include Aquatic Centres, The Depot and RDF Truck Wash down areas and Community Centres	Sustainability Team Leader / Projects Officer	Building Maintenance Coordinator	To implement by end of 2015 and update as required	
	Carry out water audit at Beach Road Caravan Park and implement best value water efficiency measures	Sustainability Team Leader / Projects Officer	Building Maintenance Team	Audit and actions to be implemented by end of 2015	

Buildings					
Goal	Action	Lead	Support	Timeframe	Link to other Council Documents
New council buildings are provided with rainwater tanks where an appropriate use for the water can be identified and implemented	Include requirement for rooftop rainwater capture and reuse where appropriate into all new building design briefs	Facilities and Recreation /Buildings Engineer and Major Projects Engineer	Sustainability Team Leader / Projects Officer	To be included in all new building design briefs	Ten Year Capital Plan ESD Policy (under development)

Aquatic Centres					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
<p>3. Maintain Aquatic Centre water use levels that meet or exceed industry benchmarks.*</p> <p>a. WOOP 236 Litres per visit.</p> <p>b. WLEC 25 Litres per visit.</p> <p>4. In 2017 review and adopt improved benchmarks if appropriate for WLEC and WOOP (after WLEC has reopened for at least 12 months).</p>	Undertake Water Audit of Wyndham Outdoor Olympic Pool (WOOP) to identify best value operational and/or capital works water saving initiatives.	Sustainability Team Leader / Projects Officer	Leisure Facilities Manager	By end of 2016 with recommendations to be implemented in 2017	
	Install water sub-meters at WOOP and WLEC	WLEC - Major Projects Engineer WOOP – Sustainability Projects Officer	Sustainability Team Leader	By end of 2015	Western Leisure Services
	Include water use management responsibilities in WLEC and WOOP Management PD's based on <i>Water Usage and Savings in Aquatic Centres – Best Practice Guidelines</i>	Leisure Facilities Manager	Sustainability Team Leader / Projects Officer	By end of 2015	Western Leisure Services

*Based on CERM

Aquatic Centres					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
<i>Performance Indicators Data</i>	Include water management KPI's in Western Leisure Services Levels of Service Agreement based on facility baselines and sub metering data*	Leisure Facilities Manager	Sustainability Team Leader / Projects Officer	WOOP - undertake by June 2015 WLEC by June 2016 – 12months of operation	Western Leisure Services
	Review Aquatic Centre water usage in 2017 and adopt improved benchmarks using facility specific data if appropriate	Leisure Facilities Manager	Sustainability Team Leader / Projects Officer	By end of 2017	Western Leisure Services

*Sub-meter data based KPI's may need to be applied retrospectively once accurate data has been established

Refuse Disposal Facility					
Goal	Action	Lead	Support	Timeframe	Link to other strategies
Maximise the use of Alternative Water in RDF Operations	Include investigation of stormwater capture and reuse opportunities as variation to the RDF Stormwater Management Plan	Landfill Operations Manager	Sustainability Team Leader / Projects Officer	By June 2015	RDF Transfer Station Plan (draft) RDF Stormwater Management Plan
	Install Smart Water signage for truck wash down area and encourage more efficient water use practices	Landfill Operations Manager	Sustainability Team Leader / Projects Officer	Signage installed by end of 2015, with ongoing promotion of efficient water use practices by RDF management	
	Investigate waterless vehicle washing systems (air cleaning)	Landfill Operations Manager	Sustainability Team Leader / Projects Officer	June 2015 Implement if feasible by December 2016	
	Install sub-metering of truck wash water supply point to monitor truck wash water use	Landfill Operations Manager	Sustainability Team Leader / Projects Officer	June 2015	
	Install sub-surface drip irrigation for tree plantings with rainwater tank integration	Landfill Operations Manager	Sustainability Team Leader / Projects Officer	June 2015 for current plantings and then as required	RDF rehabilitation plan Transfer Station Plan (draft)

Monitoring and Reporting					
Goal	Action	Responsibility	Support	Timeframe	Link to other strategies
Quantify and review progress towards water efficiency and potable water replacement goals on an annual basis	Publish a brief annual progress report including: <ul style="list-style-type: none"> - Overview of progress towards plan goals and key achievements - Annual expenditure tied to the plan with outcomes and savings achieved (see appendix D) - Forward financial requirements for the plan (see appendix D) 	Sustainability Team Leader / Projects Officer	All stakeholders	Annual	Environment and Sustainability Strategy, State of Environment Report
	Record annually, water efficient and alternative water related purchases for Eco-buy reporting	Sustainability Team Leader / Projects Officer	All Stakeholders	Annual	Environment and Sustainability Strategy, State of Environment Report
	Undertake a Biennial review to assess overall plan performance and incorporate new technologies or strategic objectives	Sustainability Team Leader / Projects Officer	All Stakeholders	Biennial	Environment and Sustainability Strategy

9. Appendix A - Water Efficiency Performance Standards for New Buildings, Refurbishments and Building Maintenance

Note these performance standards will be incorporated and expanded for Council's Ecologically Sustainable Design Guidelines for Council Buildings (currently in development).

Fitting, Fixture or Appliance	Wyndham Council Standard
Shower Heads	3 Star WELS 7.5L/S Flow
Shower Taps	Push button time delay variable temperature mixing valve (i.e. Enware TFC790925 or approved equivalent)
Toilets	5 Star WELS
Urinals	6 Star WELS, sensor operated
Taps	6 star WELS, sensor operated (Staff amenities, community centres and sports pavillions) push button time delay (public amenities) or equivalent alternative
Cleaning hoses (for aquatic centres, recreation facilities etc.)	Commercial high pressure water efficient trigger nozzles or non-water alternative
All Appliances (Dishwashers, washing machines, etc.)	5 Star WELS
Rainwater Tanks	Rainwater tanks to be included for new buildings where an appropriate use for the water can be identified and implemented
Water Use Sub-meters	Building facilities with annual water use demand above 10ML (Aquatic Centres for example) should be provided with water use sub-meters on key fixtures and uses

WELS Rating Product Search: <http://www.waterrating.gov.au/>

10. Appendix B – Sports Field Irrigation Efficiency Baseline Data

		2007/08		2008/09		2009/10		2010/11		2011/12		2012/13		Performance Guide	
Rainfall (mm)		364		340		463		850		611		389		Average Rainfall Year	Below Average Rainfall Year
Sports Reserve	Total Ha	Consump. (kl)	Efficiency (KL/Ha)	Consump. (kl)	Efficiency (KL/Ha)	Consump. (kl)	Efficiency (KL/Ha)	Consump. (kl)	Efficiency (KL/Ha)	Consump. (kl)	Efficiency (KL/Ha)	Consump. (kl)	Efficiency (KL/Ha)		
Chirnside Park	1.9	10611	5585	13347	7025	12080	6358	6335	3334	6062	3191	13687	7204	4294	6604
Presidents Park	4.3	29141	6777	19750	4593	23578	5483	7847	1825	14125	3285	26020	6051	3531	5807
Little River Reserve	1.7	850	500	2678	1575	3416	2009	2678	1575	5092	2995	5074	2985	2193	1687
Price Reserve	1.8	5971	3317					2177	1209	3980	2211	6512	3618	1710	3468
Dunnings Road Oval	1.5	12849	8566	8751	5834	6058	4039	4526	3017	5073	3382	2760	1840	3479	5413
Galvin Park	8.3	23234	2799	15686	1890	20724	2497	14398	1735	20883	2516	38556	4645	2249	3111
Soldiers Reserve	1.6	5971	3732	18148	11343	9642	6026	5933	3708	5180	3238	7588	4743	4324	6606
Wyndham Vale Reserve	3.0	11292	3764	13755	4585	9591	3197	6964	2321	9060	3020	12677	4226	2846	4192
Hogans Road Reserve	3.9	16803	4308	15647	4012	11949	3064	6027	1545	11839	3036	20221	5185	2548	4502
Grange Soccer Reserve	1.8	8795	4886	5330	2961	5401	3001	5360	2978	11136	6187	10303	5724	4055	4524
Glen Orden Reserve	3.6	8719	2422	5960	1656					5789	1608	22761	6323	1608	3467
Mossfiel Reserve	1.4	14836	10597	13479	9628	15532	11094			2636	1883	958	684	6489	6970
Lawrie Emmins Reserve	2.5	7077	2831					5065	2026	7410	2964	9965	3986	2495	3408
Cambridge Reserve	2.0	724	362			605	303			3692	1846	19268	9634	1074	4998
Sports and Rec Centre	1.0	853	853									4946	4946		2900
Dog Obedience Park	2.0	1394	697							4460	2230	7165	3583	2230	2140
Innisfail Reserve	1.3							532	409	2093	1610	1009	776	1010	776
Warringa Reserve	2.0									11625	5813	12889	6445	5813	6445
Arndell Park Reserve	2.0									14199	7100	12524	6262	7100	6262
Saltwater Reserve	6.6									9507	1440	27201	4121	1440	4121
Featherbrook Reserve	2.4											5529	2304		2304
Goddard Street Reserve	3.6											33326	9257		9257
Haines Drive Reserve	2.0											17204	8602		8602
Wootten Road Reserve	3.6											8089	2247		2247
Wyndham Vale South	3.4											9843	2895		2895
All sites			3875		5009		4279		2140		3134		4731	3185	4538

Denotes no irrigation occurred or reserve was under construction

Below average rainfall year

Average rainfall year

11. Appendix C – Buildings Water Efficiency Baseline Data

Building	Area (M²)	Consumption 13/14 (KL)	Performance 13/14 (KL/M²)
Civic Centre	10271	6009	0.59
Cultural Centre	3523	3127	0.89
Point Cook CLC	2634	634	0.24
Wayaperri House	467	308	0.66
Werribee Sports and Recreation Centre	5518	1395	0.25
Resource and Environment Centre	284	221	0.78
Soldiers Memory Hall	301	30	0.10
Old Municipal Offices	478	77	0.16
Quantin Binnah Community Centre	1678	1276	0.76
Woodville Child Care Centre	710	86	0.12
Wyndham Vale CLC	2887	567	0.20
Haines Drive Sports Reserve Pavillion	665	130	0.20
Central Park Community Centre	1826	677	0.37
Tarneit Community Centre and Kindergarten	1595	684	0.43
Featherbrook Community Centre and Sports Pavillion	2045	925	0.45
Arndell Community Centre	2175	473	0.22
Wyndham Park Community Centre & Kindergarten	1529	617	0.40
Dunnings Road Oval Sports Pavillion	372	33	0.09
Glen Orden Sports Pavillion	899	225	0.25
Grange Community Centre	1854	1324	0.71
Tom Roberts Reserve Sports Pavillion	648	50	0.08
Hockey/Softball Pavillion Presidents Park	1006	484	0.48
Mossfiel Reserve Pavillion	316	26	0.08

Building	Area (M²)	Consumption 13/14 (KL)	13/14 Performance (KL/M²)
Wyndham Vale South Reserve Pavillion	824	152	0.18
Wyndham Vale Scout Hall	350	47	0.13
Warringa Crescent Scout Hall	339	334	0.99
Youth Resource Centre	1687	768	0.46
Goddard Street Reserve Sports Pavillion	626	298	0.48
Penrose Promenade Community Centre	3422	504	0.15
Saltwater Promenade Sports Pavillion Oval 1 & 2	1187	123	0.10
Saltwater Promenade Soccer Pavillion	665	133	0.20
Average Performance (KL/M²/yr)			0.36

12. Appendix D – Financial Planning Guide for Implementation

Note this guide will form the basis for ongoing financial reporting of the plan (see Monitoring and Reporting Actions)

Direct Cost Implications					
Action	Lead	Expenditure Year	Cost Implication	Potential Cost Savings	Cost Type
Update Computerised Irrigation System, Monitoring Equipment and Weather stations	Open Space Manager	Scope business case for capital works programme in 15/16 FY. Subject to approval tender in 16/17 FY.	Up to \$250K Actual costs to be identified through business case	Will achieve cost savings through reduced water use for sports reserve irrigation and operational efficiencies. Currently spending \$50K a year on current system's annual service fees. The new systems will be a one off purchase rather than annual fee based	Capital
Water Audit for Caravan Park (Plumbers fee)	Sustainability Projects Officer	2015/16	Below \$5K (no new budget required).	Will identify opportunities to reduce the Caravan Park's water demand. Water costs for the facility were \$8500 in 13/14 and \$12,000 in 12/13	Operations
Water Audit for Caravan Park (Recommendations)	Facilities Manager	2016-2018	Dependent on Audit outcomes. Audit recommendations to be adopted dependant on business case.	Will reduce the Caravan Park's operational costs	Dependent on audit outcomes
WOOP Water Audit (Plumbers fee)	Sustainability Projects Officer	By end of 2015	Below \$5K (no new budget required).	Will identify opportunities to reduce the WOOP's water	Operations

Direct Cost Implications					
Action	Lead	Expenditure Year	Cost Implication	Potential Cost Savings	Cost Type
				demand. Water costs for the facility were \$14,000 in 13/14 and \$18,500 in 12/13	
WOOP Water Audit (Recommendations)	Facilities Manager	2017/2018	Dependent on audit outcomes. Audit recommendations to be adopted dependant on business case.	Will reduce WOOP's operational costs	Dependent on audit outcomes
RDF Stormwater Harvesting Opportunities Study (Consultant Fees)	Sustainability Projects Officer	By end of 2015	Below \$8.5K.	Will identify opportunities to optimise stormwater harvesting at the facility to reduce its water demand. Water costs for the facility were \$10,500 in 13/14, \$12,700 in 12/	Operations
RDF Stormwater Harvesting Opportunities Study (Recommendations)	RDF Operations Manager	2015-2020	Dependent on audit outcomes. Study recommendations to be adopted dependant on business case.	Will reduce RDF's operational costs	Dependent on audit outcomes (potential to accommodate through RDF operations or capital budget)
Review of Open Space Capital Works Schedule for alternative water and stormwater harvesting opportunities	Facilities Manager (Sports Reserve Capital Works) Senior Landscape Architect (Passive Open Space Capital Works)	Ongoing as per capital works schedule	Case by Case basis – Will range from \$10K for small WSUD treatments up to \$500K+ for large storm water harvesting projects	Will replace potable water with cheaper alternative water sources - Over \$950K spent on water for open space in 13/14	Capital

Direct Cost Implications					
Action	Lead	Expenditure Year	Cost Implication	Potential Cost Savings	Cost Type
Develop recycled and alternative water supply points for street tree irrigation	Open Space Manager	2017-2020	Unknown - cost requirements to be investigated	Will replace potable water with cheaper alternative water sources	Capital
Include requirement for rainwater capture and reuse where appropriate and cost effective into all new building design briefs	Major Projects and Building Engineers	Ongoing as per capital works schedule	Case by case basis – most minor cost will be for rainwater tanks and associated plumbing in building projects (ranging from \$5K to \$30K for a community centre budget for example)	Will reduce the operational costs of new buildings	Capital (aim to accommodate within existing budget allocations for building capital works)
WOOP sub metering	Sustainability Projects Officer	2015-2016	\$5-8K	Will allow effective monitoring of WOOP water use	Operations