



# **ICLEI Water Campaign Local Action Plan**

## **City of Subiaco**

**2008**

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## 1. Introduction

Due to their direct involvement with the community, local governments can demonstrate their commitment to water management by undertaking a number of conservation and quality strategies within their area. Local governments can lead by example and encourage other members of the community to actively participate in water conservation.

The City has taken the first step by committing to the ICLEI – Local Governments for Sustainability, Water Campaign.

This document outlines how the City will achieve water conservation and water quality goals. It is a framework for putting together a set of effective and practical measures to manage, in a sustainable manner, the water resources used and influenced by the City and the community. In accordance with the Water Campaign requirements for Milestone Three, this plan includes:

1. An introduction to the context of water management on a national, state and local scale.
2. A baseline profile of water consumption and water quality issues within the City and the community.
3. A statement of water conservation and water quality goals set by the City.
4. An outline of actions and policies that have been implemented since the base year.
5. A list of proposed actions and policies to be implemented by the City.
6. A commitment to monitor and review the local action plan in the future.

## 2. Context

Australia is the driest inhabited continent in the world and water conservation and quality will be an ongoing challenge requiring constant management and review. Governments are under increasing pressure to meet the growing demand for water in their communities and many regions already have advanced water management systems in place. As a result of global warming, this unmet demand for water is expected to worsen as our changing climate reduces rainfall in key catchments.

A large number of actions are being implemented at the national, state, regional and local levels. These actions are summarised below.

### 2.1 National

All states currently have water restrictions in place and with drought affecting a large area of the continent; the majority of cities in Australia are currently

considering strategies for dealing with long-term water availability (Australian State of the Environment Committee, 2006).

As a result, numerous documents have been produced at the National level to promote, ensure, accelerate and regulate water management reform. These initiatives include:

- National Water Initiative
- COAG Water Reforms
- National Water Quality Management Strategy
- National Action Plan for Salinity and Water Quality
- National Plan for Water Security

## 2.2 State

Rainfall in the south west of Western Australia has reduced by 10-20 per cent in the last 28 years and as a result, there has been a 40-50 per cent reduction in run-off to dams (Figure 1). This trend is predicted to continue and temperatures are predicted to rise, resulting in further reductions in run-off and an increase in demand for water from humans, animals and vegetation. Also contributing to the seriousness of the situation is the estimate that water use in Perth will almost double by 2020 due to population increases (Government of Western Australia 2003).

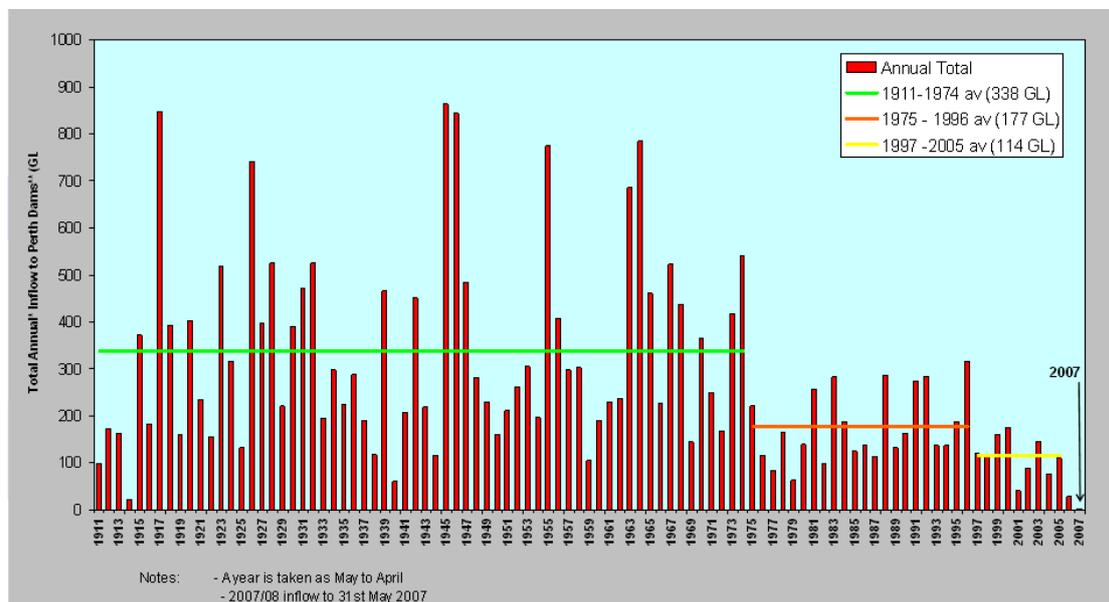


Figure 1. Yearly water received into Perth dams 1911-2007 (Water Corporation 2007)

The blueprint to improve the way water is used and reused in Western Australia was established in “The State Water Strategy” released in 2003. This strategy is based on community input and provides a practical platform for solutions to water issues to be developed and implemented. The aims of the strategy are:

- Improve water use efficiency

- Achieve significant advances in water reuse
- Foster innovation and research
- Plan and develop new sources of water in a timely manner
- Protect the value of our water resources

*(Government of Western Australia 2003)*

The State Water Plan 2007 is an updated version of the strategy and outlines priority actions to be implemented in the 2007-2011 period. These actions are:

1. Use and recycle water wisely
2. Plan and manage water resources sustainably
3. Invest in science, innovation and education
4. Protect ecosystems, water quality and resources
5. Enhance the security of water for the environment and use
6. Develop water resources for a vibrant economy
7. Deliver services for strong and healthy communities

*(Government of Western Australia 2007)*

Further actions and strategies for water conservation and quality in Western Australia can be found in the following initiatives:

- Western Australia State Sustainability Strategy
- Perth's Water Future Strategy
- Domestic Water Use Study

## **2.3 Regional**

The Western Suburbs Regional Organisation of Councils (WESROC) comprises the local governments of the Cities of Nedlands and Subiaco, Towns of Claremont, Cottesloe and Mosman Park, and the Shire of Peppermint Grove. WESROC is a voluntary organisation comprising an Executive of the six Chief Executive Officers, and a Board, made up of the five Mayors and one Shire President. Whilst each local government authority is independent, WESROC provides a mechanism to work cooperatively in order to optimise resources and increase value to the residents living within the region.

The Town of Cambridge while not a member, has joined with WESROC in this initiative. The seven local governments involved in the program govern over 6,400 ha of the western suburbs and over 90,000 people in the Perth metropolitan area.

In 2002, WESROC initiated the 'Total Water Cycle Program'. The project commenced with a monitoring program in 2002-03 to establish baseline stormwater quality. Following this, comprehensive monitoring occurred from 2004-06 to investigate stormwater, groundwater and receiving environment water quality and report on the effectiveness of programs run by the local governments. The monitoring program provided information that assisted in

the development of suitable water conservation and quality goals. The report made a number of recommendations that have been addressed in the actions outlined at the end of this document.

## **2.4 Local**

The City of Subiaco is located 3 kilometres west of Perth CBD, has a population of 16,380 and covers an area of 7 square kilometres. It is surrounded by the Town of Cambridge to the north, the City of Perth to the east, Kings Park to the south, and the City of Nedlands to the west. It is predominately residential with significant commercial and institutional areas.

The City has in total 44 reticulation systems that supply irrigation to 64.2 hectares of public open space. The City uses both ground water and scheme water for irrigation purposes.

Recent assessment of stormwater and groundwater quality in the region has demonstrated that it is suitable for harvesting to recharge groundwater aquifers and wetland systems. At present the majority of the City's stormwater runoff is discharged through a closed pipe drainage network to either the Swan River or the ocean. To reduce the export of stormwater, the City plans to progressively modify the existing drainage system to make more effective use of stormwater resources.

## **3. ICLEI – Local Governments for Sustainability**

The International Council for Local Environmental Initiatives (ICLEI) is a not-for-profit non-government, membership organisation of local governments and their associations. ICLEI, supported by a membership of over 500 cities, towns and counties worldwide, has the mission to build and serve a world-wide movement of local governments to achieve tangible improvements in global environmental and sustainable development conditions through cumulative local actions.

### **3.1 The Water Campaign**

The Water Campaign™ aims to improve water quality and promote water conservation. The Water Campaign™ builds the capacity of local government participants to achieve tangible improvements in local government's water management.

The Water Campaign™ is delivered by ICLEI Oceania in collaboration with local and state governments, water authorities and the Australian Government.

To achieve its objectives, the Water Campaign provides a framework to address the management of water resources on two levels or modules, *water quality* and *water conservation*.

Within these two modules local governments address each of them on a further two levels:

Corporate: Improving water management within a local government's own operations.

Community: Improving water management in residential and non- residential water use in the community.

Each of the above "modules" is addressed using a five step project management structure called the "milestone framework". This involves:

Milestone 1: Undertake a water consumption inventory and water quality checklist

Milestone 2: Establish a water consumption reduction goal and water quality improvement goal

Milestone 3: Develop and adopt a local action plan

Milestone 4: Implement policies and measures to work towards integrated water resource management

Milestone 5: Monitor and report on water consumption reductions and water quality improvements.

The Western Australian Government supports the establishment of a Local Government Water Campaign, in partnership with WALGA and ICLEI Oceania. Through this partnership, the State Government works with local government to implement a complementary Sustainable Water Management Program, which will assist local government to address local water management issues.

## **4. Milestone 1 Baseline**

The purpose of Milestone 1 is for the local government to determine how much scheme water they are currently consuming and what their major water quality impacts are. Once the local government's current situation has been ascertained, the Water Campaign can progress and examine the water practices in more detail.

Milestone 1 consists of four inventories; a corporate (local government's own operations) water consumption inventory, a community water consumption inventory, a corporate water quality gap analysis and a community water quality gap analysis. These four inventories will provide a comprehensive picture of the status of water management within the local government area. It must be noted that groundwater consumption is not included in the inventories. It is measured by the City based on the groundwater allocation licence and flow meters on each bore, while there is currently no record of the volumes of groundwater used by the community.

## 4.1 Water Quality

The Water Campaign gap analysis promotes best practice management and highlight gaps in local government operations that impact on water quality. The checklists assessed current local government practice in seven pollution management sectors. On completion of the gap analysis, three priority areas were identified for action during the remainder of the milestone framework. The priorities for the City of Subiaco are:

## 4.2 Corporate Water Quality Priorities

1. Gross Litter and Pollution Management
2. Herbicide and Pesticide Management
3. Groundwater Management

## 4.3 Community Water Quality Priorities

1. Herbicide and Pesticide Management
2. Nutrient Management
3. Groundwater Management

## 4.4 Corporate Scheme Water Consumption Profile

The corporate consumption inventory assists to track consumption progress over time, identify high consuming facility types and determine priority areas. Figure 2 shows the corporate scheme water consumption for the past six years by ICLEI facility type. Due to a number of water conservation actions that have been introduced, total consumption has reduced from 2000/01 to 2005/06 by 52%. In 2005/06, 21,356 kilolitres of scheme water were consumed at a cost of \$16,066.

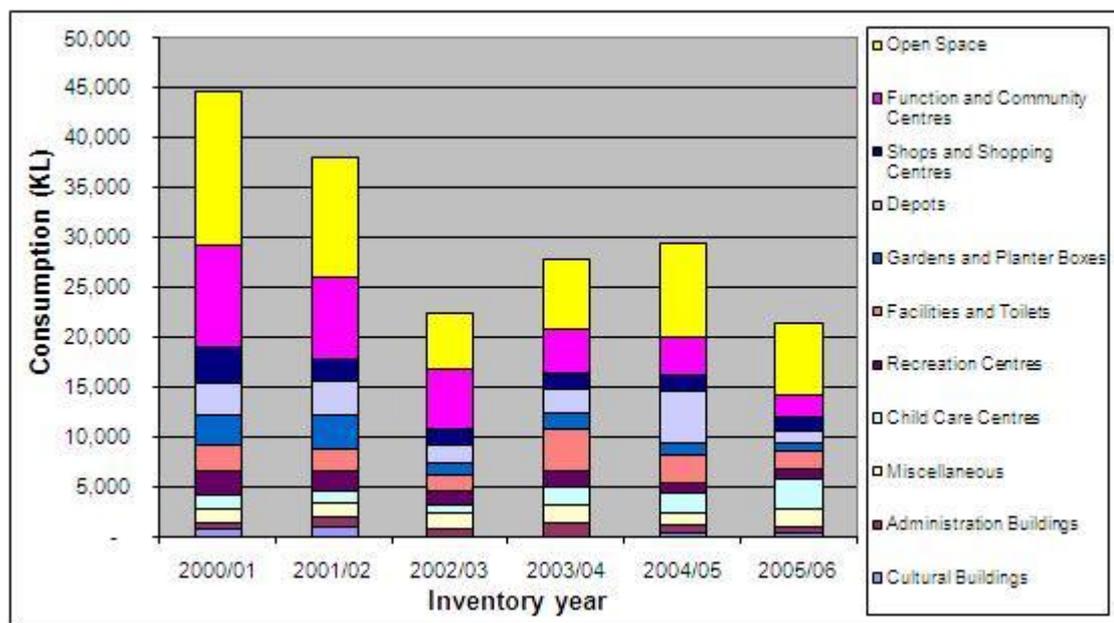


Figure 2: Corporate scheme water consumption from 2000/01 to 2005/06.

Figure 3 shows the contribution of different ICLEI facility types to total corporate water consumption in 2005/06. Open space consumes the most scheme water, followed by childcare centres, function/community centres, miscellaneous and facilities and toilets. The high consumption in open space is due to the large amount of irrigated area in the City of Subiaco.

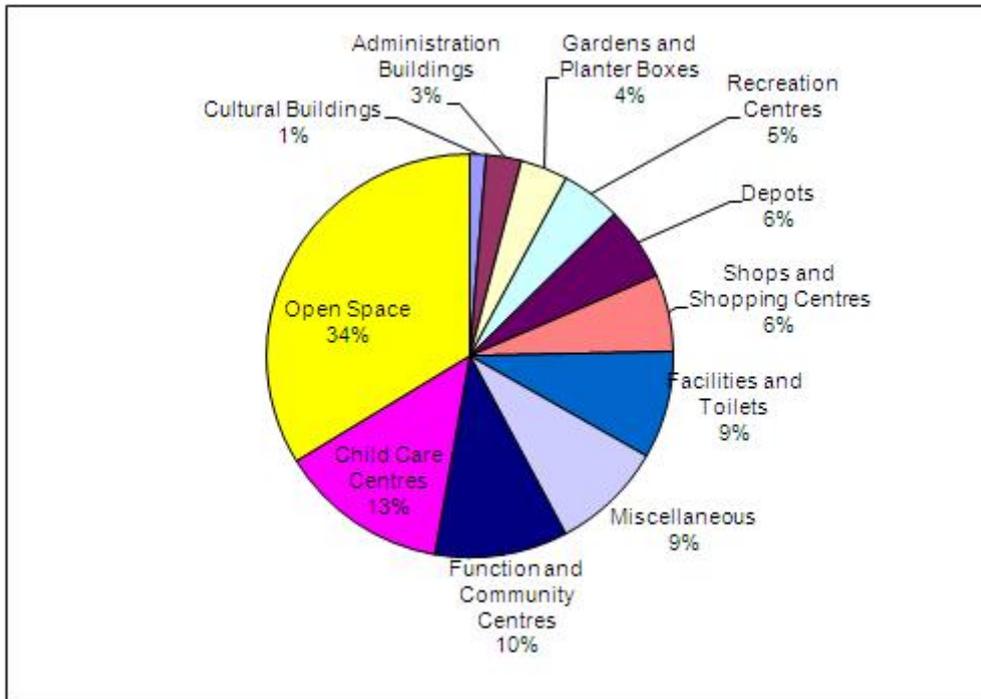
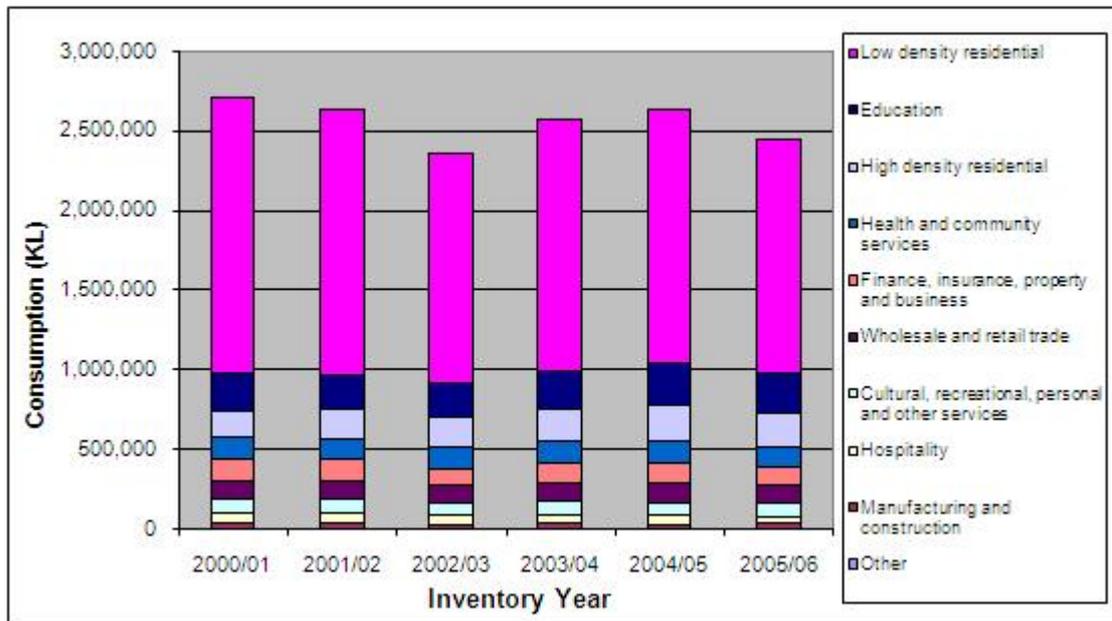


Figure 3: Contribution of facility types to total corporate water consumption 2005/06.

#### 4.5 Community Scheme Water Consumption Profile

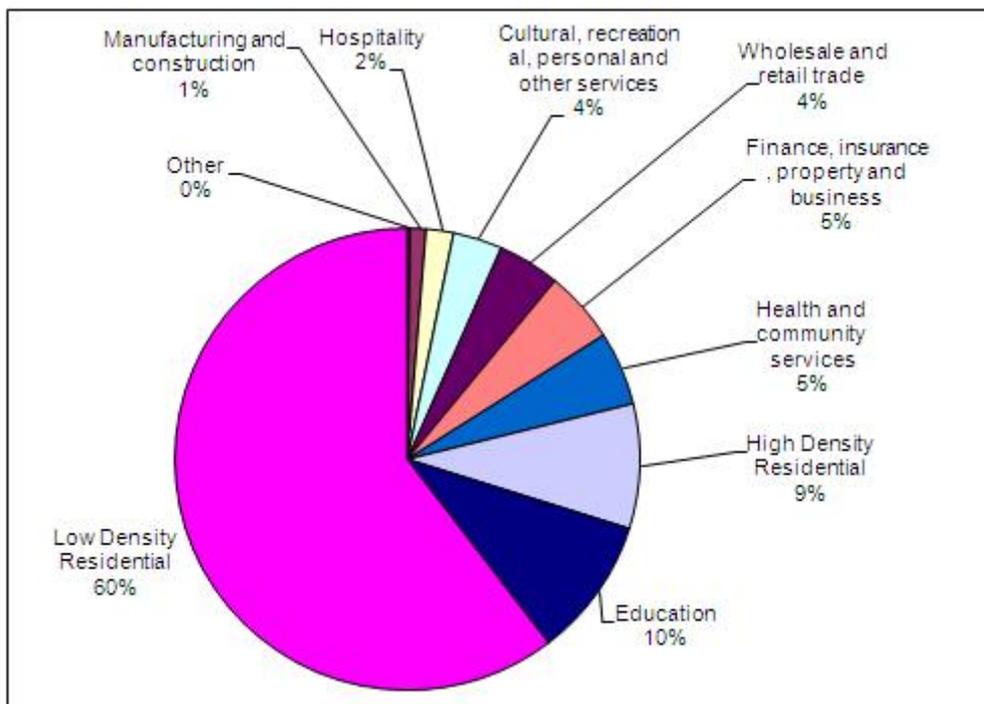
The community water consumption inventory includes data from all residential and nonresidential sources within the council area. This data is broken into high and low density residential and Australian, New Zealand Standard Industry Codes (ANZSIC).

Figure 4 shows the community scheme water consumption for the past six years by ANZSIC category. The total scheme water consumed in the City of Subiaco in 2005/06 was 2.45 million kilolitres. The figure shows a noticeable drop in consumption around 2002/03. This drop is presumed to be the result of scheme consumption restrictions placed on the community at this time. Alternatively, the drop in consumption may be attributed to increasing utilisation of groundwater, which is not included in the inventories, or a combination of these two factors.



**Figure 4. Total community water consumption from 2000/2001 to 2005/2006.**

Figure 5 shows the contribution of different residential and industry types to total community water consumption in 2005/06. Low density residential dominates community scheme water consumption in the City of Subiaco and constitutes 61% of the total.



**Figure 5. Contribution of residential and industry types to total community water consumption in 2005/06.**

## 5. Milestone 2

Milestone 2 sets out the City's intentions in relation to both water conservation and the improvement of water quality. Milestone 2 is an important and essential step in progression from inventory to actions. This element of the Water Campaign is about setting water conservation and water quality goals based on the work undertaken in Milestone 1. The goals will help drive the implementation of best management practices.

A water conservation goal is a statement of the City's approach to water conservation. It is expressed as a percentage of gross water consumption, which is measured against a base year.

A water quality goal is a statement of the City's approach to improving water quality. These goals relate to how the City and the community can improve management practices to bring about improvements in the quality of water that leaves public and private land and enters receiving waters.

### 5.1 Water Conservation Goals

Corporate water consumption has already reduced by 37% from 2000/01 to 2003/04. Using the base year of 2003/04, the following goal is proposed for corporate water conservation:

**To reduce corporate water consumption by 40% below 2003/04 levels by 2012/13.**

The base year of 2003/04 was chosen for the following reasons:

1. It was recognized as a 'normal' water consumption year following the introduction of water restrictions in Perth
2. It allowed incorporation of the water conservation initiatives that the City began to introduced at this time.

The Community conservation goal must be approached in a different way to the Corporate conservation goal as the water is not used directly by the local government. The City must influence the usage practices of the households and industries in the community in order to reduce the total consumption.

The State Water Plan released by the Western Australia Government in 2007 aims to achieve a consumption level of 100 kL per person by 2012. This is based on residential water use and does not include water usage from other parts of the community such as industry.

Community water consumption has already reduced by 9% from 2000/01 to 2005/06. Using the base year of 2005/06 the following goal is proposed for community water conservation:

**To reduce community water consumption by 15% below 2005/06 levels by 2012/13.**

The base year of 2005/06 was chosen for the following reasons:

1. It was judged from aggregated data from the WESROC region to be most representative of 'normal' water consumption
2. It was the year chosen by all WESROC local governments to ensure a standardised goal.

The 15% reduction goal will ensure the City achieves the 100 kL per person goal outlined in the State Water Plan.

## **5.2 Water Quality Goals**

The water quality goals can be set in relation to the ICLEI Action Cards points based system with 50 points as a minimum goal. Water quality actions are allocated a number of points by ICLEI, and by undertaking these actions the City will accrue the points.

It is proposed that the City's corporate water quality goal should be:

**To implement 60 points of corporate water quality actions from the Action Cards by 2012/13.**

It is proposed that the City's community water quality goal should be:

**To implement 60 points of community water quality actions from the Action Cards by 2012/13.**

The actions that contribute to the 60 points in each sector are outlined in Section 7 – Proposed water Management Actions.

## 6. Actions and Policies Implemented

The City of Subiaco has already undertaken a number of water management actions. These actions are outlined below:

Priority Area	Implemented action
<b>Corporate Water Conservation</b>	
<i>Irrigation practices</i>	Flow meters have been installed on each of the City's bores.
<b>Corporate Water Quality</b>	
<i>Irrigation practices</i>	The City is a member of the Swan Canning Phosphorus Action Group that is committed to a no phosphorus approach to fertilisation.
<i>Irrigation practices</i>	The City partly funds UWA's Turf Research Program aimed at identifying best practices for turf species on the Swan Coastal Plain.
<i>Irrigation practices</i>	Practices in relation to the application and storage of horticultural chemicals have been reviewed. A purpose built dangerous goods storage facility was constructed at the depot for in-house chemical storage.
<i>Gross litter and pollution management</i>	Five gross pollutant traps have been installed at Lake Jualbup to stop debris and sediment entering the lake to help alleviate eutrophication problems. Contents are monitored and cleaned regularly.
<i>Groundwater Contamination</i>	Chemicals used for cleaning and any petroleum-based material washed from fleet or plant is captured through a series of two sealed pits and a complex set of screening filters.
<i>Groundwater management</i>	The City is an active participant in the WESROC Total Water Cycle Management Project.
<b>Community Water Conservation</b>	
<i>Water Sensitive Urban Design</i>	The City of Subiaco website contains information on the Western Australian Government's 5 Star Plus water efficiency standards for new building works.
<i>Water Sensitive Urban Design</i>	The Subiaco Sustainable Demonstration Home was open to the public for two years to educate and raise awareness of practical and innovative solutions to sustainable living and water conservation.
<b>Community Water Quality</b>	
<i>Gross litter and pollution management</i>	Waste audits including assessment of bin composition and the weighing of recyclable materials are used to improve waste and recycling services.
<i>Gross litter and pollution management</i>	Letter drops promoting sustainable waste management are regularly undertaken. Pamphlets are available at the City's Offices, the Subiaco Library and at the Subiaco Street Party.
<i>Nutrient management</i>	There are 10 green waste collections per year. Collected waste is composted and mulched.

## 7. Proposed Water Management Actions

The City of Subiaco has proposed the following actions to meet the corporate and community water conservation and quality goals by 2012/13:

Reference	Action	ICLEI Action Card Points
<b>Corporate Water Conservation</b>		
1.1	Upgrade current irrigation systems to increase efficiency by targeting lateral sprinkler spacings. Upgrades to occur per irrigation performance audit that identified systems requiring reconfiguration.	N/A
1.2	Incorporate moisture sensor controllers in irrigation systems to reduce water use in reserves and parks within the City.	N/A
1.3	Implement a bore meter flow calibration program.	N/A
1.4	Rationalise irrigated areas to determine whether certain areas can be removed from the watering schedule.	N/A
1.5	Ensure Best Practice Irrigation Management is maintained.	N/A
1.6	Develop a Water Operating Strategy in conjunction with the Department of Water to cover irrigation and groundwater procedures such as the amalgamated bore licence and contingency plans for pipe breaks.	N/A
1.7	Replace three turf tennis courts with synthetic surfaces to reduce water and chemical use.	N/A
1.8	Ensure efficient operation of the Maxicom telemetric irrigation system installed in 12 parks to adjust irrigation schedules based on meteorological conditions.	N/A
1.9	Continue implementation of the Public Toilet Strategy to upgrade the City with water efficient toilets.	N/A
1.10	Replace drainage pits with recharge pits based on a soak well design that will allow stormwater runoff to recharge the aquifer.	N/A
<b>Corporate Water Quality</b>		
1.11	Improve water quality of lakes by installing gross pollutant traps to stop pollutants from entering the wetlands and implement maintenance regime.	5
1.12	Remove organic matter generated from City operations, contain mulch and soil stockpiles within designated areas, implement maintenance schedule and train staff.	15
1.13	Undertake bore water quality monitoring, analysis, evaluation and reporting for a representative sample of the City's bores to assist in the provision of best practice management.	5
1.14	Undertake water and sediment quality monitoring, analysis, evaluation and reporting for the three lakes within the City to assist in the appropriate environmental management of the water bodies.	5
1.15	Undertake soil and leaf tissue nutrient monitoring, analysis, evaluation and reporting of the City's Parks and Reserves to customise fertiliser application and therefore improve water quality.	5
1.16	Conduct ongoing litter audits of City and public place recycling services and review delivery following assessment of contamination.	5

1.17	Support the continued use of synthetic oils in heavy vehicle transmissions and the on-going investigation of alternative non-petroleum based products	N/A
1.18	Implement best management practices in street sweeping to help control weeds by removing soil and other debris from the roads and car parks. Undertake staff training and implement maintenance schedule	10
1.19	Investigate options for the control of iron bacteria and methods to protect reticulation infrastructure from iron bacteria to reduce chemical use.	N/A
1.20	Ensure ongoing enforcement of existing environmental herbicide, pesticide and fertiliser management procedures for staff and contractors. Develop and implement a maintenance schedule and conduct council staff training.	10
<b>TOTAL POINTS</b>		<b>60</b>
<b><i>Community Water Conservation</i></b>		
1.21	Investigate financial and non-financial incentives for development and building applications that include water conservation initiatives.	N/A
1.22	Enhance implementation of water conservation initiatives in planning applications as per Amendment 8 to the Town Planning Scheme.	N/A
1.23	Continue annual National tree planting days on Stubbs terrace to further develop the native plant demonstration garden and promote water-wise gardens.	N/A
<b><i>Community Water Quality</i></b>		
1.24	Implement a herbicide, pesticide, fertiliser and cigarette butt community education campaign and assess its effectiveness.	15
1.25	Continue the Greywater Reuse Incentive Program (GRIP) and develop an information pack to assist community members with approval process.	10
1.26	Participate in a plant subsidy scheme for verges through Apace Nursery and EMS Nursery in conjunction with the WESROC group of Councils. Conduct council staff training to ensure effective implementation of the scheme. Investigate showcasing native verges undertaken by residents or businesses.	10
1.27	Improve collection of hazardous and toxic substances, and encourage community members to dispose of oil and backyard chemicals appropriately. Develop and implement maintenance schedules, train staff.	10
1.28	Remove dumped rubbish from public land and attempt to identify persons involved.	5
1.29	Provide education events for the City's schools and public with the aim of increasing awareness of water conservation and quality and promoting sustainable gardening (Earthcarer's, Swan River Trust, DEC).	5
1.30	Develop a planning policy that outlines water conversation planning requirements for new developments, incorporating Water Sensitive Urban Design principles.	5
<b>TOTAL POINTS</b>		<b>60</b>

N/A = Non-applicable

## 8. Statement of Commitment to Monitoring and Review

The City of Subiaco Water Campaign™ Local Action plan is intended to be a 'living' document that outlines the water management plans and actions that will enable the City to achieve the Water Campaign Milestone 2 goals.

The action plan will need to be reviewed on a regular basis to ensure it stays up to date with new water saving technology and changes in policy. Ongoing reviewing will help to monitor progress towards goals and assess the effectiveness of implemented actions. The City of Subiaco commits to monitoring and regular reviewing of this Local Action Plan.

## 9. References

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Government of Western Australia (2003), *Securing Our Water Future: A State Water Strategy for Western Australia*, Department of the Premier and Cabinet Perth WA.

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