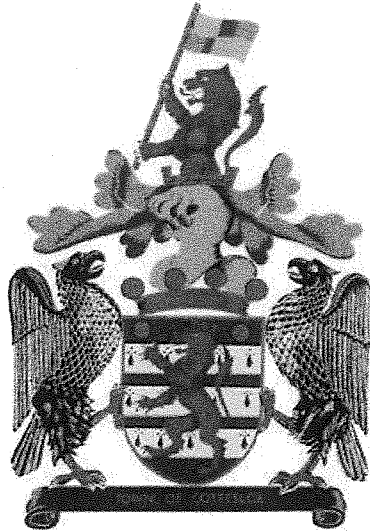


TOWN OF COTTESLOE



Works and Corporate Services  
Committee

**ATTACHMENT 10.1.2**

Meeting Date: 16 April 2013

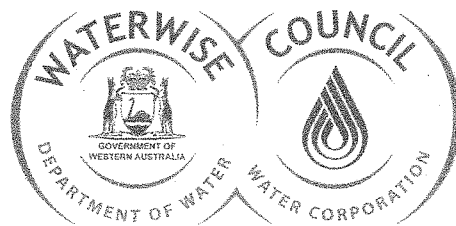




# Water Campaign™ Milestone 5 Report January 2013



**TOWN OF COTTESLOE**

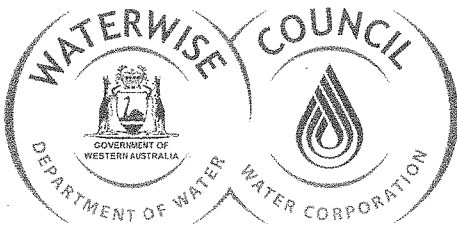


## Statement from the Mayor

The Town of Cottesloe is famous for its idyllic beaches, relaxed outdoor lifestyle, favourable climate and wide, green verges. With the increasing understanding of climate change, it is recognized that these characteristics may be under threat from the changing climate and decreased rainfall. As such the Town acknowledges the need to responsibly manage our limited water resources. Local governments are well placed to lead by example and encourage the community to actively participate in water management.

The Town took the step to join the ICLEI Water Campaign in 2006. We have progressed through the first four milestones and are proud to reach Milestone 5. This is a great opportunity to reflect on our past water management actions and learn from our experience. Maintaining water quality and reducing our consumption is very important to the Town and we hope that the commitment demonstrated by our actions encourages the community to continue theirs.

**Mayor Kevin Morgan**  
**Town of Cottesloe**



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## Introduction

Due to their close connection with the community, Australian local governments are in an excellent position to set an example in the management of our scarce water resources. By proactively undertaking water conservation and quality actions within their council area, local governments can encourage the community to actively participate in water management. The Water Campaign™, delivered by ICLEI, aims to improve water quality and promote water conservation while building the capacity of local governments to achieve tangible improvements in water management.

The Town of Cottesloe (the Town) resolved to join the Water Campaign™ in December 2006 and in doing so committed to working through the requirements of the program. Furthermore the members of the Western Suburbs Regional Organisation of Councils (WESROC) committed to progressing through the Water Campaign milestone program together in 2007. This meant an integrated approach to water management over an area of 6400 hectares servicing approximately 90,000 residents.

The Town has been progressing through the 5 'Milestones' of the ICLEI Water Campaign since 2006. Milestone 1, *undertake a water consumption inventory and water quality checklist*, was completed for both Corporate and Community modules in July 2007. This was an opportunity to catalogue how much water Council operations and community activities was consuming as well as identify the major water quality impacts of these activities.

Compilation of baseline data (2003/04 for corporate and 2005 for community) in Milestone 1 assisted the tracking of consumption over time, identified high consuming facilities and highlighted water quality impacts to be targeted in the future. Council received an award for completing this milestone at the WALGA Local Government Convention on 6 August 2007.

Milestone 2 required the Town to identify and adopt goals for reducing water consumption and implement water quality improvement actions. This step set the political intent of Council to focus on improvements and demonstrated a commitment to the program. The following goals were adopted by Council in February 2008:

- Reduce **corporate water consumption** by 20% below 2003/2004 levels by 2012/13.
- Reduce **community water consumption** by 15% below 2005/2006 levels by 2012/13.
- To implement 60 points of **corporate water quality** actions by 2012/13.
- To implement 60 points of **community water quality** actions by 2012/13.

Concurrently with Milestone 2, the Town produced and adopted a Local Action Plan (LAP) outlining the strategies that would be undertaken to reduce water consumption and improve water quality. This document identifies the national, regional and local context within which the LAP sits, details the characteristics of the Town and communicates the Water Campaign milestones achieved so far. It also catalogues the actions implemented in regard to both consumption and quality and proposes future water management actions.

The Town's LAP was adopted by Council in February 2008, fulfilling the requirements of Milestone 3. The LAP will be reviewed once Milestone 5 is achieved.

Implementing the recommendations of the LAP and quantifying the benefits of actions was achieved through Milestone 4 (M4). The Town completed the community module of M4 in July 2009 and the corporate module in November 2010. This recognised the significant progress the Town made in implementing water management actions.

It should be noted that the actions catalogued in this report are generally activities implemented since the achievement of M4.

One example of an M4 action and a good indication of the Town's proactive approach to integrated water management is its groundwater project complete in 2010. In 2006 the Town embarked on a 2.5 million dollar project with the support of the Australian Government to 'recharge' the groundwater aquifer on the Cottesloe Peninsular. With the isolated freshwater aquifer and deep sand and limestone geology, the Cottesloe groundwater was prone to overuse by residents as well as saltwater intrusion.

The project saw the construction of 400 individual soak pits to maximise soakage into the aquifer. Debris and pollutants were intercepted to ensure the quality of the water entering the aquifer was high. Furthermore ten existing ocean outfall pipes were closed and redirected to the watertable. Finally the project included a community education program to encourage the community to reduce bore water use, reduce pollutant loading and appreciate the value of groundwater.

This project was a successful demonstration of integrated groundwater management in Cottesloe, highlighting the value of water resources in the region and provides a case study for other local governments in the region.

The completion of Milestone 4 means the Town is one step away from completing the Water Campaign's 5-stage program. This report forms the majority of Milestone 5, *monitor and report on water consumption reductions and water quality improvements*. Milestone 5 also involves revisiting the baseline inventory, producing a 're-inventory' and water quality checklists (based on data for 2010/2011), and tracking the progress against goals adopted in Milestone 2.

In conjunction with this report, a case study of a significant water savings action was produced, using the example of the Grove Precinct.

This report is designed to consolidate graphs and tables of water consumption and quality for analysis; communicate how the Town has progressed in achieving their goals; highlight gaps; and provide a future direction for water management in Cottesloe. The report provides an overview of corporate water conservation, identifying high use facilities, followed by changes in residential and non-residential use in a section on community water conservation. Corporate and community water quality improvement actions follow. Next the document provides analysis of trends in water consumption and quality, including a review of Milestone 2 goals. Finally the report concludes with identification of future actions and next steps for the Town in their progress towards integrated water management.

# Re- Inventory 2010/2011

## Corporate Water Conservation

In 2012 the Town of Cottesloe employed approximately 40 staff in diverse rolls, including administration and operations. Water is used for a range of activities, including irrigation of open space, public toilets and showers, and kitchen use in Council buildings. The following facility types exist in Cottesloe:

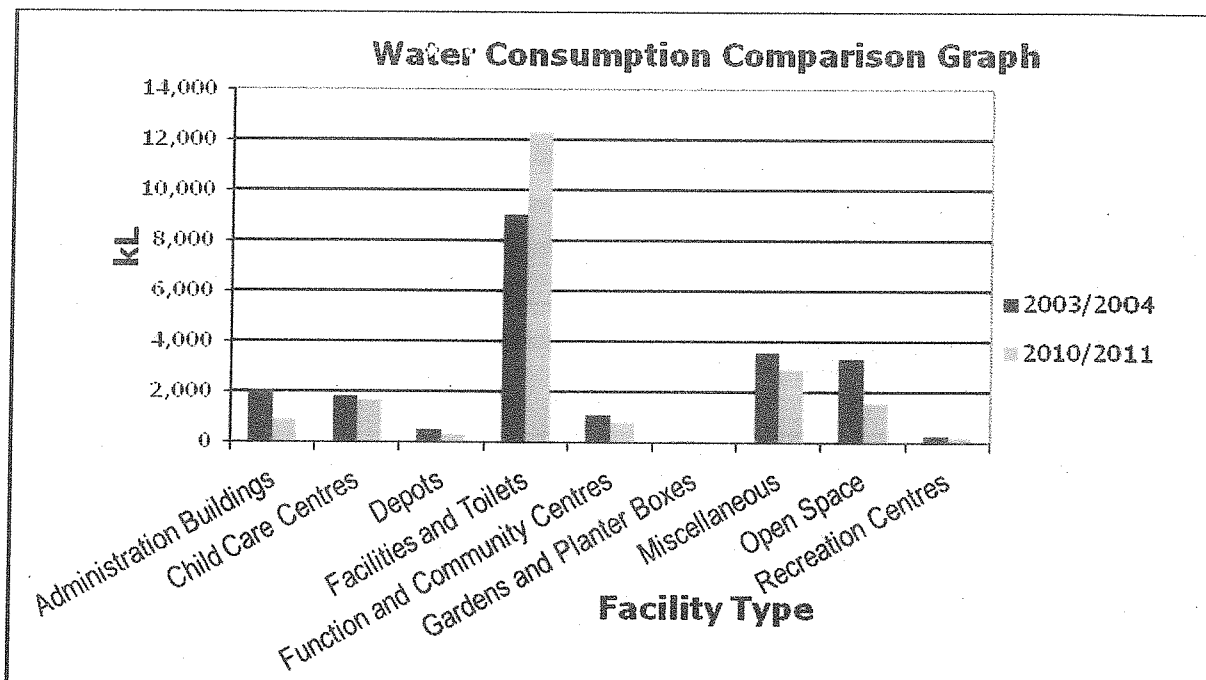
Administration Buildings	Function and Community Centres
Child Care Centres	Open Space
Facilities and Toilets	Playing Fields
Depots	Gardens-Planter Boxes
Miscellaneous	

Using data provided by the Water Corporation, the Town of Cottesloe has completed an inventory of water use for the years 1999 to 2011. The baseline "Milestone 1 inventory" was conducted for the year 2003/2004 (the inventory year), while the re-inventory was performed for 2010/2011 as a part of Milestone 5. The following table shows a comparison of the Milestone 1 inventory and the re-inventory conducted at Milestone 5.

**Table 1: Comparison of corporate water consumption for the inventory year 2003/2004 and the re-inventory year 2010/2011, including the existing facility types**

ICLEI-A/NZ Facility Type	2003/2004 (kL)	2010/2011 (kL)	% change	Comments
Administration Building	2,051	898	-56.22%	Building renovations and upgrade in July 2009 included new kitchen with dishwasher; dual flush toilets; control flow aerators on taps; waterless urinals. These actions saved approx 676 kL/year.
Child Care	1,815	1,684	-7.22%	
Depot	476	309	-35.08%	Fewer staff based at the depot. Water tanker now uses bore water instead of scheme water.
Facilities and Toilets	9,031	12,301	36.21%	Increasing visitors using showers and facilities. Leak at one shower lead to unusually high use in 2010- since been repaired.
Function & Community Centres	1,090	791	-27.43%	Reduced use at TAPPS responsible for reduction.
Gardens and Planter Boxes	56	0	-100.00%	Water account closed and natives planted.
Miscellaneous	3,557	2,912	-18.13%	Reduced use at Barchetta cafe; drinking fountain removed.
Open Space	3,313	1,590	-52.01%	High use median islands and verges no longer reticulated.
Recreation Centers	239	199	-16.74%	Tennis club received its own water entitlement removing Council responsibility.
<b>TOTAL</b>	<b>21,628</b>	<b>20,684</b>	<b>-4.4%</b>	<b>Consumption decreased at all facility types except Toilets.</b>





Graph 1: Water consumption of different facilities for 2003/2004 and 2010/2011

As Graph 1 demonstrates, most facilities saw a decrease in usage between 2003/2004 and 2010/2011. Water consumption at the Administration Building halved between the baseline inventory year and the re-inventory year. This was due to the building renovation and upgrade occurring in 2009/2010 which included installation of a dishwasher in the kitchen, dual flush toilets and control flow aerators on taps.

Open space also had a significant reduction due to a number of median islands and verges being replanted with native species therefore no longer requiring reticulation. Facilities and toilets (including foreshore showers) was the only facility to experience an increase in water consumption. There are a number of potential explanations for this increase:

- Increasing visitor numbers to the coastal region, however increased usage of showers was not consistent.
- Increasing popularity of water-based sports on the southern beaches including surfing, Standup Paddle boarding and kitesurfing. Participants of these activities often make use of beachside showers and foot baths, particularly the 'Coves' shower.
- A significant leak at one shower lead to consumption increasing from 249kL in 2009/2010 to 2823kL in 2010/2011. This has since been repaired and it is envisaged that savings will be visible in 2011/2012.
- Meter changed in 2010 at this shower. The Water Corporation's explanation suggests that water meters degrade over time and fail to register consumption. On replacement a large jump in use is to be expected.

Overall there was a 4.35% decrease in consumption of water in Council owned and operated facilities, with a consumption of 21,628kL in 2003/2004 reducing to a consumption of 20,684kL in 2010/2011. This is a savings of 944kL between the baseline year and re-inventory year. If the large increase in use from Facilities and Toilets was to be excluded, the Town would have recorded a 19.5% decrease in water consumption between 2003/2004 and 2010/2011. This is very close to the goal of 20% by 2012/2013.

The table below compares scheme water consumption for the inventory and re-inventory years, including the quantifiable water savings actions that have reduced consumption.

**Table 2 Comparison of inventory and re-inventory consumption, with quantifiable water savings actions – Scheme water**

<b>Consumption &amp; Conservation</b>	<b>Estimated Water Savings (kL)</b>	<b>Water Consumption (kL)</b>
<b>Consumption</b>		
2003/2004 total Inventory		21,628
2010/2011 total Re-inventory		20,684
<b>Change in consumption</b>		<b>- 944</b>
<b>Quantifiable Water Conservation Actions</b>		
2009/2010:		
1. Administration Building Upgrade (total) including:	676	
Waterless urinals (6) in all men's toilets	113	
Control flow aerators on taps (6)	29	
Dual flush toilets (8)	158	
2. Replant verges and median islands with natives, remove water supply	56	
2010/2011:		
Retrofit rose garden irrigation	116	
<b>Total known savings</b>	<b>848</b>	

While the table above calculates an estimated scheme water saving of 848kL as a result of quantifiable actions, actual water consumption was reduced by 944kL between the inventory and re-inventory years. Therefore the remaining 96kL has been saved as a result of a number of non-quantifiable actions.

A list of non-quantifiable water savings actions implemented post-M4 is in Table 3. These actions follow on from pre-M4 actions such as the installation of 11 spring loaded taps and restricted flow shower heads along the foreshore and reticulation upgrades at Cottesloe Oval, Harvey Field and the Golf club to reduce groundwater use. Other actions implemented pre-M4 have had ongoing water savings, such as mulching of flower beds to retain moisture; native plants established to reduce watering requirements (see Figure 1 & 2) and flow meters installed on all ground water bores.

It is also important to note that in 2010 the Department of Water significantly reduced Cottesloe's groundwater allocation from 148,500kL to 106,125kL per annum. The Town therefore implemented a number of actions to reduce groundwater usage and thus abide by its new license. This included the construction of water storage tanks, rationalisation and closure of a number of bores, bore refurbishment.



**Figure 1: “river-friendly” verge on Eric Street Cottesloe – minimising water and fertiliser requirements (2011)**



**Figure 2: Verge on Eric Street converted from lawn to local, native plants to reduce water and fertiliser use.**

**Table 3: Post-M4 water saving actions – Scheme & Groundwater (non-quantifiable)**

Additional Actions (Qualitative Assessment)	Year	Detail results/key performance indicators
Native plants established on median islands and verges (Figure 1 & 2)	Annual savings	Ongoing efforts to convert vegetation to waterwise varieties. Reticulation no longer required at these locations.
Restrict public use of Council taps	2010/2011 with Annual savings	A number of taps in Civic Centre were experiencing wastage from public overuse. Restricting use ensures taps only used by authorised personnel and therefore reduced consumption.
Water audit of Civic Centre	2010/2011 with annual savings	Identification of leaks and irregular use which has since been addressed through repairs and maintenance. The audit also raised awareness amongst staff and encouraged behaviour change.
5 year reticulation improvement programs	Annual savings	Replacement/redesign of existing reticulation system and sprinklers to ensure efficiency and appropriate use.
Flow meters on bores	Annual savings	All 6 bores are metered in order to monitor usage. This allows identification of leaks or other issues.
Purchasing Policy encourages consideration of water use/efficiency.	Annual savings	Policy encourages purchasing of products and services that limit Council's water consumption and demonstrates best practise in water efficiency.
Aquifer Recharge Project	Annual savings	Continual recharge of Cottesloe aquifer from soak pits and closure of ocean outfalls.

## Community Water Conservation

Community water consumption increased slightly between the baseline year of 2005/2006 and the re-inventory year of 2010/2011. Consumption rose from 992,287 to 1,048,944 kL, an increase of 5.7%. It is important to note that during the same period the population of Cottesloe also increased, from 7,626 to 8,222. This is an increase of 7.8%. With this in mind, the increase in consumption is both minimal and in line with the increasing population. In fact, as Table 4 demonstrates the consumption per head of population decreases from 130.1kL to 127.6kL.

**Table 4 Community consumption inventory comparison**

RESIDENTIAL			
<b>Baseline Year:</b>	2005/2006	<b>Re-Inventory Year:</b>	2010/2011
<b>Consumption (kL):</b>	992287	<b>Consumption (kL):</b>	1048944
<b>Population of LGA:</b>	7626	<b>Population of LGA:</b>	8222
<b>Consumption per resident (kL):</b>	130.1	<b>Consumption per resident (kL):</b>	127.6

Table 5 below demonstrates an encouraging trend in community consumption, with consumption per population decreasing by 2.5kL over the period.

**Table 5 Comparison between residential inventory and re-inventory**

RESIDENTIAL	
	Total
<b>Change in Consumption (kL)</b>	+ 56657
<b>Change in Population of LGA</b>	+596
<b>Change in Consumption per resident (kL)</b>	-2.5

The trend in non-residential use is similar. Unfortunately the data supplied for "number of units" of non-residential in Cottesloe was not comparable between the inventory and re-inventory years. The previous section includes comparison of community consumption with the population of the LGA. It was deemed that this was not appropriate for non-residential, therefore only 'total consumption' is compared between the baseline year and re-inventory year (below).

**Table 6: Comparison of non-residential consumption between inventory and re-inventory**

NON-RESIDENTIAL			
<b>Base Year:</b>	2005/2006	<b>Re-inventory year:</b>	2010/2011
<b>Total Consumption:</b>	142,242	<b>Total Consumption:</b>	143,546

There was a minor increase in consumption by non-residential development between 2005/2006 and 2010/2011. This increase was in the magnitude of 1,304kL or less than 1% increase (0.92%). With the 7.8% increase in population in Cottesloe it is expected that there be an increase in non-residential use, either due to an increase in numbers of businesses, or an increase in patronage of existing businesses.

The highest consuming industry in Cottesloe was hospitality, with a consumption of 44,416kL in 2010/2011. This was a 10% reduction from the 2005/2006 consumption of 49,597kL. Despite being the highest consumer, there were less than 10 hospitality businesses (recorded as 7 units in 2011, numbers for other years unavailable), therefore each business has very high usage. This is therefore a good area to encourage water savings (acknowledging that the industry has already made some savings).

The industry with the largest increase in usage between the inventory and re-inventory years was Wholesale Retail and Trade. This industry used more than 50% more water in 2010/2011 than in 2005/2006. This is possible a result of increasing number of shops, relating to the increase in population in the area.

**Table 7: Comparison of Residential and Non-Residential consumption**

RESIDENTIAL & NON-RESIDENTIAL		
	2005/2006	2010/2011
<b>Proportion of Residential use (%)</b>	87%	88%
<b>Proportion of Non-Residential use (%)</b>	13%	12%

Total community consumption in 2005/2006 was 1,086,898kL, of which residential made up 87% of consumption. In 2010/2011, total community consumption increases to 1,192,490kL, of which residential consumed 88% of water. This means the proportion of water consumed by residential and non-residential has remained stable. This may suggest that the increase in population of Cottesloe not only impacts the usage of residential properties, but also non-residential (more patronage at shops, more people using community services etc).

The overall change in community consumption (including residential and non-residential) between 2005/2006 and 2010/2011 was a 9.7% increase. This is generally in line with the increase in population of the LGA, of 7.8%. The following table details a range of actions the Town has undertaken to reduce community consumption since Milestone 4. Results of this report suggest that greater focus on the community is required to further reduce water use.

**Table 8: Council actions to reduce community consumption Post M4**

Action	Description	Year	Budget	Outcomes
Waterwise Gardening talks	Waterwise gardening techniques require considerably less water. These annual talks are provided by experts to encourage community to change behaviour.	Annual	\$500	Increased awareness of low water gardening techniques, reduced water consumption in the garden.
Native Plant Subsidy scheme (NPSS)	2000 native plants offered to community at subsidised price of \$1.50 per plant, from APACE.	Annual	\$3000	Encourages planting of natives which require less water, reduced community water consumption.
Great gardens workshops	Free 3 hour workshops on gardening and environmental issues as well as how to be water and nutrient-wise.	Annual	\$500	Enhances understanding of impacts of gardening on water supply and quality.
'Growing Native Plants' brochures	Outlines appropriate native plants for the area which are water efficient and suited to the local climate and conditions, along with garden maintenance tips including information on mulching and fertiliser use.	Annual savings	\$1600 for printing	Improved awareness in community. Reduces water consumption. (available on web and at Council)
Residential Verge Policy	Encourages reduced use of bore water, fertilisers, weedicide, pesticides and non-absorbent materials on verges. Encourages use of native plants.	Annual savings	-	Reduced use of water on verges.
'Waterwise Gardening presentation at TAPPS	Special presentation at aged care facility to encourage 'waterwise' gardening and launch the 2011 NPSS	2011	-	Encourage awareness and reduce water consumption within key demographic.
New library/community centre constructed demonstrating best practice environmental sensitive design.	The new facility including community centre, library and offices is a demonstration to the community of ESD and integrated water management. Rainwater harvesting provides 100% of required water, thereby saving 730kL/year.	2010 + on-going cost for maintenance	Cottesloe contribute \$6.3 million for construct. & approx \$500,000/year ongoing	Town not responsible for managing facility but showed leadership in its construction. Encourages community water-saving actions and increase awareness.

<p><b>'Think water' education campaign</b></p>	<p>This multiple round campaign aimed to reduce community groundwater use through private bores. Every Cottesloe resident was provided with information packages and giveaways to learn the value of groundwater.</p>	<p>2006-2010 with Annual savings</p>	<p>\$100,000 provided by Watercorp</p>	<p>While the 3-round campaign was completed in 2010, it is hoped that the initiative resulted in longer behaviour change and ongoing savings.</p>
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**Figure 3: The 'Think Water' Campaign logo used throughout the 3 rounds of educational material**



## Corporate Water Quality

As a part of Milestone 5, water quality checklists were completed for corporate water quality actions. Completing these documents was an opportune time to revisit the water quality priorities. The 3 priorities selected at Milestone 1, and revisited at Milestone 5 are in the table below.

**Table 9: Corporate water quality priorities at Milestone 1 and Milestone 5**

Three priorities chosen for water quality improvement action at baseline year.	Three priorities chosen for water quality improvement action post re-inventory.
1. Groundwater management	<b>1. Erosion control</b>
2. Gross Litter and Pollution management	<b>2. Gross Litter and Pollution management</b>
3. Herbicide and Pesticide management	<b>3. Groundwater management</b>

The Town sits above a thin freshwater aquifer, overlying salt water. With decreasing rainfall and increasing use, this resource was under threat from saltwater intrusion. As such, groundwater management was the top priority for corporate water quality in 2005/2006. Since that time, the Town has undertaken a large groundwater replenishment project, which involved constructing soak pits, installing gross litter traps and closing ocean outfall pipes. In doing this, the Town has gone a long way to address the issues of groundwater management. For this reason groundwater management is no longer the top priority following the re-inventory. However, with sea level rise, there is a growing risk of saltwater intrusion into this freshwater resource. Thus the Town needs to continue to monitor its use of groundwater and encourage the community to restrict domestic bore use.

Water quality priorities following the re-inventory now include erosion control. While the Town is active in controlling access and erosion of coastal dunes, these will be under increasing risk with sea level rise and climate change impacts. The Town is an iconic coastal suburb with infrastructure and expensive real estate within 100m of the coast. The protection and maintenance of soft structures like sand dunes will provide important buffers between the ocean and the suburbs.

Gross litter and pollution control remains a top priority despite the investment in gross pollutant traps and ocean outfall pipe closure. The huge seasonal influx of visitors will mean the Town will need to closely monitor rubbish and bins in Council managed areas. Ongoing monitoring of the performance of these initiatives will be useful for both the Town and the region.

Following the large investment in the Groundwater Recharge Project completed in 2010, the Town has focused on small scale water quality actions listed below.

**Table 10: Corporate Water Quality actions undertaken since Milestone 4**

Action Implemented since the Milestone 4	Benefits	Points assigned
<b>Ongoing restoration and revegetation of multiple foreshore areas and dunes (West of Marine Parade)- Vlamingh Memorial; Mudurup Rocks; Cottesloe main beach; Bryan Way.</b>	Erosion management and community engagement in regard to flood damage and biodiversity, climate change adaptation. Community group is very involved and takes ownership of the area.	<b>5</b> <b>5</b> <b>5</b> <b>5</b>
<b>Council no longer uses pesticides</b>	Minimises pesticides entering waterways and aquifer.	<b>5</b>

<b>WSUD principles adopted in Local Planning Scheme 5 and foreshore re-development</b>	WSUD can reduced the need for fertilisers and manage stormwater runoff.	<b>5</b>
<b>Replanting of median strips and verges with native species</b>	Native species require less fertiliser.	<b>5</b>
<b>Implement best practise in street sweeping, including maintenance schedule and staff training.</b>	Reduces gross litter in waterways/aquifer.	<b>5</b>
<b>Implement best practise in turf fertiliser application, including maintenance schedule and staff training.</b>	Reduces overuse of fertilisers. Limits amount of fertilisers entering waterways and aquifer.	<b>5</b>
<b>Points achieved at M4:</b>		<b>15</b>
<b>Points achieved post M4:</b>		<b>45</b>
<b>Total:</b>		<b><u>60</u></b>
<b>Goal year 2012/2013:</b>		<b>60</b>
<b>Points Remaining to Achieve Goal:</b>		<b>-</b>

## Community Water Quality

As a part of Milestone 5, water quality checklists were also completed for community water quality actions. Water quality priorities were revisited while completing the documents. The 3 priorities selected at Milestone 1, and revisited at Milestone 5 are in the table below.

**Table 11: Water Quality Priorities – Community**

Three priorities chosen for water quality improvement action at baseline year.	Three priorities chosen for water quality improvement action post re-inventory.
1. Groundwater management	<b>1. Erosion Control</b>
2. Gross Litter and Pollution management	<b>2. Gross Litter and Pollution management</b>
3. Herbicide and Pesticide management	<b>3. Groundwater management</b>

Like Corporate water quality, the priorities for community water quality actions have been amended. This is largely due to the large investment made in “recharging” the aquifer, installing gross pollutant traps and closing ocean outfalls. Groundwater management remains in the top 3 priorities as there is increasing use of groundwater by the community for domestic bores. Coupled with the risks of rising sea levels and decreasing rainfall, this may lead to increased salinity of this fresh water resource. Due to these existing threats, groundwater management, particularly focusing on encouraging the community to reduce their bore water use, remains a priority for the Town. Preventing over extraction of groundwater by private bores not only conserves water but also reduces the risk of salt water intrusion into the aquifer, thus protecting water quality.

Erosion control is now a priority following the re-inventory, particularly relating to designated and controlled access to the beach. Increasing community participation in maintaining, revegetating and rehabilitation the dunes should be a priority to encourage community ownership. Cottesloe Coastcare has been very successful in this regard and the Town should continue to support this initiative. Gross litter and pollution management continues to be a priority due to the large seasonal influx of visitors to the area.

Between 2006 and 2010 (prior to M4), the Town initiated a large scale, multiple round community education and engagement campaign in conjunction with the Aquifer Recharge Project. Delivered to every Cottesloe household the campaign encouraged reduced bore water use and nutrient loading as well as valuing groundwater. This had long term benefits, including changing community behaviour and attitudes to water quality.

Furthermore the community litter campaign ‘bin it or swim in it’ (2006) encouraged the community to dispose of oil and backyard chemicals appropriately and reduce cigarette butt litter. Since M4, the Town has implemented the following actions:

**Table 12: Community water quality action undertaken since Milestone 4**

Actions Implemented since Milestone 4	Benefits	Points assigned
<b>Residential Verge Policy</b>	Encourages reduced use of water, fertilisers, herbicide, pesticides and non-absorbent materials on verges. Encourages use of native plants. Reduces excessive nutrient loads.	<b>5</b>
<b>Control Policy requiring developments to retain drainage on site.</b>	Control of sediment-laden runoff minimises excess suspended solids entering waterways.	<b>5</b>

<b>Regular litter education including annual 'sustainability calendar', waste info in quarterly verge collection brochures and quarterly community newsletters produced by Sustainability Officer.</b>	Reduce litter entering waterways.	<b>5</b>
<b>Educational signage at public bins.</b>	Encourage responsible and correct disposal of waste. Reduces litter in waterways.	<b>5</b>
<b>Regular participation in community/educational events such as Clean Up Australia Day &amp; 'Cash for Containers'</b>	Engagement with community to encourage responsible waste disposal. Minimises litter in waterways.	<b>5</b>
<b>Annual participation in Native Plant Subsidy Scheme.</b>	Community engagement and encouragement of species that require limited/no fertilisers.	<b>5</b>
<b>Provision of battery recycling facilities.</b>	Reduces potential toxic leaching into groundwater	<b>5</b>
<b>New library/ community centre constructed demonstrating best practice environmental sensitive design.</b>	The new facility including community centre, library and offices is a demonstration to the community of ESD and integrated water management. Town not responsible for managing facility but showed leadership in its construction. Encourages community awareness and appreciation of water quality.	<b>5</b>
<b>Points achieved at Milestone 4:</b>		<b>65</b>
<b>Points achieved post Milestone 4:</b>		<b>40</b>
<b>Total:</b>		<b>105</b>
<b>Goal year 2012/2013:</b>		<b>60</b>
<b>Points Remaining to Achieve Goal:</b>		<b>-</b>

## Analysis & Summary

The compilation of this report and the re-inventory has highlighted the efforts made by the Town to reduce water use and protect water quality. It has also identified areas for improvement. The retrofit of the Council Administration building led to significant reductions of corporate water use, while ongoing educational activities, such as waterwise garden talks and the 'Think Water' campaign have encouraged the community to reduce their own water use.

The Town demonstrated leadership in completing 2 significant projects since the baseline year – the Aquifer Recharge Project and the development of the Grove Library Precinct, demonstrating best practise environmentally sensitive design. Despite these large scale projects, the Town has not yet reached its water conservation goals as of 2010/2011. As highlighted above, Facilities and Toilets demonstrated a significant increase in use and distorted savings made in other areas. Excluding this facility types, the Town actually achieved a decrease in water use of 19.5%, just short of its 2012/13 goal. It can therefore be assumed that the Town is on track to reach its corporate water conservation goal by 2012/13.

The community water conservation goal set at M2, using 'total water use' rather than 'per capita' water use, unfortunately doesn't reflect the achievements the Town has made encouraging the community to conserve water. Due to the increase in population, it is expected that there will be an increase in total water consumption. The Town will continue to work towards the community water conservation goal of a 15% reduction in total use by 2012/2013 but it is recommended that future goals relate to per capita water consumption, not total water consumption.

The Town has far exceeded its goal for community water quality through its proactive approach to groundwater management and other Pre- and Post- Milestone 4 actions. The goal of 60 points for corporate water quality has also been reached by 2010/2011.

**Table 13: Progress related to goals set as part of the Water Campaign™**

<b>Water Conservation</b>			
<b>Module</b>	<b>Goals established</b>	<b>Achievement</b>	<b>Progress achieved since baseline as of 2010/2011</b>
<b>Corporate water conservation goal</b>	20% reduction on 2003/2004 by 2012/2013	Corporate water conservation achievement	4.4% reduction since 2003/2004
<b>Community water conservation goal</b>	15% reduction on 2005/2006 by 2012/2013	Community water conservation achievement	5.7% increase since 2005/2006
<b>Water Quality</b>			
<b>Module</b>	<b>Goals established</b>	<b>Achievement</b>	<b>Progress achieved since baseline as of 2010/2011</b>
<b>Corporate water quality goal</b>	60	Corporate water quality points achieved	60 points
<b>Community water quality goal</b>	60	Community water quality points achieved	105 points

## **Future Water Conservation and Water Quality Improvements & Priorities**

### **Corporate Water Conservation**

The re-inventory, based on 2010/2011 data, has highlighted a number of potential actions for the Town. Analysis of corporate water consumption identified the significant usage and potential wastage of water at the Town's foreshore showers. It is likely that there has been a leak at one or two of these locations, thus it is important for the Town to continually assess and identify leaks in the future. These showers are generally used by the public, despite being corporate infrastructure. Education and improved awareness by the broader community would assist in reducing overuse of showers and toilet facilities.

Water audits of the Town's highest using sites will continue, with a focus on toilet facilities and public amenities. While a number of showerheads, taps and toilets have been upgraded to reduce water use, it is recommended that an audit of all public amenities be undertaken to highlight areas for improvement.

### **Community Water Conservation**

In regard to community usage, the Town needs to focus on reducing both residential and non-residential usage. While residential is the largest consumer of water within the Town, there has been a significant increase in usage by non-residential users.

The existing 'Residential Verge Policy will be reviewed to include Waterwise information and encourage the use of native plants in the community. Further encouraging the community to reduce groundwater bore use will have benefits for both water conservation and water quality.

As both community and corporate water quality goals have been met as of 2010/2012, the future focus will be on water conservation. Continual monitoring of both corporate and community consumption in the future will assist in determining if the Town reaches its goals set for 2012/2013.

### **Community & Corporate Water Quality**

The Town's priorities for corporate and community water quality have been reviewed in light of this re-inventory. Large scale investment in aquifer recharge and protecting the quality of the aquifer has seen Groundwater Management move from the highest priority area. It does still remain in the top 3 areas however due to the susceptibility of saltwater intrusion and demand for the resource.

Erosion Control is now in the top 3 priorities due to its key role in climate change adaptation. Continued support for the valuable work of Cottesloe Coastcare will assist the Town to achieve its Erosion Control goals.

Annual review of Council generated litter and an audit of litter removed from gross pollutant traps may be beneficial. Continual monitoring of salinity of bore water will be required as sea levels rise and threaten the local aquifer.

In order to set out direction and priority actions for the future, the Town's Local Action Plan will be reviewed in the next year by the Town's Sustainability Officer.

Sustainable water management will continue to be a priority for the Town. While this is currently largely the responsibility of the Town's Sustainability Officer, it is important to integrate this into Council operations and other sections of the organisation. As the Town achieved the status of 'Waterwise Council' in 2011, monitoring, reporting on and implementing water conservation and water quality improvement actions will remain a priority for the Town in the future.

## Commitment to Monitoring and Review

The Town is committed to ongoing monitoring of water consumption and quality. As Cottesloe has been awarded the status of 'Waterwise Council', a number of ongoing monitoring processes, such as audits of high use facilities, will be required.

The range of existing and potential threats to the Town's water sources, such as over consumption, decreasing rainfall and saltwater intrusion of the underlying aquifer mean that integrated water management will be a priority for the Town in the future. With future changes to water supply and quality, the water priorities and actions will be review to ensure they remain up to date. The Town's groundwater allocation has been reduced by the Department of Water in the past and it is envisaged that this may occur again in the future. Thus ongoing actions that reduce our reliance on both scheme and groundwater will be essential.

The Local Action Plan will be reviewed once Milestone 5 is complete. Water conservation measures will be implemented as the budget allows.

The Town's goal year, set out at Milestone 2, is the 2012/2013 financial year. At the time when Watercorp's data becomes available for this year, the Town will determine whether the goals have been achieved, and if there is a need to invest more in water conservation.

Monitoring and review will be undertaken by the Town's sustainability officer with input from relevant staff and key stakeholders. Ongoing reviews will ensure planning stays up to date with changes in policy and new technology. This process will also help to review priority areas, monitor progress towards goals, and assess the effectiveness of implemented actions.

## APPENDIX: Water Savings 2011/2012 and 2012/2013

As the water consumption data for 2011/2012 was not available at the time of re-inventory, the document is based on 2010/2011 data. At the completion of the report, data became available for 2011/2012 and the first half of 2012/13. Ongoing water savings based on actions from previous years for these periods are therefore included below.

**Table 14: Water savings for 2011/2012 based on actions from previous years**

Quantifiable Water Conservation Actions 2011/2012	Estimated Water Savings (kL)
Admin Building - renovations/retrofits	676
Depot - replaced water source	167
Jarrad Street Showers - leak detection	2574
Gardens and Planter Boxes - accounts closed	56
Misc: Drinking fountain removed	645
Open Space - no longer reticulated	1723
Recreation Centres - accounts closed	40
<b>Total</b>	<b>5882</b>

**Table 15: Half year water savings for 2012/2013 based on actions from previous years**

Quantifiable Water Conservation Actions 2012/2013 (half year)	Estimated Water Savings (kL) to date
Admin Building - renovations/retrofits	338
Depot - replaced water source	83.5
Jarrad Street Showers - leak detection	1,287
Gardens and Planter Boxes - accounts closed:	28
Misc: Drinking fountain removed	322.5
Open Space - no longer reticulated:	861.5
Recreation Centres - accounts closed	20
<b>Total</b>	<b>2941</b>