



# Hawkesbury City Council Water Savings Action Plan

Revised September 2008





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## Acknowledgments

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Thank you also to the many individuals from Hawkesbury City Council whose contributions have been invaluable.



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## Sign-off of the Plan

I certify that this Water Savings Action Plan has been prepared in accordance with the Guidelines issued by the Minister for Utilities. I am authorised to submit this Plan on behalf of the Hawkesbury City Council to the Water and Energy Programs, Sustainability Programs Division, Department of Environment and Climate Change, PO Box A290, Sydney South. NSW 1232 Level 25, 59 Goulburn Street, Sydney, NSW 2000.

A handwritten signature in black ink, appearing to read 'Peter Jackson', followed by a period.

Peter Jackson  
General Manager





## About this Plan

The NSW water and energy savings initiatives were introduced by the NSW Government in May 2005. They were administered by the Department of Energy, Utilities and Sustainability (DEUS) who are now a part of the Department of Environment and Climate Change (DECC). The legislation requires certain businesses, government agencies and local councils to prepare Water and Energy Savings Action Plans. Hawkesbury City Council is required to develop a Water Savings Action Plan (WSAP) in accordance with the guidelines set out by NSW Government.

The guidelines require Council to include the following in its WSAP:

- Details of baseline water consumption
- Management review and associated management actions related to water
- Details of audits and reviews carried out to identify water savings opportunities
- Actions for implementation

The WSAP is focused on the top ten water consuming sites operated by Council. This document has been developed to meet the requirements for development of a WSAP, and includes the following sections:

- Baseline water performance data for all Council properties
- Management review outcomes
- Management actions
- Water saving measures
- Associated background information

The Water Savings Action Plan will remain in draft until approved by the DECC. The Plan then becomes a powerful blueprint for change within the Council.

Legislation requires that the WSAP is adjusted annually and reviewed every four years to refine effective business cases for further water efficiency measures.

This Water Savings Action Plan is now the blueprint for funding applications concerning water efficient projects for Council's infrastructure.

## Summary of the Hawkesbury

Local Government began in the Hawkesbury in the 1840's with the creation of borough Councils. By 1906 the whole of the area was incorporated with three Councils, the Municipalities of Windsor and Richmond and the Shire of Colo. By 1981, there was one Local Government area, known as Hawkesbury Shire. In 1989 the Shire became the City it is today.

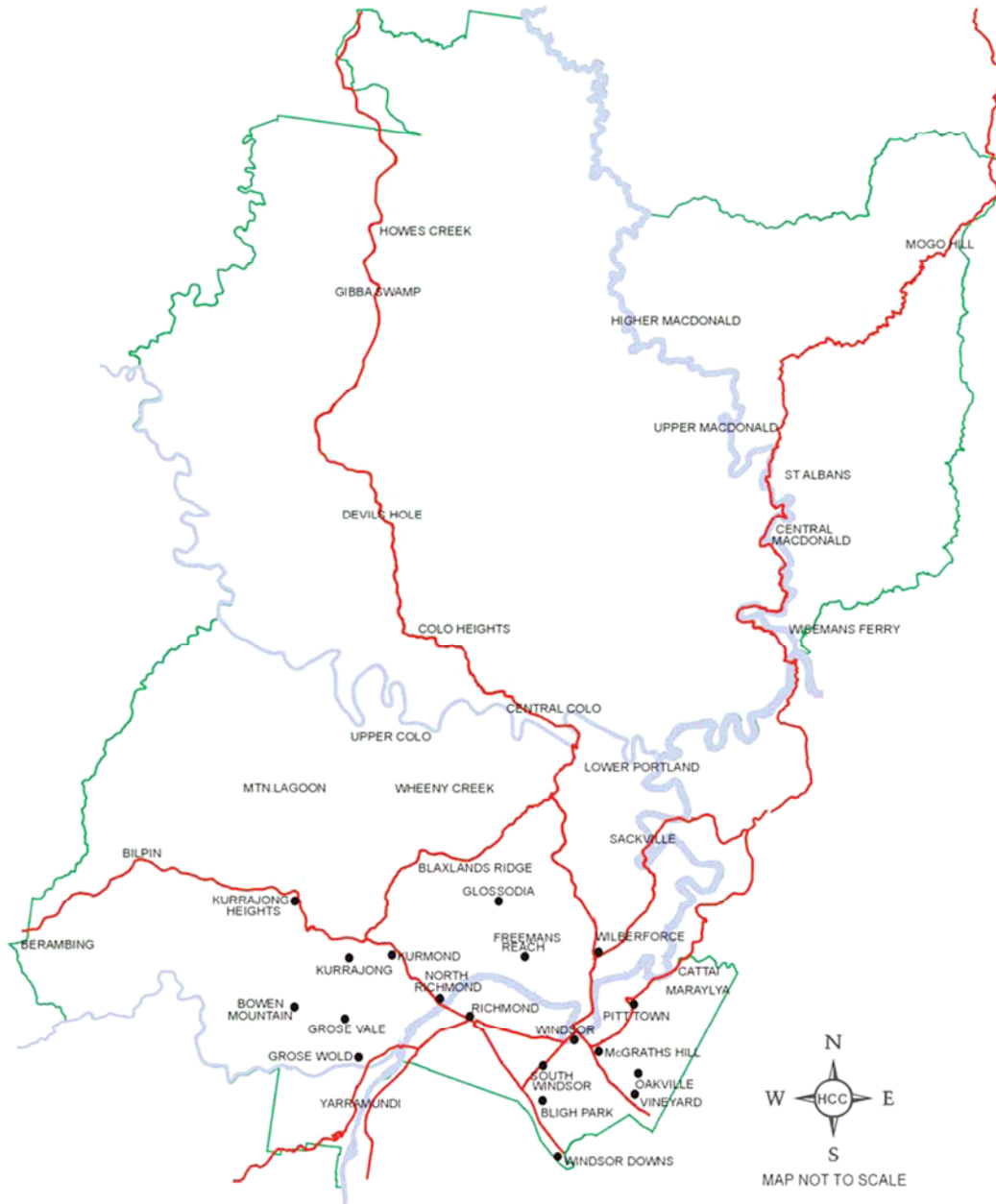
The Council area comprises 2,793 square kilometres, is home to more than 61,000 residents who live in a series of towns and villages throughout the rural hinterland.

The City of Hawkesbury extends from the Cumberland Plain in the south and east, to the foothills and escarpments of the Blue Mountains to the west and north. The Hawkesbury is divided by five rivers, and includes the Hawkesbury/Nepean, Grose, Colo and Macdonald River valleys. More than 70% of the Hawkesbury is National Park containing substantial expanses of wilderness.

The topography of the area is very diverse ranging from fertile flood plains and wetlands, to undulating hills and heavily timbered ridges through to inaccessible mountainous regions dissected by steep gorges and towering escarpments. As a result of these geographic features, the Hawkesbury experiences regular flooding and bushfires, often resulting in considerable disruption to commerce and damage to agriculture and property. These physical features act as natural boundaries to development.

The Hawkesbury Local Government Area is made up of many small townships and localities in addition to the main (urban) population centres of Windsor and Richmond. Just over 35% of the population live within the township boundaries of Windsor-Richmond (an area which includes Hobartville, South Windsor and Bligh Park), while a further 59% of the population live in townships and localities situated within a 15km radius of these two principal centres. In total, almost 94% of the population lives within the most south-easterly portion of the Local Government Area. The remaining 6% of the population live in small and isolated hamlets from Colo Heights, Colo Valley, Lower Portland, Webbs Creek and St. Albans in the north, to Cattai and Maraylya in the east, and Bilpin and Berambing in the west. Despite this apparent concentration, no one township or locality contains more than 11% of the total population of the Hawkesbury - a factor which has significant implications for the provision of services and facilities.

# LOCATION OF HAWKESBURY CITY IN THE SYDNEY REGION



## STATE LEGISLATION TO TAKE ACTION ~ WATER SAVINGS ACTION PLANS

The State Government realise that high water users, including some local councils, play a large and important role in reducing greenhouse gas emissions in the attempt to cease global warming and climate change.

The Metropolitan Water Plan includes a range of initiatives to respond to the current drought and increase the certainty of future water supplies. The Plan - and the *Energy Administration Amendment (Water and Energy Savings) Act 2005* - gives the NSW Department of Environment and Climate Change (DECC), the responsibility to promote improvements in the water efficiency of key businesses, local government and NSW government agencies.

Schedule 2 designates Hawkesbury City Council as a high water user and requires the Council to prepare a draft plan.

## HAWKESBURY CITY COUNCIL WATER SAVINGS ACTION PLAN

This Water Savings Action Plan (WSAP) has been developed in accordance with the DEUS Guidelines for WSAP's, as required by the *Energy Administration Amendment (Water and Energy Savings) Act 2005*. It has also been developed with the use of the online Template Tool made available by DEUS.

The steps required in preparing a WSAP as identified in the DEUS Guidelines, and which have been followed for the preparation, are as follows:

1. Determine how much water is used
2. Plan at Management Level
3. Determine opportunities to reduce water usage
4. Put the Water Savings Action Plan together

## HISTORY TO WATER SAVINGS WITHIN THE ORGANISATION

Hawkesbury City Council resolved to participate in the Cities for Climate Protection (CCP) Program in April 2000, in recognition of the importance of reducing greenhouse gas emissions at the local level.

Milestone 1 of the program was completed in November 2001 by developing an emissions inventory for both the Council and community sectors using 1998 and 1996 respectively as the baseline years.

Following this, Council set about establishing emissions reduction goals to satisfy the requirements for completion of Milestone 2 of the Program, which was achieved in April 2002.

In June 2002, Council developed and adopted emission reduction goals:

1. Reduce Corporate greenhouse gas emissions from 2000-2001 levels by 20% by 2010
2. Reduce Community greenhouse gas emissions from 1996 levels by 20% by 2010.

Adopting these reductions completed Milestone 3.

Benefits to Council of this reduction include increasing environmental awareness and saving money through reduced water costs.

The implementation of innovative and effective actions also serves to position Council as a community leader in environmental best practice.

Milestone 4 involved the implementation of actions outlined in the Greenhouse Gas Reduction Strategy and was achieved in April 2003. Council then updated the baseline inventory for 2003 to determine the success of Council's water programs, as a requirement of Milestone 5.

The emissions inventory for the corporate sector was divided into five categories.

1. Buildings - This sector accounted for emissions from Council owned and operated buildings
2. Vehicle Fleet - Which accounted for emissions from fuel use of the Council's vehicles and plant machinery
3. Street Lighting - This sector accounts for emissions resulting from street lighting, including Integral Energy, Country Energy/Great Southern Energy street lighting and Council decorative park lighting
4. Water - This sector accounted for emissions resulting from the energy used to pump water for reticulation on Council owned property
5. Waste - This sector accounted for emissions that result from the breakdown of organic waste

Some of the priority actions pertaining to water conservation implemented by the Cities for Climate Protection review process include:

1. Staff education by signs, stickers and training sessions
2. Installing timers on water coolers and zip boilers
3. Develop maintenance schedules for Hot/Cold water systems at each facility and implement conservative fixtures

4. Purchasing and use of a pool cover at aquatic centres
5. Review energy audits of all sewerage pumps and facilities and identify opportunities for water reuse
6. Install soft starters on pumps across all Council water related facilities eg. bore pumps for reticulation purposes
7. Implement a water maintenance conservation and leakage prevention program at McGraths Hill treatment plant
8. Recycle bio solids as a fertiliser
9. Investigate surface water collection for reuse on vegetation
10. Host sustainability events in the local area.

Since the development of the Water Savings Action Plan, Council has signed up to the Sydney Water 'Every Drop Counts Business Program'. As a member of the program, three properties using the highest amount of water have been monitored online with detailed technical audits conducted by the Department of Commerce.

While this program has been invaluable to Council, the budget allocation to fund projects to obtain the information this Plan requires has been challenging. Council also subscribes to 'Planet Footprint' who provides up to date information on Council's Energy and Water Consumption.

Account Number	Name	No. Days	Total KL Consumption for Year (2005)	KL Consumption per day for year
4644859	Oasis Aquatic Centre	355	41200	116.056338
4645921	Richmond Swimming Pool	376	16069	42.73670213
5121969	Deerubbin Centre	281	5399	19.21352313
4644011	Car Park	383	3596	9.389033943
4453089	Wilberforce Shops	375	3206	8.549333333
4745373	South Windsor STP	364	2977	8.178571429
4649211	Rented Property - Pizza Hut	378	1955	5.171957672
4646969	Old Lib & Admin Office	378	1891	5.002645503
4654114	Richmond Tennis Centre	376	1851	4.92287234
4463027	Standpipe Kurrajong	377	1757	4.660477454
4650440	Animal Shelter	404	1758	4.351485149
4654028	Richmond Park	279	1182	4.23655914
4653422	Woodhills Car park	383	1561	4.075718016
4834465	Australiana Village	367	1345	3.664850136
4654420	Standpipe Pitt Town	373	1134	3.040214477
4676899	Hawkesbury City Waste Management Facility	364	1070	2.93956044
4649190	Rented Property - KFC	378	1105	2.923280423
4646677	Mcquade Park	378	957	2.531746032
4652907	Amenities Block	378	954	2.523809524
4646278	Property sold	277	645	2.328519856
4647417	Public Toilets	380	877	2.307894737
4455030	McMahons Park	377	832	2.206896552
4453090	Wilberforce Shops	375	781	2.082666667
4458593	Macquarie Park	367	703	1.915531335
4773439	Governor Philip Park	378	708	1.873015873
4648482	Day Care Centre	298	517	1.734899329
4647029	Loder House	378	637	1.685185185
4643856	Sewer Pumping Station	364	587	1.612637363
4796333	Rented Property	378	579	1.531746032
4653430	Park - Recreation	383	556	1.451697128
4644933	Preschool	379	545	1.437994723
4645876	Need Meter Number	379	545	1.437994723
4463028	Standpipe	368	524	1.423913043
4456453	Preschool	367	508	1.384196185
4454869	Old Memorial Park	377	476	1.262599469
4648483	Rented Property	199	245	1.231155779
4636166	Rented Property	372	439	1.180107527
4643390	Child Care Centre	379	438	1.155672823
5128836	Child Care Centre	365	406	1.112328767
4806314	Function Centre Windsor	378	420	1.111111111
4649494	Richmond Preschool	382	404	1.057591623
4636164	Rented Property	372	391	1.051075269

Account Number	Name	No. Days	Total KL Consumption for Year (2005)	KL Consumption per day for year
4629123	Rented Property	282	292	1.035460993
4651204	McGraths Hill Shops	379	390	1.029023747
4449027	Hawkesbury Valley Pony Club	365	369	1.010958904
4646968	Reverend Turner Cottage	378	368	0.973544974
4796334	Rented Property	378	362	0.957671958
4453237	Freemans Reach Tennis Courts	372	333	0.89516129
4650785	Vines Pony Club	373	306	0.820375335
4653457	Library	383	281	0.733681462
4653771	Rented Property - Black Stump	364	264	0.725274725
4653927	Bowman Cottage	383	263	0.686684073
4653352	Par - Recreation	376	251	0.667553191
4653007	Regional Museum	378	247	0.653439153
4653428	Neighbourhood Centre	383	243	0.634464752
4647057	Paine Park	378	225	0.595238095
4935495	Standpipe	367	205	0.558583106
4823169	Bush Fire Centre	375	202	0.538666667
4646988	Rented Property	280	150	0.535714286
4650517	Oakville Park	373	196	0.525469169
4646672	Governor Phillip Park	378	188	0.497354497
4454856	Park - Recreation	377	183	0.485411141
4644050	Women's Cottage	383	178	0.464751958
471149	Neighbourhood Centre	383	176	0.459530026
4796338	Rented Property	282	127	0.45035461
4654419	Standpipe	373	164	0.439678284
5128829	Community Centre	365	148	0.405479452
4796335	Rented Property	378	153	0.404761905
4653919	Pugh's Lagoon	376	143	0.380319149
4759681	Neighbourhood Centre	287	101	0.351916376
4737012	Property sold	378	131	0.346560847
4644449	McLeod Park	379	123	0.324538259
4766457	Senior Citizens Centre	382	123	0.321989529
4806888	Preschool	286	87	0.304195804
4652979	Garden	378	112	0.296296296
4649227	Cemetery	378	108	0.285714286
4453283	SES Building	367	80	0.217983651
4644014	Women's Cottage	383	77	0.201044386
4636163	Rented Property	372	67	0.180107527
4629198	Rented Property	372	57	0.153225806
5128830	Shopping Centre	372	55	0.147849462
4643931	Old Bush Fire Shed	373	54	0.144772118
4457540	Terrace Park	378	48	0.126984127
4650411	Park - Recreation	190	12	0.063157895
4636165	Rented Property	362	22	0.060773481
4646277	Property sold	378	17	0.044973545



Account Number	Name	No. Days	Total KL Consumption for Year (2005)	KL Consumption per day for year
4646678	Baby Health Centre	378	16	0.042328042
4653458	Rented Property	383	14	0.036553525
4645801	Cemetery	202	3	0.014851484
4653616	Park Recreation	282	3	0.010638298
4647058	Cemetery	192	2	0.010416667
4453293	Bush Fire Shed	356	2	0.005617978
4646594	Need Meter Number	361	1	0.002770083
4458592	Rented Property	361	0	0
4647448	Sewer Pumping Station	361	0	0
4647664	Sewer Pumping Station	361	0	0
4648399	Holland Paddock Reserve	179	0	0
4651752	Council Land - Vacant	361	0	0
4651753	Council Land - Vacant	361	0	0

### Explanatory Notes

The following explanatory notes are provided regarding the selection of properties in the top ten sites.

1. Bosworth Street Car Park, (account number 4644011) is ranked fourth highest water user overall. It was not included in this Study as water is provided to a toilet block within a Shopping Centre and Council is currently engaged in proceedings regarding the supply of water to this site.
2. Rented property, Pizza Hut (4649211) is the seventh highest water user, however was not included as Council has no control over the water usage at this property. It is currently rented as commercial space and the tenants pay for their own water usage.
3. The Standpipe located at Kurrajong (4463027) is listed tenth. Again Council has no control over the usage of the water at this standpipe and it is currently included in the Sydney Water metered billing system.
4. Woodhill's Car Park (4653422) contains a toilet block. A walk-through audit was conducted which revealed very efficient water usage. The visual audit revealed that the toilet block is well used however the number of patrons could not be obtained. This would make the development of the Business Activity Indicator (BAI) redundant. Therefore after discussions with Water Specialists from the Department of Environment and Climate Change (DECC) it has not been included in the top ten. Therefore, Australiana Village is included in the top ten.

Identified ten (10) highest water uses.- (Refer to explanatory notes)

No	Account Number	Name	Total Consumption - KL (2006-2007)	Business Activity Indicator (BAI) Over one year	KPI Water consumption per BAI per day	KPI Water consumption - Sydney Water Benchmarks
1	4644859	Oasis Aquatic Centre	29,258	<ul style="list-style-type: none"> <li>Patronage – <b>1,112,175 patrons</b></li> <li>Operating hours – <b>4940 hrs</b></li> <li>Pool volume – <b>2365 m<sup>3</sup></b></li> </ul>	26.3 l/patron/day 5923 l/operating hour 33.89 l/ m <sup>3</sup> /day	60 l/patron/day
2	4645921	Richmond Swimming Pool	20,636	<ul style="list-style-type: none"> <li>Patronage – <b>38,792 patrons</b></li> <li>Pool volume – <b>1082 m<sup>3</sup></b></li> </ul>	532 L/patron/day 52 l/ m <sup>3</sup> /day	40 l/patron/day
3	5121969	Deerubbin Centre	9675	<ul style="list-style-type: none"> <li>Patronage – <b>117,624 patrons</b></li> <li>Floor area – <b>6975 m<sup>2</sup></b></li> </ul>	82.25 L/patron/day 3.8 l/ m <sup>2</sup> /day	40 l/patron/day
4	4646969; 4806314; 4646968	Administration Precinct	7531	<ul style="list-style-type: none"> <li>Building floor area – <b>4461 m<sup>2</sup></b></li> </ul>	4.63 l/ m <sup>2</sup> /day	75 l/ m <sup>2</sup> /day
5	4646677	McQuade Park	5274	<ul style="list-style-type: none"> <li>Site area – <b>83,200 m<sup>2</sup></b></li> </ul>	0.063 KL/m <sup>2</sup> /annum	0.4 KL/m <sup>2</sup> /annum
6	4745373	South Windsor Sewerage Treatment Plant	4760	<ul style="list-style-type: none"> <li>Volume of sewerage processed – <b>1465 ML</b></li> </ul>	3249 L/ML of sewerage processed/day	Cons (kL)
7	4453089	Wilberforce Shops	3376	<ul style="list-style-type: none"> <li>Site area – <b>1344 m<sup>2</sup></b></li> </ul>	6.88 l/ m <sup>2</sup> /day	Not available
8	4650440	Animal Shelter	2472	<ul style="list-style-type: none"> <li>Site area (m<sup>2</sup>) – <b>732 m<sup>2</sup></b></li> </ul>	9.25 l/ m <sup>2</sup> /day	Not available
9	4654114	Richmond Tennis Centre	2127	<ul style="list-style-type: none"> <li>Site area – <b>2.35 ha</b></li> </ul>	2480 l/ ha/day	KL/ha/day
10	4834465	Australiana Village Park	1436	<ul style="list-style-type: none"> <li>Site area – <b>11 ha</b></li> </ul>	358 l/ ha/day	Not available

## Section B - Management Review Outcomes



## WATER MANAGEMENT REVIEW

A Water Management Review seeks to ensure that water efficiency is incorporated into existing management practices of an organisation, and accountabilities are identified for priority actions.

The review is a structured assessment of the systems the organisation has in place for managing water. This means that all levels of business management - financial, production, maintenance, OH&S and operation - will need to be included in the review. The ISO 1400 type management system audit is an example of this approach.

### Management Team

Dianne Tierney	Denior Strategic Environmental Planner
John Munns	Manager - Building Services
Ramiz Younan	Manager - Waste Management
Sean Perry	Manager - Parks and Recreation
Andrew Wales	Formerly from Omega Environmental Services Pty Ltd
Robert Stalley	Chief Financial Officer

### Management Review Matrix

The Matrix below shows the current performance, strengths and weaknesses in each area. It provides an indicative ranking system for how the organisation meets each of the Management review areas. The descriptor for the Moderate ranking means informal management practices are in place. Minimum Sustainable means that there is executive level management policy for improving water efficiency or reducing water costs that includes targets. Water efficiency opportunities are based on a comprehensive review of water use. This policy is reported on the organisation's website in Annual Reports and communicated to all employees. Sub targets are established for major facilities, and regularly updated. Industry Leader relates to the compliance within allowable limits.

The table below indicates current performances identified.

		Low	Moderate	Minimum Sustainable	Industry Leader	Best Practice
A	Senior Management Commitment		X			
B	Understanding of water savings potential		X			
C	Water targets and key performance indicators			X		
D	Water metering and monitoring			X		
E	Water management reporting		X			
F	Water supply management		X			
G	Operating and maintenance procedures		X			
H	Accountabilities for water management		X			
I	Training and awareness procedures		X			
J	Compliance with legal and/or regulatory requirements			X		



## Section C - Management Actions





## MANAGEMENT COMMITMENT

1. Develop and implement an Operational Management Standard that effectively incorporates water and infrastructure management issues to prioritise the strategic direction for the allocation of required resources.
  - (a) Develop draft "Resource Allocation Priority System" (RAPS)
  - (b) Disseminate draft Standard for review
  - (c) Finalise Standard
  - (d) Develop a procedure that sets out how the Standard is to be communicated, reviewed and managed

### Notes:

- Ensure the Standard is specific to Council's operations, including reference to organisational-specific water and infrastructure issues, and to a framework for setting and reviewing performance improvement objectives and targets.
- When developing the Standard, ensure it is simple to read. Keep the document clear and concise to the lay person.
- Involve key staff from all operational areas in its development to ensure it is relevant and can be easily understood by all personnel.
- At a minimum, the Standard should become the primary document that drives the water and infrastructure programs.
- Ensure the associate procedure for managing the Standard includes a process for the regular review to ensure it remains current and consistent with significant issues and organisational objectives. The most effective way to ensure this review is carried out is to document a specific review process whereby an assigned committee meets regularly (e.g. annually) to review and adjust specific environmental management system components.

### Responsible Directorate and Time frame:

Participant inclusion as directed by Management Executive Team (MANEX)

Priority system to be commenced and substantially completed within 2010

2. Examine the internal resources being applied to develop the "Resource Allocation Priority System" and processes, and set resources effectively to ensure the frameworks and processes can be implemented effectively.
  - (a) Ensure staff workloads are adjusted to allow for development and implementation of process.
  - (b) Ensure the operating budget includes provision for the development and implementation of frameworks and processes, including the utilisation of external assistance where necessary.

Responsible Directorate and Time frame:

City Planning Strategic Planning

To be completed by 2010

3. Ensure managers are fully aware of the importance of a strategic approach to water management within Council.
  - (a) Deliver an ongoing briefing to management to educate them on water management issues and the management frameworks and processes being developed to manage and improve water performance within the organisation.
  - (b) Include water issues discussion as a set agenda item at all management and staff meetings.

Responsible Directorate and Time frame:

Monthly briefing reports to provided by City Planning.

2009

## UNDERSTANDING OF WATER SAVINGS POTENTIAL

4. Develop and implement an overall process for regularly reviewing Council's water performance in accordance with legislative requirements. The review is to identify areas where further improvement actions should be implemented.
  - (a) Develop process
  - (b) Implement process
  - (c) Document the process for undertaking this assessment in a procedure.

Notes:

- The most effective way to ensure this review is carried out is to implement a specific review process whereby an assigned group meets annually to review the water performance of Council, and suggests actions and programs to feed into the forthcoming year's operating plans and budgets.
- Ensure the process for identifying water improvement opportunities provides for linking to existing risk identification and management processes.

Responsible Directorate and Time frame:

Infrastructure Services

Process to commence by 2009

## COMPLIANCE WITH LEGAL AND OTHER REGULATORY REQUIREMENTS

5. Develop a central register of all environmental legal and other requirements including relevant legislation, codes of practice, community agreements, licenses and permits related to water management.
  - (a) Develop process

- (b) Implement process
- (c) Document this process in a procedure.
- (d) Compliance with applicable water related laws and license/permits.

Responsible Directorate and Time frame:

Infrastructure Services  
To be completed 2010

## TRAINING AND AWARENESS PROCEDURES

- 6. Develop and implement a process for a consistent and effective method of communicating significant and relevant water management issues, and applicable regulatory requirements to key personnel.

Train operation and maintenance teams to optimise water performance in water intensive areas.

Notes: Consider the following when developing the strategy:

- i. Using existing communication and complement these with innovative communication such as posters and multimedia presentations.
- ii. Apply innovation and new technology to help communicate key water issues, such as:
  - Notice boards
  - Posters and signs
  - 'Water Week' programs
  - Competitions
- iii. As a key first step to improving communication, develop and actively promote a key issue via presentations at team meetings, memos, posters and other promotional items.
- iv. Include dedicated sections in internal newsletters, reports and memos for reporting of water discussion items, hints and tips, performance results and other information environmental issues.

Responsible Directorate and Time frame:

Participant inclusion as directed by City Planning and Corporate Communications as approved by Management Executive Team (MANEX)

Training and awareness procedures to be initiated by 2010

## ENERGY AND WATER TARGETS AND KEY PERFORMANCE INDICATORS

- 7. Develop broad and long term water improvement objectives to provide strategic direction to the organisation's water programs.

Notes:

- Ensure these are developed with employee input, and are reviewed and adjusted on a regular basis in line with the review of Council's Strategic Documents so they remain relevant.

Include development of annual quantifiable water targets as part of the corporate planning process.

Notes:

- The targets should be set at an organisation-wide level by a management team, and then guidance provided to individual business units to set department-specific targets as they see fit.

Responsible Directorate and Time frame:

Improvement initiatives to be provided through the support of the internal Energy and Water Steering Team

These recommendations are to be reported to MANEX in the form of minutes

Internal Energy and Water Steering Team to reconvene in 2008/2009

## OTHER MANAGEMENT PLANS

8. Implement a simple and streamlined process to ensure management and staff consider the current water issues and associated indicators, objectives and targets, when developing the management and operating plans and budgets, to ensure these plans include strategic programs to address these issues and meet these objectives.

Notes:

- Improve the process for development of annual strategies, plans and budgets to become a more logical and rigorous process in regards to water management, whereby the previous year's water performance is analysed, current significant water issues are identified, and new objectives, targets and strategies are set. Ensure there is a logical and seamless flow of data, information and feedback between various Council Committees and management levels during this review process.
- To assist in achieving this, develop guidance notes and tools as appropriate to help prompt management to incorporate water issues and act strategically with regards to environmental outcomes during the corporate planning process.
- Document this entire process in a formal procedure.

Responsible Directorate and Time frame:

Updated monthly information to be provided by City Planning to the Management Executive Team (MANEX)

Review of information to be completed by 2010

## ACCOUNTABILITIES FOR ENERGY AND WATER MANAGEMENT

9. Select appropriate people from each division to represent that Division or Branch on the Internal Energy and Water Steering Team.

Identify a staff member to act as the organisation's Water Performance Coordinator, to oversee the implementation and maintenance of water management frameworks and processes.

Develop terms of reference for this group, and provide tools to help the team perform its role effectively (such as checklists, pre-set meeting agendas etc).

Notes:

- If possible, assign the role of coordinator to the Manager Corporate Services & Governance. Ensure the Coordinator takes on a coordinating role only, where he/she is responsible for supporting the managers and other staff to achieve the organisation's water performance targets. Clarify the role of the Coordinator to staff.

Assign responsibility for water management in individual property and asset contracts.

- a. Carry out a project to correlate all water accounts against specific assets.
- b. Establish documented processes for managers to track water performance of their areas of influence, for contributing to the development of actions to improve performance, for implementing these actions, and for reporting outcomes back to senior management.
- c. Develop processes for ensuring the organisation's staff liaise regularly with other managers responsible for water management in their area to provide strategic and technical support when required.

Responsible Directorate and Time frame:

Infrastructure Services and Support Services

Accountabilities to be investigated and substantially completed by 2010.

## WATER MANAGEMENT REPORTING

10. Request managers and supervisors to encourage staff to provide feedback on water issues during team meetings, and to pass on important environmental information to staff as required.

Generate quarterly reports depicting overall water use per unit of activity (eg kL per person) and examine results where they show large cost or usage variance from target.

- (a) Agree on a logical and systematic process for reporting environmental performance to staff, management, Council, stakeholders and the community.
- (b) Identify the key information each target audience needs to receive, and the format it should receive it in, and develop report templates accordingly.
- (c) Consider developing environmental 'report cards' that integrate with core business reporting processes.
- (d) Document the process in a procedure simply communicated to all staff.
- (e) Ensure reports provide feedback on water program outcomes as well as water performance.

Responsible Directorate and Time frame:  
City Planning  
Reporting system to be commenced in 2009

### OTHER COMMUNICATION

11. Develop procedures for dealing with internal requests for water information, and train all staff (especially customer service staff) on these procedures. Document the process for internal and external water related communication into a formal procedure and communicate to key personnel.

Responsible Directorate and Time frame:  
City Planning  
Training to be completed by 2009

### OTHER- DOCUMENTATION

12. Develop management system procedures to describe each aspect of the water management processes.
  - (a) Compile these into a Water Coordinator's Guidebook describing the core elements of the management system and how they interact with other management system elements. Keep this Guidebook simple and user-friendly.

Responsible Directorate and Time frame:  
Support Services- Information Services  
2008

### OPERATION AND MAINTENANCE PROCEDURES

13. Develop a protocol to initiate prompt corrective action whenever personnel become aware of water waste.

Responsible Directorate and Time frame:  
Protocols to be included within the Strategy City Planning Strategic Branch  
To be completed by 2010

### SUPPLY MANAGEMENT

14. Develop and implement an organisation-wide purchasing and procurement procedure that incorporates consideration of water issues at all stages.

Routinely review water prices to determine if better rates can be attained.

Responsible Directorate and Time frame:  
Infrastrure Services- Building Services, Support Services- Finance.  
2009

### METERING AND MONITORING

15. Develop, implement and document a process for management review of all water bills prior to payment. Ensure managers are appropriately trained to carry out these reviews effectively, and are equipped with appropriate checklists or guidance notes.

Responsible Directorate and Time frame:

Infrastructure Services  
To be completed by 2009

## OTHER- CORRECTIVE AND PREVENTATIVE ACTION AND SUGGESTIONS

16. Adjust existing identification processes and forms to include environmental incident and non-conformance identification, including the reporting of water 'issues'.
  - (a) Implement an incentive or rewards scheme to encourage staff to make suggestions and report incidents.

Responsible Directorate and Time frame:

Participant inclusion as directed by the Management Executive (MANEX).  
2009

## OTHER- AUDITS

17. Develop, implement and document a process for the regular auditing of operations against controls and procedures developed to improve water performance.
  - (a) Develop, implement and document a process for the regular inspection of properties for water problems, and opportunities for improvement. Base these inspections on a set of standardised checklists (such as checking for leaking taps etc). Train a group of designated staff to carry out these checks.

*Notes:*

Ensure inspection results are communicated to staff, and consider implementing a 'competition' or similar to encourage staff to improve performance and inspection results in their work area.

Responsible Directorate and Time frame:

Infrastructure Services- Building Services,  
Support Services- Corporate Services Governance  
To be completed by 2009





## Section D - Data Sheets

## Site Data Sheet - Oasis Aquatic Centre

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information and audit results relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G, and the Technical Review Report completed by the Department of Commerce in Section F.

## Site Data Sheet - Richmond Swimming Pool

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Average Per Day Consumption For 2006-2007 (Summer Only)

Performance Indicators

For detailed performance information and audit results relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G, and the Technical Review Report completed by the Department of Commerce in Section F.

Site Data Sheet - Deerubbin Centre Precinct

**Site Name** Deerubbin Centre Precinct (incorporating the Library and associated administration, Peppercorn Centre, Old Hospital Professional Rooms, Old Johnson Wing Professional Rooms and Chapters Café).

**Site Address** 320 George St, Windsor

**Activities** Offices, Library, Art Gallery, Café, Community rooms

**Summary of Water Consuming Infrastructure** Toilets and basins. Note: The site is broken up into several metered locations, all of which are charged to the one account. The metered areas are:

- Main Library and associated administration
- Irrigation of gardens
- Peppercorn Centre
- Professional Rooms (East) - Old Hospital
- Professional Rooms (West) - Old Hospital
- Rented Professional Rooms Old Johnson Wing
- Chapters Café

The precinct also operates a cogeneration plant.

**Consumption For 2006-2007 (Entire Precinct)** 9675 KL

**Average Per Day Consumption For 2006-2007** 26.51 KL (365 days)

**Performance Indicators** 82.25 L/patron/day  
3.8 l/ m<sup>2</sup>/day

For detailed performance information and audit results relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G, and the Technical Review Report completed by the Department of Commerce in Section F.

## Site Data Sheet - Bosworth St. Car Park

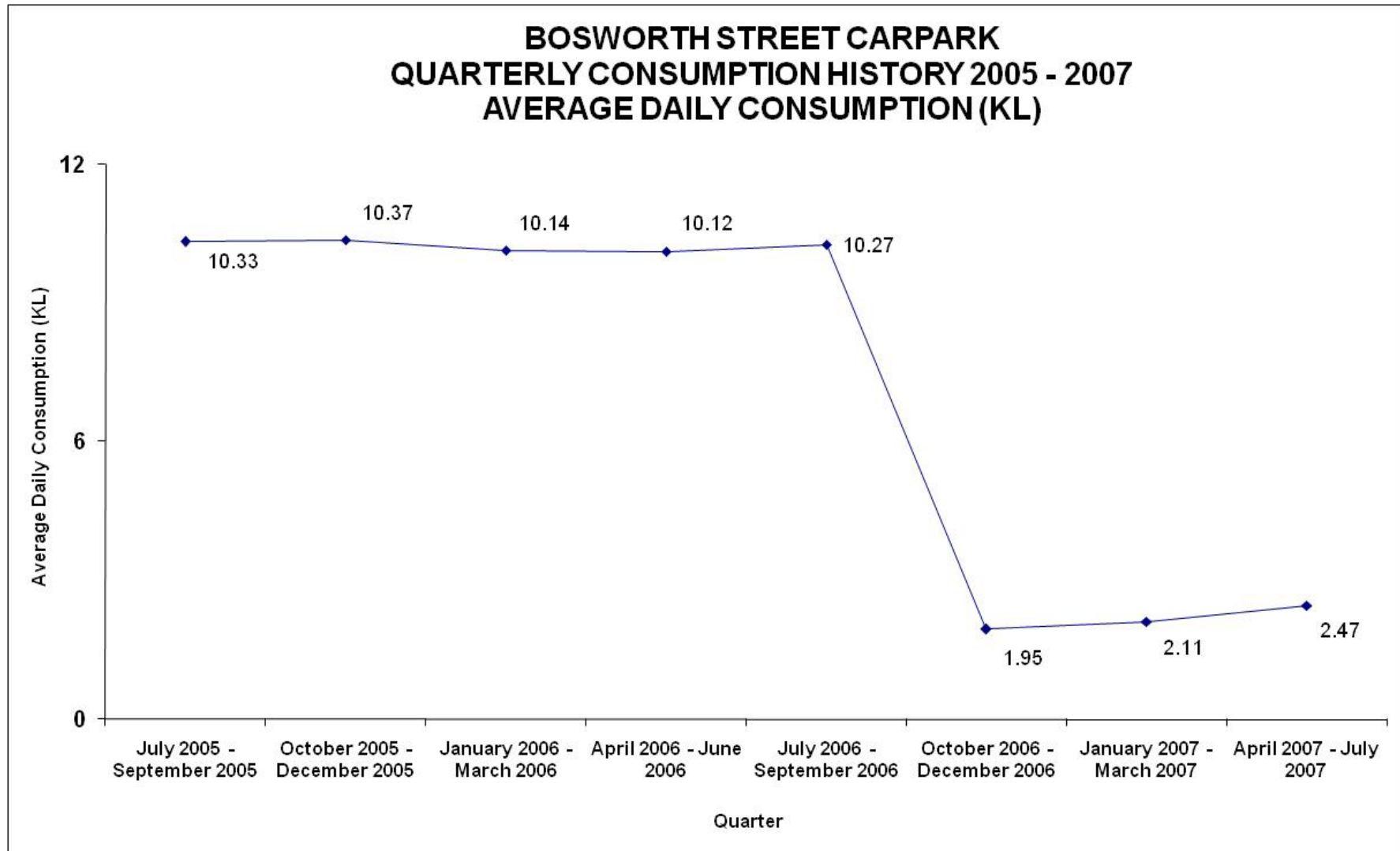
Site Name	Car Park - Bosworth Street
Site Address	Bosworth Street, Richmond
Activities	Shopping Centre
Summary of Water Consuming Infrastructure	Toilets in shopping centre
Annual Consumption For 2006-2007	1,545 KL
Average Per Day Consumption For 2006-2007	4.23 KL (365 days)

### Walk through Audit Notes:

- This location was originally a Council Park with a toilet bock located on it. In 1997, a local retailer built a shopping centre on the site, and an agreement was made between Council and the retailer for Council to supply and lay any necessary pipes to ensure continuity of the supply.

However, inspection of records in 2006 showed that Council has been erroneously paying for the ongoing water supply.

Legal action regarding the existing conditions of consent between the owner and Council has commenced to resolve this issue.



Site Data Sheet - Wilberforce Shops

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

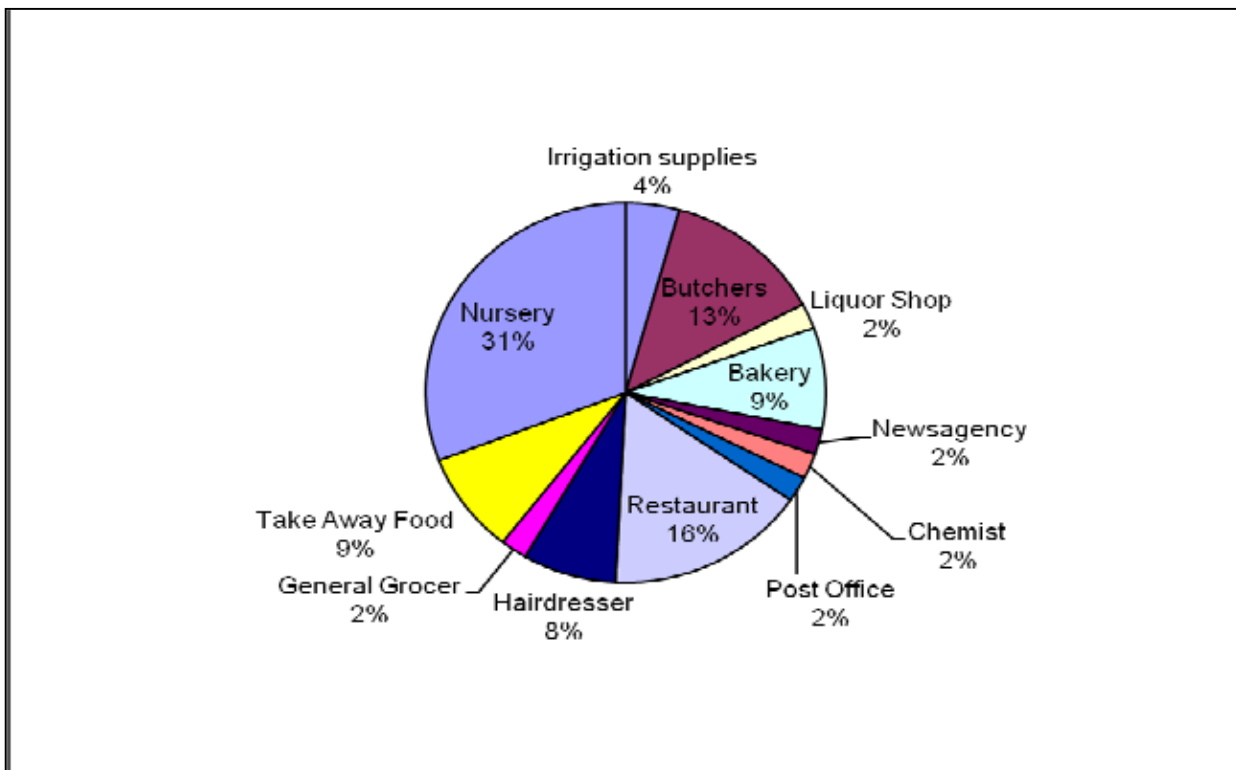
Walk-through audit notes

- Numerous shops. Limited ability to reduce consumption.

Estimated water consumption per day for individual Wilberforce shops use:

<b>WILBERFORCE SHOPS</b>	
<b>Shop</b>	<b>Associated consumption per day (litres)</b>
Irrigation supplies	400
Butchers	1200
Liquor Shop	200
Bakery	800
Newsagency	200
Chemist	200
Post Office	200
Restaurant	1500
Hairdresser	700
General Grocer	200
Take Away Food	800
Nursery	2850
<b>TOTAL</b>	<b>9250</b>

Water consumption of individual shops shown as percentage of total usage for site.





Site Data Sheet - South Windsor STP

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

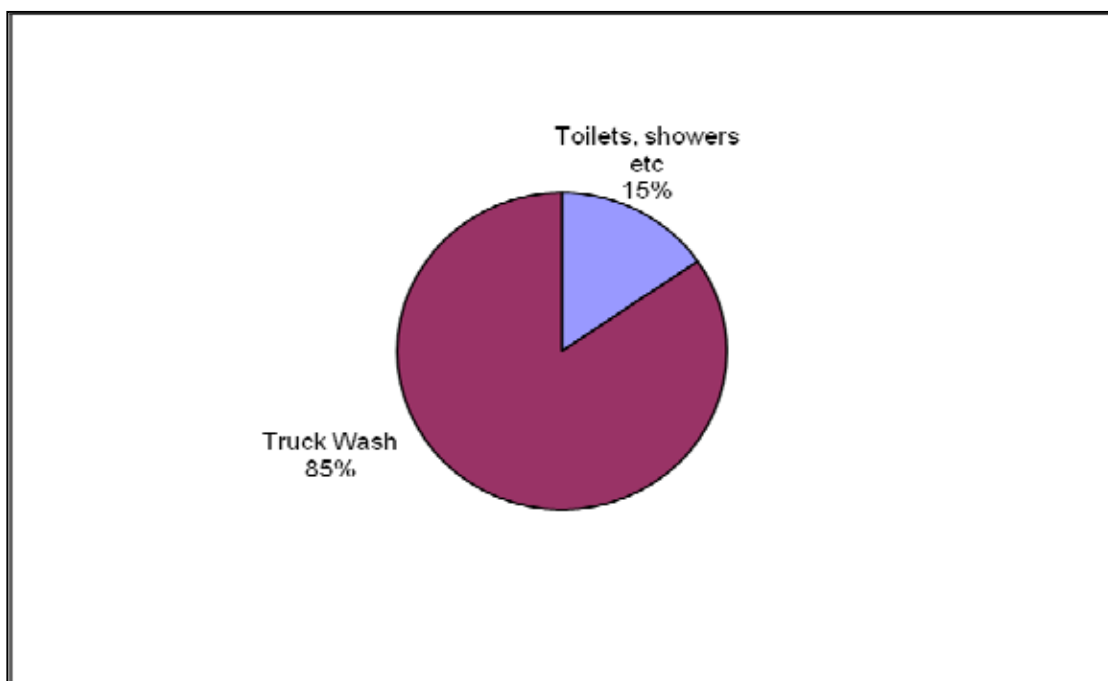
Walk-through audit notes

- Several showers, toilets and basins.
- Old inefficient washing machine.
- Potable water used in truck wash. Opportunity to use recycled effluent.

Estimated water consumption per day for various fixtures within the plant:

SOUTH WINDSOR STP		
Fixture / Infrastructure	Number and Usage	Associated consumption per day (litres)
11 litre single flush toilets	3 in place. Used 10 times per day each.	300
6 litre/minute taps over bathroom basins	1 in place. Used 12 times per day each, for 10 seconds each time.	15
12 litre/minute taps over bathroom basins	4 in place. Used 25 times per day each, for 10 seconds each time.	200
Uncensored urinals	1 in place. Used 25 times per day each.	175
Non AAA-rated showerheads	4 in place. Used 3 times per day each for 5 minutes each time.	1100
Washing machine	Used daily	150
Misc Taps, Sinks, Boilers, HWS etc		100
Truck Wash	Used daily	11000
<b>TOTAL</b>		<b>13,400</b>

Water consumption: Infrastructure shown as percentage of total usage for site.



Site Data Sheet - Administration Building and Professional Offices (Old Library)

Site Name

Council Administration Offices and Old Library Building (now being used as professional offices ('Dight Street Offices'))

Site Address

350 - 364 George Street, Windsor

Activities

Offices

Summary of Water Consuming Infrastructure

Toilets and basins. Note: The site is broken up into two buildings - the main Administration Building, and the Old Library, which is now being used as rented professional office space. Both buildings are metered separately, but charged to the same Sydney Water account.

Annual Consumption For 2006-2007

7531 KL

Average Per Day Consumption For 2006-2007

20.63 KL (365 days)

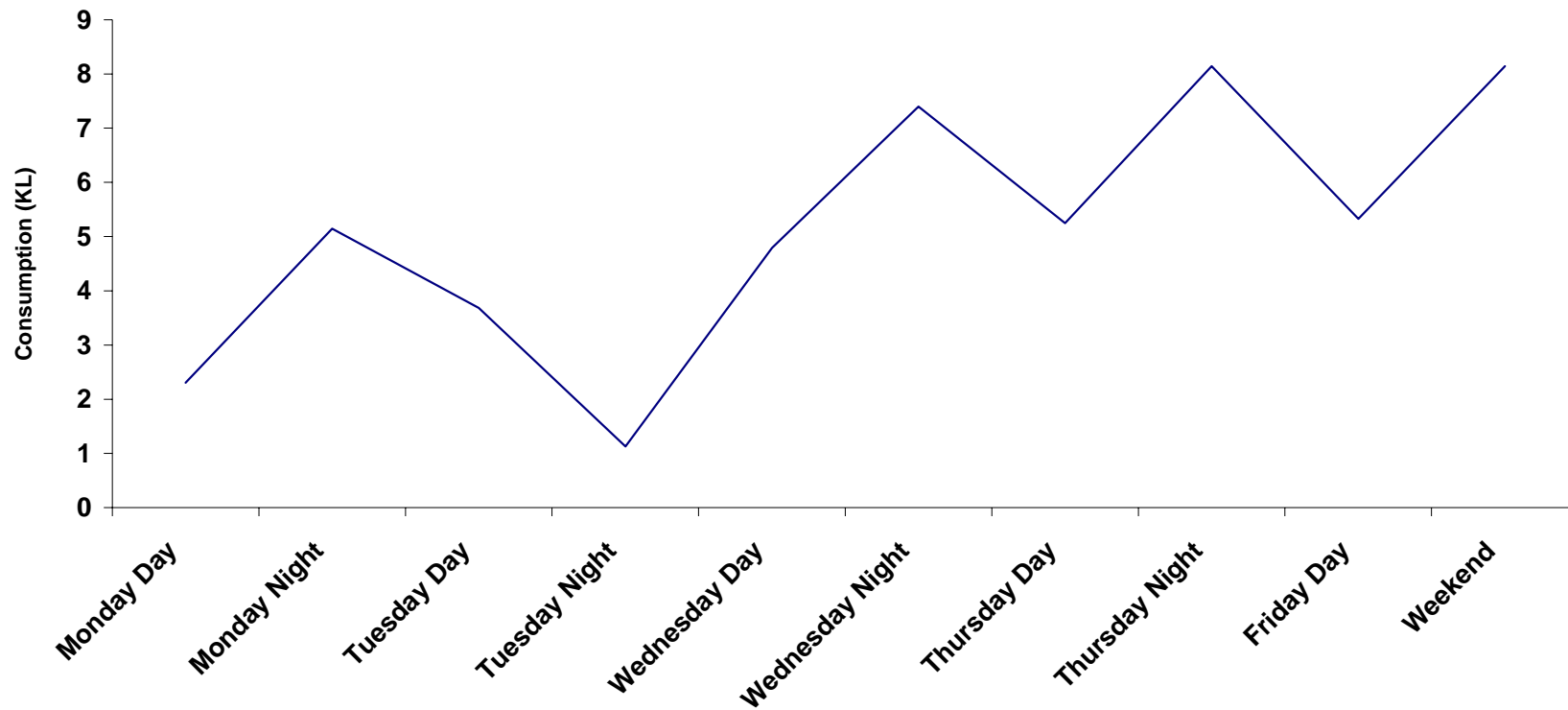
Performance Indicators

4.63 l/ m<sup>2</sup>/day

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

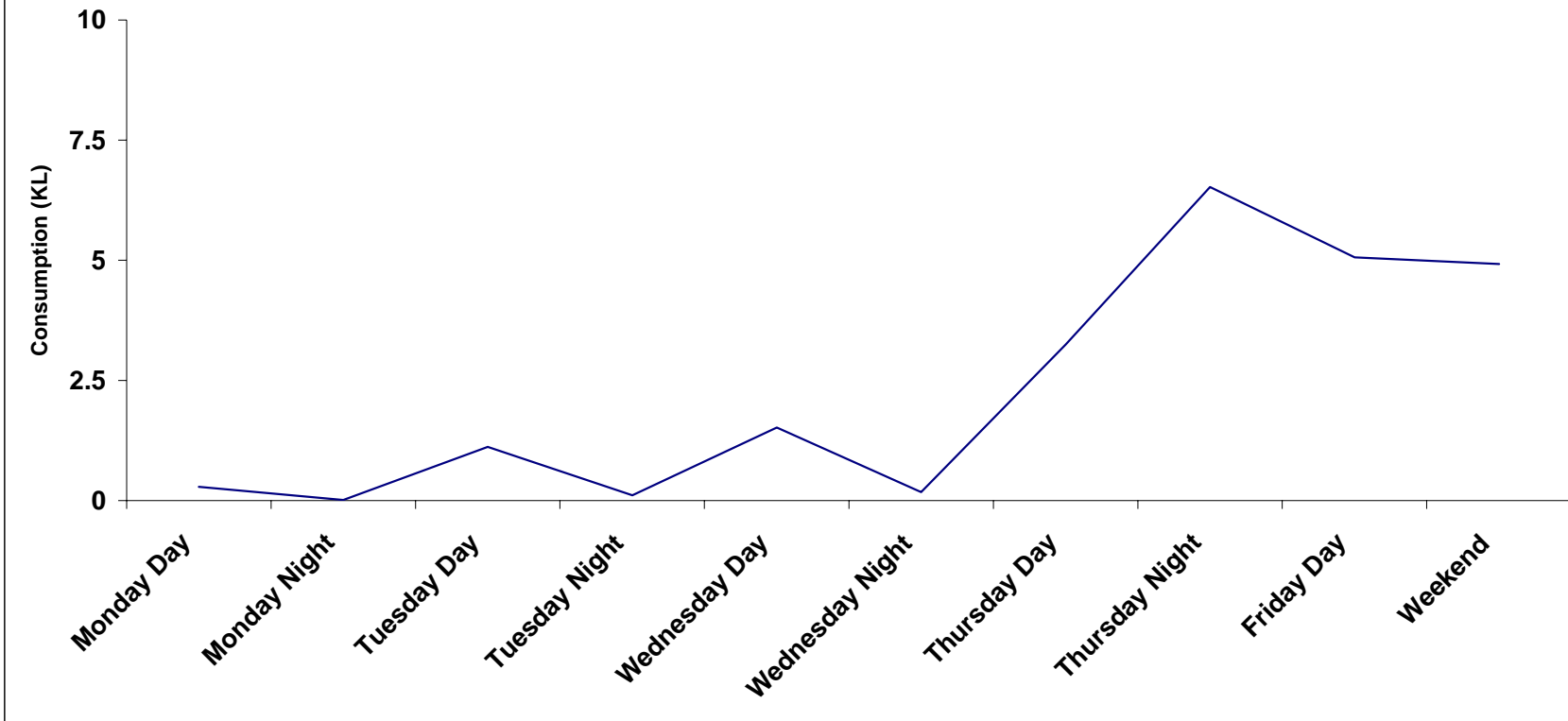
**ADMINISTRATION BUILDING & COUNCIL CHAMBERS (Meter No. DDOK0814)**  
**INDICATIVE DAY / NIGHT CONSUMPTION HISTORY**  
**(Readings taken during May 2006)**

Day period covers 9:00am - 4:00pm  
Night period covers 4:00pm - 9:00am



**DIGHT STREET PROFESSIONAL ROOMS (Meter No. BRJJ2437)**  
**INDICATIVE DAY / NIGHT CONSUMPTION HISTORY**  
**(Readings taken during May 2006)**

Day period covers 9:00am - 4:00pm  
Night period covers 4:00pm - 9:00am



Walk-through audit notes

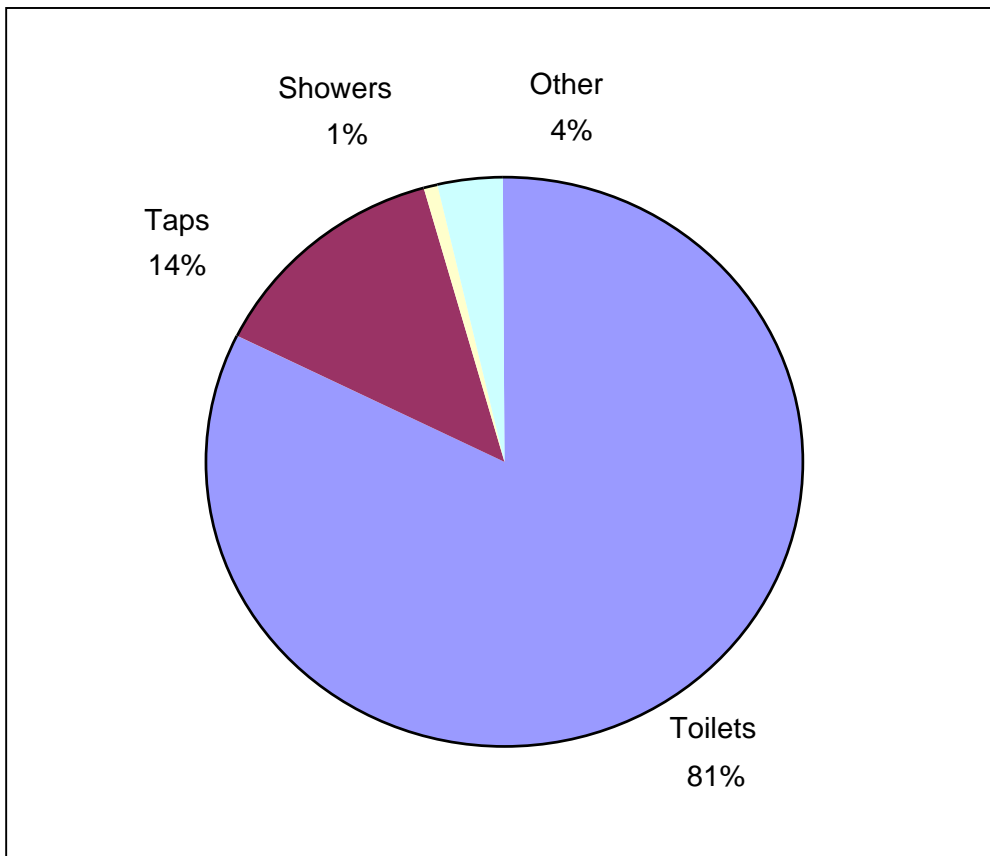
- Site contains only toilets, showers and basins.
- There is a mix of efficient and inefficient fixtures.
- No leaks evident from any fixtures.
- 110 staff work from the administration building. A further 10 work from the Dight Street Offices.

Water consumption per day for various fixtures within the Administration Building and Dight Street Professional Offices:

ADMINISTRATION BUILDING		
Fixture / Infrastructure	Number and Usage	Associated consumption per day (litres)
11 litre single flush toilets	10 in place. Used 60 times per day each.	9900
9 litre/4.5 litre toilets	9 in place. Used 40 times per day each.	3240
12 litre/minute taps over bathroom basins	15 in place. Used 75 times per day each, for 10 seconds each time.	2250
6 litre/minute taps over bathroom basins	6 in place. Used 75 times per day each, for 10 seconds each time.	490
Uncensored urinals	4 in place. Used 75 times per day each.	2100
Non AAA-rated showerheads	1 in place. Used once per week for 5 minutes each time.	20
Dishwashers	Used 5 times per week.	10
Misc Taps, Sinks, Boilers, HWS etc		1000
<b>TOTAL</b>		<b>19,000</b>

DIGHT STREET PROFESSIONAL OFFICES		
Fixture / Infrastructure	Usage	Associated consumption per day (litres)
11 litre single flush toilets	5 in place. Used 18 times per day each.	990
12 litre/minute taps over bathroom basins	6 in place. Used 21 times per day each, for 10 seconds each time.	250
Non AAA-rated showerheads	1 in place. Used once per week for 5 minutes each time.	20
Misc Taps, Sinks, Boilers, HWS etc		300
<b>TOTAL</b>		<b>1560</b>




Water consumption of Administration Building and Dight Street. Professional Offices fixtures shown as percentage of total usage for site.



## Water Using Fixtures Survey

Location	Fixture	Picture
<p>Council Administration Building 366 George Street Windsor</p>		
	<p>Kitchen Taps Zip Boil fitted with timers included in Misc</p>	
	<p>Toilets 11 litre single flush toilets 10 in total  9/4.5 litre toilets 10 in total</p>	
	<p>Bathroom basin  12 litre/minute taps over bathroom basins 15 in total  6litre/minute taps over bathroom basins 6 in total</p>	
	<p>Showers AAA rated shower 1 in total Non AA rated shower</p>	



<p>Council Administration Building 366 George Street Windsor Continued</p>	<p>Water Cooler</p>	
	<p>Urinals Uncensored urinals 4 in total</p>	
	<p>Dishwasher AAA Rated</p>	

Site Data Sheet - Richmond Tennis Centre

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

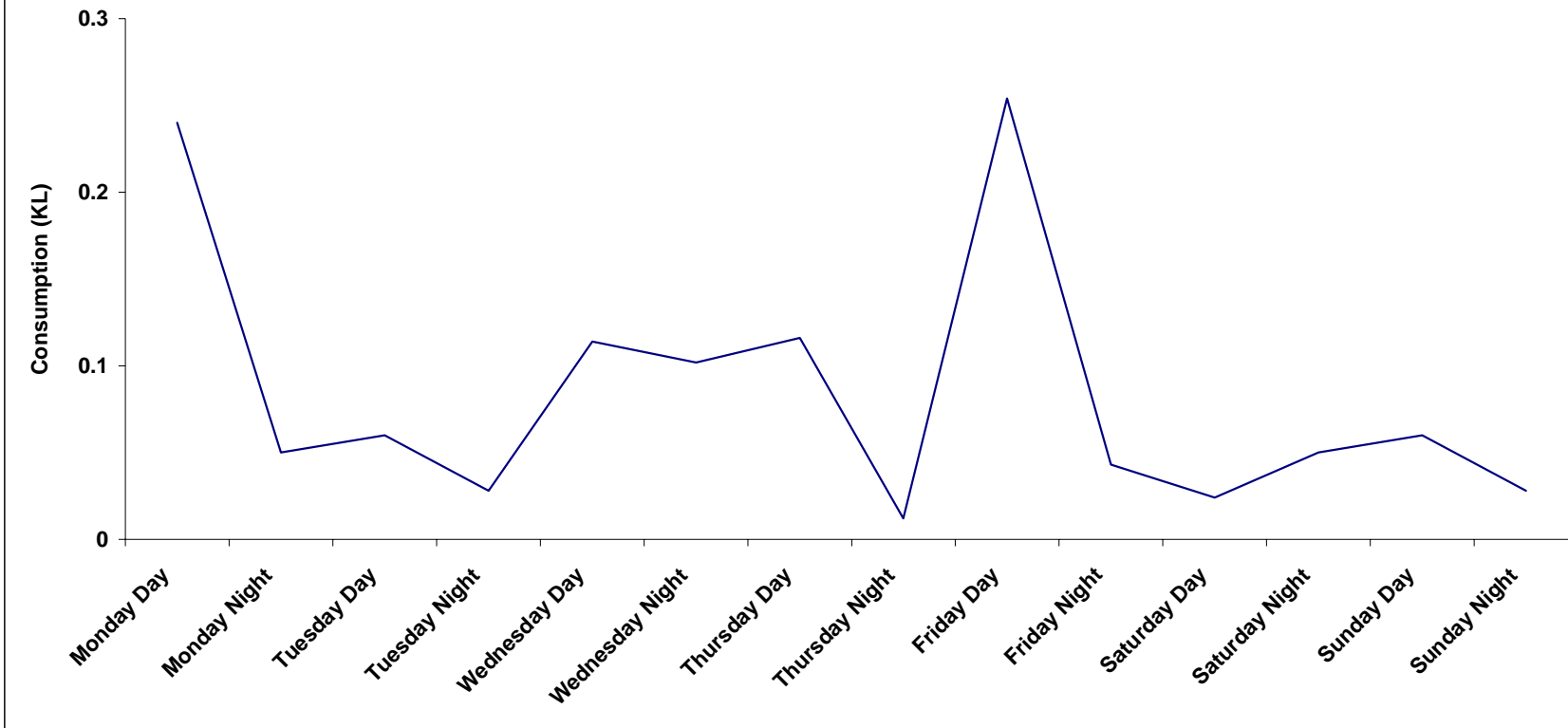
Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

**RICHMOND TENNIS CENTRE  
INDICATIVE DAY / NIGHT CONSUMPTION HISTORY  
(Readings taken during May 2006)**

Day period covers 9:00am - 4:00pm  
Night period covers 4:00pm - 9:00am



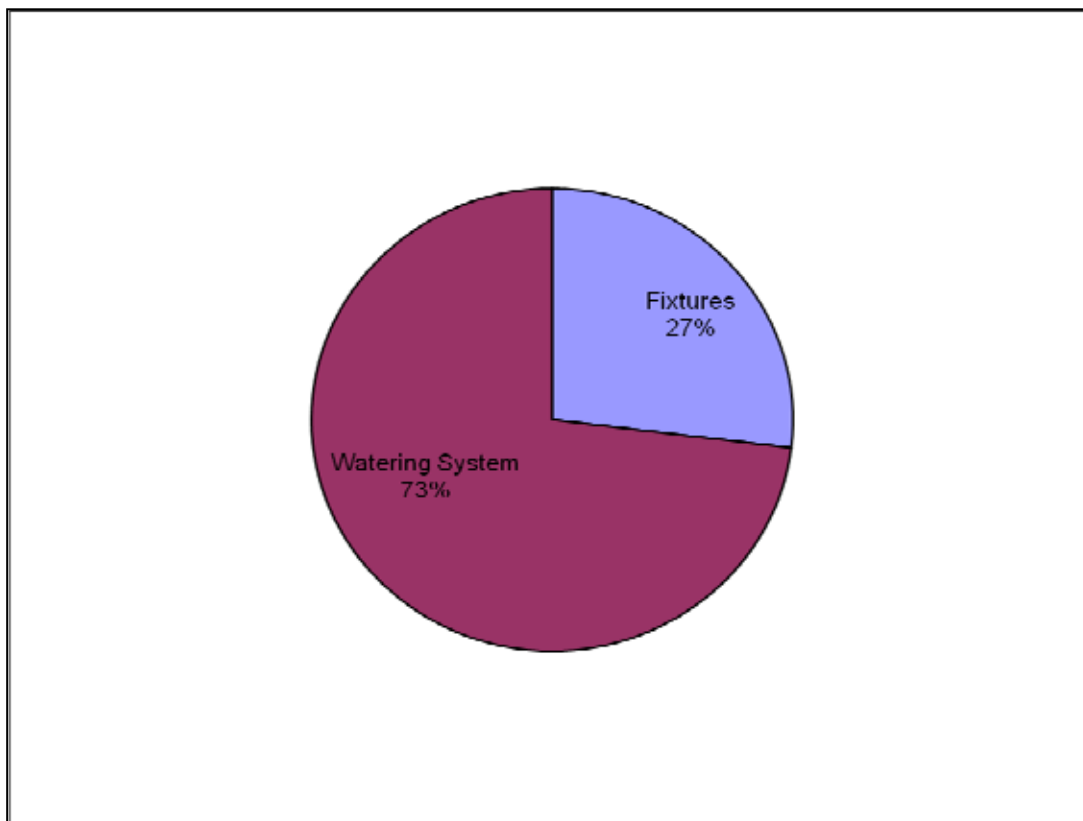
Walk through audit notes

- Entire complex old with all fixtures inefficient.
- Watering system inefficient.

Water consumption per day for various fixtures within Richmond Tennis Centre:

RICHMOND TENNIS CENTRE		
Fixture / Infrastructure	Usage	Associated consumption per day (litres)
11 litre single flush toilets	6 in place. Used 10 times per day each.	660
12 litre/minute taps over bathroom basins	4 in place. Used 15 times per day each, for 10 seconds each time.	120
Non AAA-rated showerheads	4 in place. Used 5 times per week each for 5 minutes each time.	290
Misc Taps, Sinks, Boilers, HWS etc		500
Sprinkler system		4260
<b>TOTAL</b>		<b>5830</b>

Water Consumption shown as percentage of total usage for site.



Site Data Sheet - Animal Shelter

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

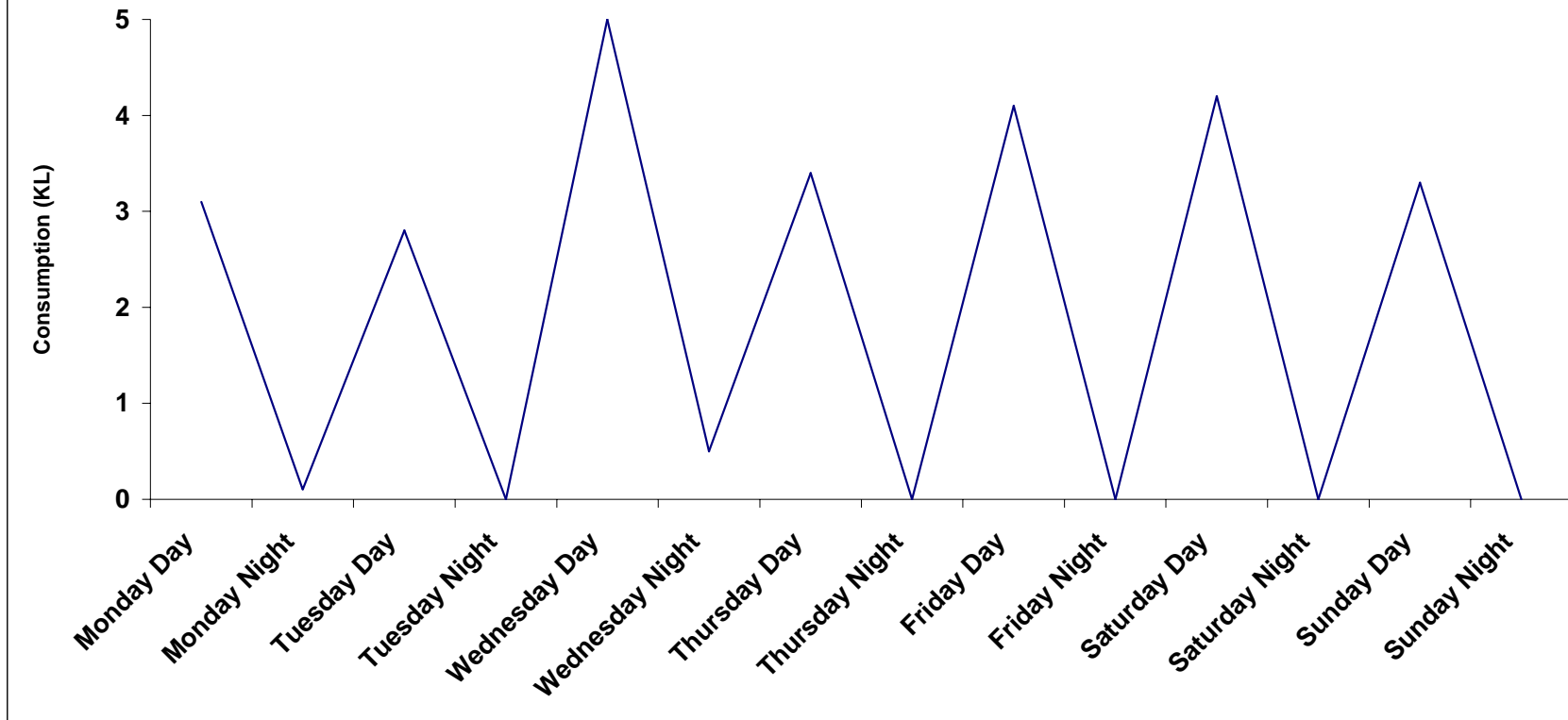
Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

**ANIMAL SHELTER  
INDICATIVE DAY / NIGHT CONSUMPTION HISTORY  
(Readings taken during May 2006)**

Day period covers 9:00am - 4:00pm  
Night period covers 4:00pm - 9:00am



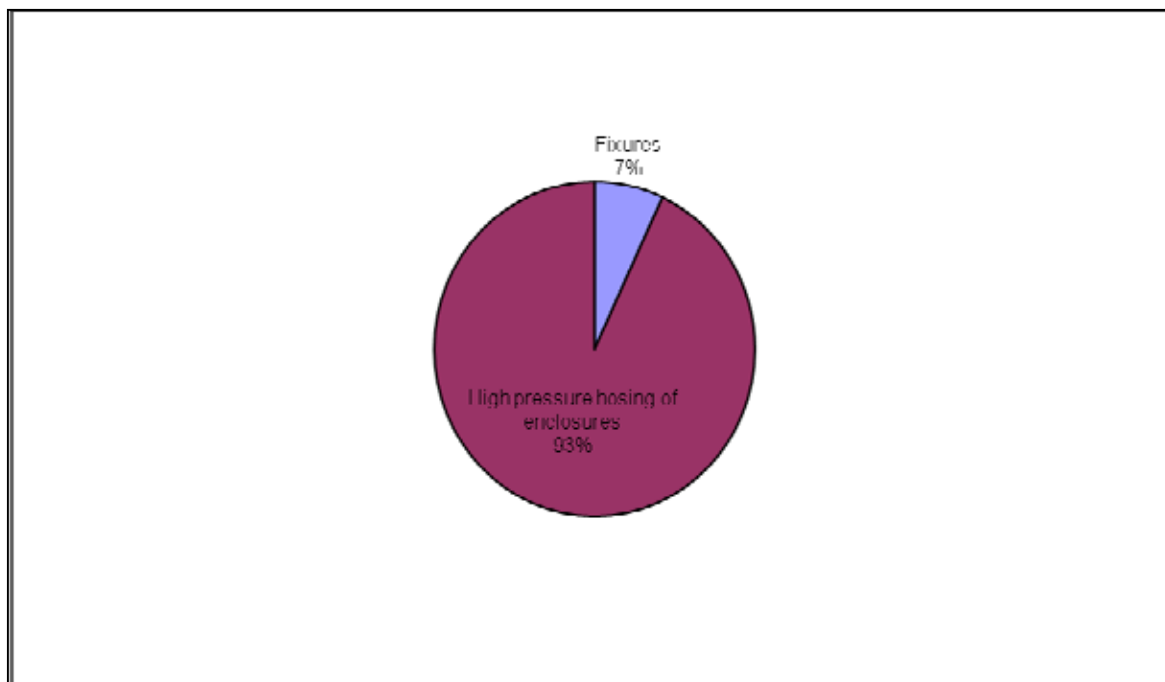
Walk-through audit notes

- Three full time staff based at Shelter.
- Few water consuming fixtures.
- Majority of consumption from use of high pressure fire hose to clean out enclosures once or twice per day.






Water consumption per day for various fixtures within the Animal Shelter:

ANIMAL SHELTER		
Fixture / Infrastructure	Usage	Associated consumption per day (litres)
6 litre/3 litre toilets	1 in place. Used 10 times per day each.	60
6 litre/minute taps over bathroom basins	1 in place. Used 12 times per day each, for 10 seconds each time.	12
Non AAA-rated showerheads	1 in place. Used three times per day for 5 minutes each time.	300
Misc Taps, Sinks, Boilers, HWS etc		100
Fire hose (for hosing out enclosures)	1 in place, used 2-3 times per day for 15 minutes each time	6300
<b>TOTAL</b>		<b>6772</b>






Water consumption shown as percentage of total usage for site.




## Water Using Fixtures Survey

Location	Fixture	Picture
<p>Animal Shelter Mulgrave Road Mulgrave</p>	<p>Used by a staff of 10 and houses dogs and cats for Hawkesbury, Penrith and Baulkham Hills for a number of days until claimed and/or rehoused.</p>	
	<p>Automatic Drinking Bowls. Usage included in fixtures</p>	
	<p>Total= one toilet. 6 litre/3 litre dual flush</p>	
	<p>Basin Flick mixer 6 litres/minute tap one in total over bathroom basins</p>	
	<p>Shower Non AAA rated showerhead- one in total</p>	



<p>Animal Shelter Mulgrave Road Mulgrave continued</p>	<p>Hot water system One in total 50 Litre instantaneous hot water unit</p>	
	<p>Dog wash hydrobath included in misc usage</p>	
	<p>25mm fire hosing to hose out kennel enclosures</p>	
	<p>Outdoor tap with extendable laundry arm and basin included in fixtures usage</p>	
	<p>Washing machine and 50L tub, used mainly to wash dog blankets. Usage included in fixtures</p>	

<p>Animal Shelter Mulgrave Road Mulgrave continued</p>	<p>Outside tank. Mains water flows into tank and a pump is used to obtain pressure to successfully hose out enclosures.</p>	
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Site Data Sheet - McQuade Park

Site Name

Site Address

Activities

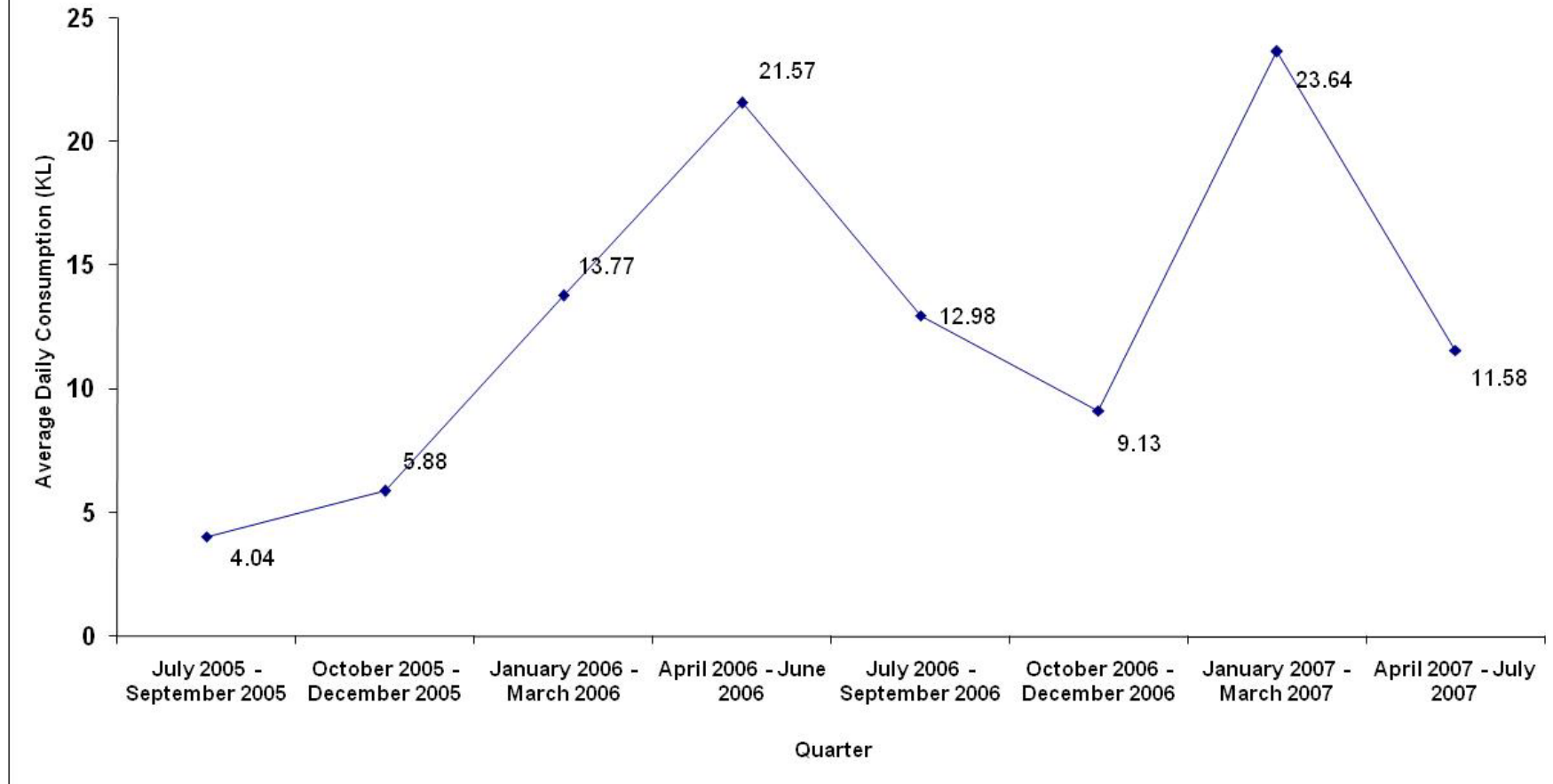
Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Performance Indicators

### MCQUADE PARK QUARTERLY CONSUMPTION HISTORY 2005 - 2007 AVERAGE DAILY CONSUMPTION (KL)



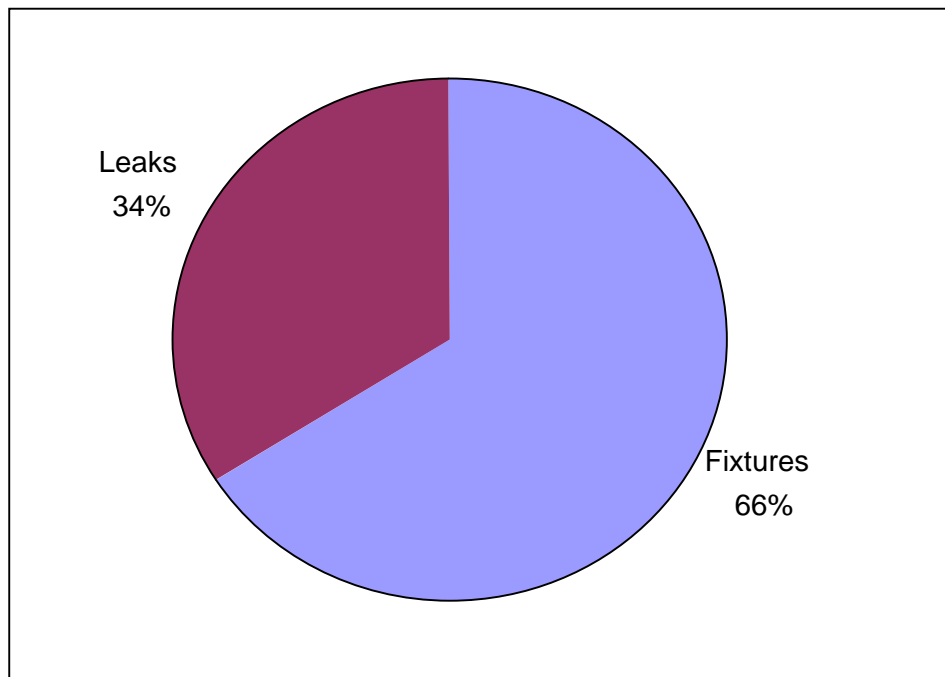
Walk-through audit notes

- Five staff. Use toilets three times per day each - 15 per day. Four toilets in place, therefore four uses each per day.
- Each person uses basin after using toilet. Plus one more additional time. Five staff, four uses per day = 20 uses. Eight basins, therefore two uses each per day.





Water consumption per day for various fixtures within McQuade Park:

MCQUADE PARK		
Fixture / Infrastructure	Usage	Associated consumption per day (litres)
11 litre single flush toilets	6 in place. Used 30 times per day each.	1980
12 litre/minute taps over bathroom basins	4 in place. Used 50 times per day each, for 10 seconds each time.	400
<b>TOTAL</b>		<b>2380</b>


Water Consumption for McQuade Park shown as percentages of total usage for site.



Water Using Fixtures Survey

Location	Fixture	Picture
<p>McQuade Park Grandstand</p>		
<p>Change Rooms</p>	<p>Showers Non AAA rated Showerheads 4 in total</p>	
	<p>Toilets 11 litre single flush cisterns 3 in total</p>	
	<p>Basin Flow reduced automatic shut off /minute taps 2 in total</p>	

<p>McQuade Park Grandstand continued</p>	<p>Hot Water Service Two 315L mains pressure tanks off peak system</p>	
<p>Public Toilets/ Kiosk</p>		
	<p>Kitchen tap over sink 12 litre hose cock. Zip Boil on demand</p>	
	<p>Disabled Toilets  Men's Toilets  Ladies Toilets 3 in total all fitted with 3/6 litre toilets, 3 basins fitted with one minute taps</p>	
<p>Memorial Park Toilet Block</p>		
	<p>Ladies Toilet  3 toilets in total all fitted with 11 litre single flush</p>	

<p>McQuade Park Grandstand contined</p>	<p>Mens Toilet Urinal -pull chain Fitted with 11 litre pull chain flush</p>	
	<p>Basins Two in total both fitted with single pillar cock 12 litre turn handle type fittings</p>	
<p>Memorial Park Tennis Shed</p>	<p>Kitchen Sink Single pillar cock 12 litre turn handle type fittings</p>	
<p>Mcquade Park Lake Lake has been at 1955m3</p>	<p>Pump Housing Regulates the recycling of the storm water to be irrigated</p>	
	<p>Irrigation Pump used to return lake water for irrigation to playing fields</p>	



## Site Data Sheet - Australiana Village Park

Site Name

Site Address

Activities

Summary of Water Consuming Infrastructure

Annual Consumption For 2006-2007

Average Per Day Consumption For 2006-2007

Performance Indicators

For detailed performance information relating to this site, please refer to the Planet Footprint Property Footprint Report in Section G.

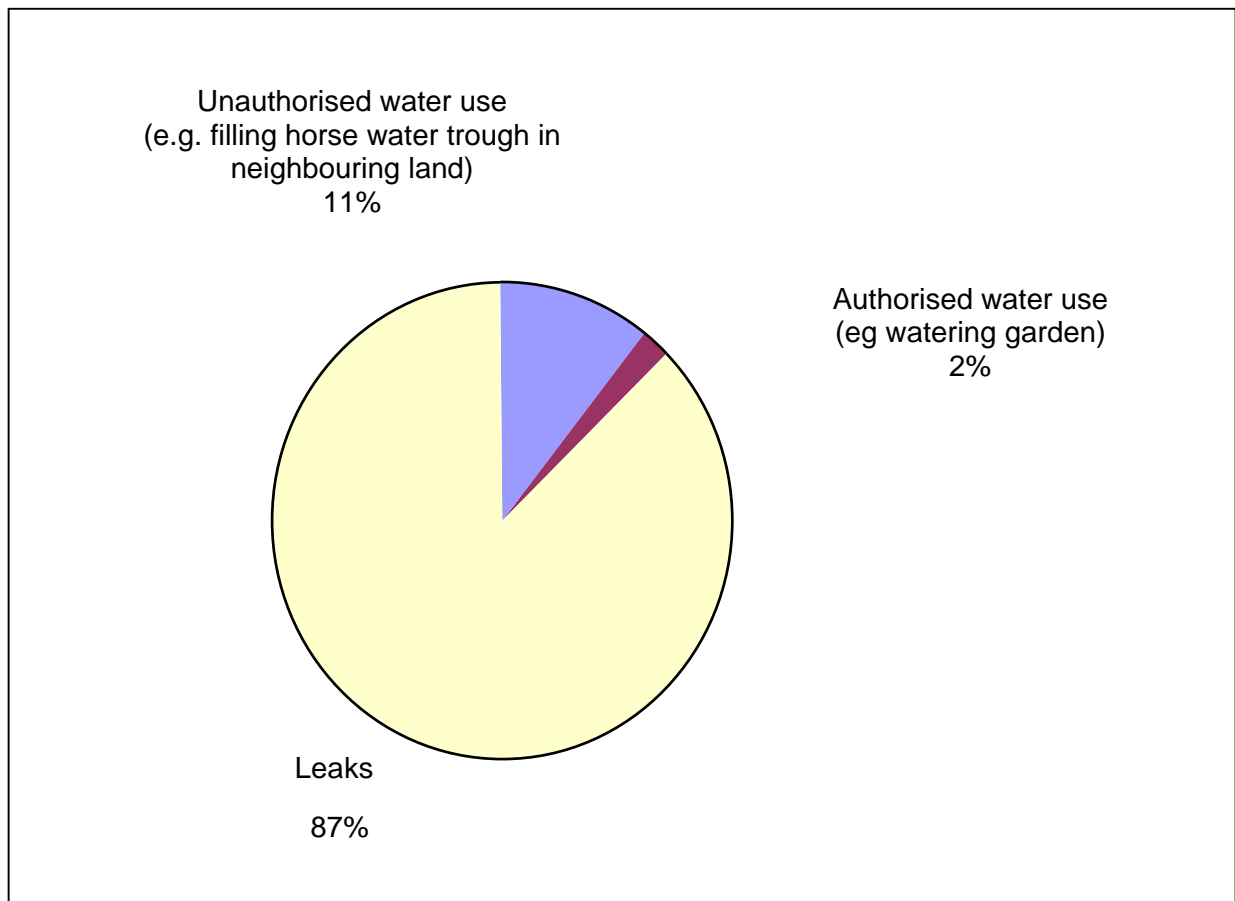
### Walk-through audit notes

The walk-through audit showed that the Park is closed, and is currently not being used at all, except for:

- Watering of the gardens once per week by the 'Friends of AVP'
- Filling of water troughs for horses in nearby paddocks, using AVP fire hoses and
- Fire fighting purposes.

Several taps in the toilet blocks were leaking badly, and had been untouched for some time. There are numerous other leaks around the site from aging and neglected fixtures and infrastructure.

Water consumption for Australiana Village Park shown as percentages of total usage for site:



## Water Using Fixtures Survey

Location	Fixture	Picture
Australiana Village Park	<p>The site has heritage style buildings located throughout and was open to the public as a tourist site with picnic area. The site has been closed since 2000. Two toilet blocks on site.</p>	
Toilet Block	<p>Toilet block located near the historic shop area, pictured here with the disabled toilet and fire hose reel.</p> <p>5 Fire hose reels located throughout the park</p>	
Toilet Block	<p>The second toilet block is located up the east of the property near the sewage treatment plant.</p>	
	<p>Toilets</p> <p>12 litre single flush cistern</p> <p>16 in total</p>	
	<p>Hand basin</p> <p>Basins half inch pillar cocks single pillar 12 litre turn handle type fittings</p> <p>7 in Total</p>	

<p>Australiana Village Park continued</p>	<p>Urinals</p> <p>11Litre pull chain single flush cistern</p> <p>3 in Total</p>	
	<p>Showers</p> <p>Non AAA rated shower rose.</p> <p>2 in Total</p>	

# Section E - Water Savings Measures

## Possible Water Savings Measures

### Oasis Aquatic Swimming Centre, Church Street South Windsor

Total Usage in kL	Quantity of BAI	KPI
43,800 (120.0kL/d)	1.112,175 visitors to the site per year	39L/person/day

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Installation of ongoing monitoring system. Investigate future reporting system (No of patrons)	Building Services/ YMCA	950 p.a	9,490		12,700		1000		2010
Replace faulty float valve with level sensor device and solenoid valve	Building Services /YMCA	30,000	14,600		19,500		68		2010
Purchase new pool blanket for outdoor pool	Building Services	85,000	10,000		11,000		13	31 Dec 07	2010
<b>Potential Cost Effective Opportunities</b>									
Installation of improved access points for entry to balance tanks, piping and other infrastructure for more effective maintenance checking	YMCA Building Services	4,000	900		1,000		25	31 Dec 07	TBA
Implement stormwater collection and reuse system	Building Services	TBA	TBA		TBA			TBA	TBA
Install sub meter on backwash line	Building Services	TBA						TBA	2010
Install pressure gauges on backwash equipment and backwash only when required	Building Services	1,500			TBA			TBA	2010
Investigate recycling of swimming pool backwash water. The project would involve establishing a system that uses filtration, flocculation, chemical dosing and desalinisation to recover 75 % of the backwash water	Infrastructure Services	200,00	18,250		22,000	8,000	15	31 Dec 07	2010

## Possible Water Savings Measures

Council Administration Building & Commercial Offices, Corner George & Dight Street Windsor

Total Usage in kL	Quantity of BAI	KPI
7531	Building Floor Area m2	4,460m2

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Replace 2x existing showerheads with water efficient AAA rated showerheads	Building Services	60	7		7		12	1 Jan 07	31 Dec 07
Insert aerators/flow restrictors into 21x12 litre/minute taps across all area of the building	Building Services	600	418		424		71%	1 Jan 07	31 Dec 07
<b>Potential Cost Effective Opportunities</b>									
Replace 15x11 litre single flush toilets, with dual flush (6 litre/3 litre) toilets across Admin	Building Services	TBA	TBA		TBA			TBA	2010
Implement Storm water harvesting and storage system	Building Services	TBA	TBA		TBA			TBA	2010

## Possible Water Savings Measures

Deerubbin Centre Precinct - Library, Art Gallery, Commercial Offices, Café, Peppercorn Aged Care Services Lot 50 George Street, Windsor

Total Usage in kL	Quantity of BAI	KPI
16,146kL/year (44.3kL/d)	137,605 patrons per year (377 patrons per day)	87L/patron/day

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Readjust urinal sensors in male toilets	Building Services	400	350		469		93%	31 Dec 07	31 Dec 08
Continuing use of the Permanent Monitoring System	Building Services	4,500	4562.5		6,100				2008
Insert aerators/flow restrictors into 8212 litre/minute taps within the Old Johnson Wing	Building Services	160	6				4%	1 Jan 07	31 Dec 07
Replace 4 x11 litre single flush toilets, with dual flush (6 litre/3litre) toilets within the Old Johnson Wing	Building Services	1,200	88		100		8%	1 Jan 07	31 Dec 07
<b>Potential Cost Effective Opportunities</b>									
Install a 20kL rainwater tank	Building Services	\$40,000 plus installation							
Increase the TDS levels of the Cooling towers to 2000µS/cm...	Building Services	TBA			\$50 p.a				
Converting these basins to 6L/min by installing an inline or end-of-line flow restrictor	Building Services	100							2010
Install sub metering	Building Services	8324						31 Dec 07	3 Mar 08
Investigate Water Harvesting and storage options	Building Services	TBA	TBA		TBA			TBA	



## Possible Water Savings Measures

### Richmond Swimming Pool, East Market Street Richmond

Total Usage in kL	Quantity of BAI	KPI
20,950	38,792 patrons	540L/person/annum

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Repair major leak	Parks and Recreation	1,051,000	16,571		22,180	3,000	83	10 June 08	Oct 08
Flow control amenities	Parks and Recreation	200	438		1195		604		2010
Repair amenity leak	Parks and Recreation	300	365		489		167		2009
Reduce meter size	Parks and Recreation	0			548				2010
<b>Potential Cost Effective Opportunities</b>									
Automatic make up system	Parks and Recreation	1,000				TBA			2008
Permanent monitoring system	Parks and Recreation	850/annum				TBA			2008
Investigate rainwater harvesting and storage options	Parks and Recreation	TBA				TBA			2010
Investigate the recycling of swimming pool backwash water. The project would involve establishing a system that uses filtration, flocculation, chemical dosing and desalination to recover 75 % of the backwash water	Infrastructure Services	200,00	18,250		22,000	8,000	15	31 Dec 07	2010

## Possible Water Savings Measures - Administration Precinct

Total Usage in kL	Quantity of BAI	KPI
7531	4461m2	4.63L/m2 day

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Replace 2 x existing showerheads with water efficient AAA rated showerheads	Building Services	60	7		7		12	1 Jan 07	31 Dec 07
Insert aerators/flow restrictors into 21 x 12 litre/minute taps across all areas of the Administration Building	Building Services	600	418		424		71	1 Jan 07	31 Dec 07
<b>Potential Cost Effective Opportunities</b>									
Replace 15 x 11 litre single flush toilets, with dual flush (6 litre/3 litre) toilets across all area of the Administration Building	Building Services	4,500	662		672		15	1 Jan 07	31 Dec 07
Investigate storm water collection and reuse system -	Building Services	TBA							2009

## Possible Water Savings Measures - McQuade Park

Total Usage in kL	Quantity of BAI	KPI
5274	83,200	0.063KL/m2/annum

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Replace 4 x existing showerheads with water efficient AAA rated showerheads	Building Services	60	7		11		12	1 Jan 09	31 Dec 09
Insert aerators/flow restrictors into 21 x 12 litre/minute taps	Building Services	600	418		424		71	1 Jan 09	31 Dec 09
<b>Potential Cost Effective Opportunities</b>									
Insert aerators/flow restrictors into 21 x 12 litre/minute taps	Building Services	600	418		424		71	1 Jan 09	31 Dec 09
Investigate leak detection	Infrastructure Services	TBA	1793		1,818		34	2009	2010

## Possible Water Savings Measures - South Windsor Sewage Treatment Plant

Total Usage in kL	Quantity of BAI	KPI
4760	1465 Volume of sewerage processed	3249L/ML or sewage processed/day

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Replace 4 x showerheads with AAA rated models	Infrastructure Services	80	183		185		231	1 Jan 06	2008
Install system to use recycled effluent in truck wash	Infrastructure Services	TBA	1,825		1,850			1 Jan 06	2008
<b>Potential Cost Effective opportunities</b>									
Replace washing machine with new, more efficient model	Infrastructure Services	600	18		19		3	1 Jan 07	2009
Replace 3 x 11 litre single flush toilets, with dual flush (6 litre/3 litre) toilets	Infrastructure Services	900	47		48		5	1 Jan 07	2009
Insert aerators/flow restrictors into 8 x 12 litre/minute taps	Infrastructure Services	400	37		37		9	1 Jan 07	2009

Possible Water Savings Measures - Wilberforce Shops

Total Usage in kL	Quantity of BAI	KPI
3376	1344m2	6.88L/m2/day

Potential Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Replace 3 x 11 litre single flush toilets, with dual flush (6 litre/3 litre) toilets	Infrastructure Services	900	47		48		5	TBA	2009
Implement storm water collection and reuse system for the nursery -	Infrastructure Services	TBA	TBA		TBA			TBA	2009

Possible Water Savings Measures - Companion Animal Shelter

Total Usage in kL	Quantity of BAI	KPI
2472	732m2	9.25L/m2/day

Potential Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Investigate the use of recycled water to hose down enclosures.	TBA	TBA						2009	2010
Investigate the use of recycled water to launder dog blankets	TBA	TBA						2009	2010

## Possible Water Savings Measures - Richmond Tennis Court

Total Usage in kL	Quantity of BAI	KPI
2472	732m2	9.25L/m2/day

Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Insert aerators/flow restrictors into 4 x 12 liter/minute taps	Infrastructure Services	50	22		23		46	1 Jan 07	2010
Replace 4 x showerheads with AAA rated models	Infrastructure Services	80	47		48		60	1 Jan 07	2010
<b>Potential Cost Effective opportunities</b>									
Replace 6 x 11 liter single flush toilets, with dual flush (6 litre/3 litre) toilet	Infrastructure Services	5,000	210		96		5	1 Jan 07	2010
Investigate options for a new sprinkler/watering system.	Infrastructure Services	TBA						1 Jul 06	2010

Possible Water Savings Measures - Bosworth Street (Coles) Car park

Total Usage in kL	Quantity of BAI	KPI
1545	N/a	N/a

Possible Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Pursue Bosworth Street water use issue	Currently obtaining legal advice	TBA			2,068			2006	TBA
Implement maintenance program	Coles Centre Management	TBA							TBA



## Possible Water Savings Measures - Australiana Village Park

Total Usage in kL	Quantity of BAI	KPI
1436	11 ha	358L/ha/day

Possible Cost effective opportunities	Responsible Department	Cost to implement (\$)	Annual Water Savings in kL	Annual Energy Savings in GJ	Cost Savings Water (\$)	Cost Savings Other (\$)	IRR (%)	Start Date	Completion Date
Turn off all water to the site at the mains, and implement a procedure for the turning on and off water by gardeners etc as required. Repair or remove all faulty fixtures	Infrastructure Services	100	1,170		1,200		1200	2009	2009
Investigate alternate fire control and turn off all water at main	Infrastructure Services	TBA	TBA		TBA				TBA
Replace 4 x showerheads with AAA rated models	Infrastructure Services	120	TBA		TBA				2010
Replace 6 x 11 litre single flush toilets, with dual flush (6 litre/3 litre) toilet	Infrastructure Services	5,000	TBA		TBA				2010

Note: The planned completion dates for individual projects will be categorised according to and resource allocation. The projects with the largest payback in the shortest number of years will be completed first. Some projects have been completed or out to tender at the time of printing and will be amended in further submissions.



## Section F - Technical Reviews

1. Deerubbin Centre
2. Richmond Swimming Pool
3. Oasis Swimming Centre



## Section G - Planet Footprint Water Report

1. Oasis Aquatic Centre
2. Richmond Swimming Pool
3. Deerubbin Centre
4. Administration Precinct
5. McQuade Park (Report currently not available)
6. South Windsor Sewerage Treatment Plant
7. Wilberforce Shops
8. Animal Shelter
9. Richmond Tennis Centre
10. Australiana Village Park