



Water Action Plan 2008–2013



01 EXECUTIVE SUMMARY

The updated *Whitehorse Water Action Plan 2008–2013* outlines Whitehorse City Council's water priorities for the next five years. This plan builds on the *Water Action Plan (2004)* developed as part of Council's commitment to the ICLEI – Local Governments for Sustainability Oceania's Water Campaign™. It reflects one of the key objectives outlined in the *Whitehorse Sustainability Strategy 2008–2013: Our EcoVision*, which sets the direction for Council to improve the sustainability of the community and the environment.

Many of the successful programs and projects developed and implemented as part of Council's original *Water Action Plan (2004)* are carried forward to form the basis of the updated action plan. Council will continue the approach of improving the water conservation of its own work practices as well as engaging with the community to encourage the adoption of sustainable water use principles and practices in local households, businesses and community activities. This plan places emphasis on actions that form a local response to water conservation and water quality issues.

Local governments around Australia have developed a range of water plans to address emerging issues surrounding water conservation and quality. Council is committed to ICLEI – Local Governments for Sustainability Oceania's Water Campaign™, a performance based milestone framework to reduce water consumption and improve stormwater quality in Council's own operations and within the community. The *Water Action Plan (2004)* has been updated in the context that State and Federal Governments are developing strategies designed to address such issues as water conservation, recycling, modernisation and expansion of the water grid.

Council's *Water Action Plan 2008–2013* contains some challenging short, medium and long-term goals that will ensure Council continues to lead by example as a progressive municipality, and increasingly engages with the community to implement practical, achievable and affordable water conservation and quality actions.

Council has reviewed its progress towards the reduction goals and through this updated *Water Action Plan 2008–2013*, it is intended to add a long-term water reduction goal to the existing 2012 goals.

Council's revised water conservation goals:

Reduce Council's water consumption by 25% by 2012 (compared with benchmark year 2002, where consumption was 247,666kL)

- To reduce corporate water consumption by 35% by 2020
- To reduce corporate water consumption by 40% by 2030
- To reduce community water consumption by 20% by 2012 (compared with benchmark year 2001/02)
- To reduce community water consumption by 25% by 2020
- To reduce community water consumption by 30% by 2030

The *Water Action Plan 2008–2013* consists of two parts. The first part sets the strategic context, provides background and documents guidelines that will provide information and clarify Council's approach to the use of water harvesting systems and non-potable water on Council owned and managed land.

The second part details specific actions to progressively implement sustainable water practices into every aspect of Council activity, and to partner and encourage the community in reducing water consumption and improving water quality.

The actions are separated into corporate (Council owned and managed facilities) and community actions. Corporate actions focus on Council's major water users and those departments that can influence Council's water consumption. These departments will take responsibility to reduce water use and improve water quality in Council's daily operations. The community actions focus on working with our community and business sectors to reduce water consumption and conserve water.

The actions within the updated *Water Action Plan 2008–2013* are based on a hierarchy of avoiding and reducing water use as a first priority followed by re-using and recycling water as lower-order priorities. Examples of key actions include:

Community Water Conservation

- Provision of workshops, fact sheets and regular up-to-date articles about water saving measures and topical water issues;
- Continuing to provide a Council rebate of 7% of the water tank price for residential water tank installations, and consider further incentives for residents or small businesses installing water-saving systems;
- Including comprehensive water-saving principles into Council's Planning Policy and preparing guidelines to assist new developments to be more sustainable;
- Provide water (and energy) audits to some residential properties and small businesses that participate in Council water-saving programs;
- Provide regular reports to the community on water-saving initiatives and Council's progress towards water-saving targets; and
- Encourage community groups, networks and clubs using Council facilities to save water, apply for community water grants and provide advice on implementing water-saving actions.

Corporate Water Conservation

- Develop and adopt a policy that Council commits to permanent water restrictions (generally based on Stage 3 level) across the organisation to ensure ongoing water efficient work practices;
- Ensure Water Sensitive Urban Design (WSUD) principles are included in all new Council capital works projects and water efficient measures are embedded into Council's maintenance practices;
- Progressively convert all sports fields to warm season (water efficient) grasses.
- Continue to develop and enhance landscaped areas with water efficient plants, mulching and best practice irrigation systems;
- Progressively retro-fit Council owned buildings with water efficient fixtures and fittings
- Continue to install water harvesting and re-use systems for rainwater, stormwater and recycled water where possible, subject to satisfying water efficient criteria and budget.

- Consider the conversion of sporting surfaces to synthetic or water efficient surfaces, subject to club preferences, technical criteria and budget; and
- Undertake a comprehensive review to ensure the sustainability of sports fields within Whitehorse.

Water Quality

- Continue to implement measures to improve water quality such as installation of litter traps, wetlands and rainwater gardens;
- Review work practices associated with herbicide spraying, street sweeping and litter collection to minimise chemicals and debris getting into stormwater network or creeks;
- Continue support for Waterwatch program for local waterways and EPA programs that target litter prevention;
- Ensure appropriate management practices are followed during construction and maintenance works to minimise sediment runoff and erosion; and
- Work with relevant water authorities to assess the health and progressively improve the condition of local waterways.

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

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

CONTENTS

01	Executive Summary	1
	Contents	3
02	Introduction And Background	4
03	The Current Situation	6
04	Policy Direction / Strategic Guidelines	7
05	Australia's Response To The Current Water Situation	11
06	Whitehorse City Council's Commitment To Water Conservation	13
07	Water Pricing	21
08	Conclusion	22
09	Leading Actions For Council To Achieve Its Key Priorities	23
10	Glossary	40





02 INTRODUCTION AND BACKGROUND

Water is a finite and valuable resource. Drought and population growth are placing our water resources under pressure, and climate change is expected to intensify that pressure. In addition to this, Melbourne has experienced below average rainfall since 1997 and we are among the highest users of water in the world. As a nation we are facing one of the biggest challenges of our time: to maintain and sustain water supplies for tomorrow's Australia.

To meet the challenge, we have to change the way we use, save and recycle water to ensure this essential resource is available for all of us and the environment. In this context, Council has reviewed the *Water Action Plan (2004)* and revised, enhanced and updated the plan into the *Water Action Plan 2008–2013*.

The *Water Action Plan 2008–2013* maintains the principles and direction of the 2004 plan and outlines the key strategic actions that Council will undertake over the next five years to reduce its water consumption, improve the quality of local waterways and encourage the community to reduce water consumption across the city.

The *Water Action Plan 2008–2013* builds on the actions implemented in Council's initial *Water Action Plan (2004)* that was developed as part of Council's participation in the ICLEI Local Governments for Sustainability Oceania's (ICLEI Oceania) Water Campaign™.

This new water plan was developed within the framework of Council's *Whitehorse Sustainability Strategy 2008–2013: Our EcoVision* to ensure consistency with the key Council goals and strategic direction for achieving sustainable water outcomes. The Sustainability Strategy reiterated the water saving goals in the original *Water Action Plan (2004)* and set a challenging long-term goal to reduce Council's corporate water consumption by 40% by 2030.

The plan is divided into two parts. The first part sets the strategic context, provides background and documents guidelines that reflect Council policy and strategic priorities for water re-use and recycling from various sources. These include the recycling and re-use of rainwater, stormwater, bore water, creek/river water, greywater and the purchase of recycled water from water authorities.

The second part outlines the specific actions and programs that Council will implement over the next five years to reduce its corporate water consumption, to improve the water quality of local waterways, and to encourage the community to reduce water consumption in local homes, businesses and various community activities.

In preparing the plan, Council considered water usage across all Council operations, State Government water restrictions, the availability of water from various sources, the demand for water for asset preservation and community facilities, the drought, and other factors that make up the complex water scenario.

Taking these into consideration, the following goals were set:

- 25% reduction in corporate water usage by 2012, compared with benchmark year average 2001–2003;
- 35% reduction in corporate water usage by 2020, compared with benchmark year average 2001–2003;
- 40% reduction in corporate water usage by 2030, compared with benchmark year average 2001–2003;
- 20% reduction in community water usage by 2012, compared with benchmark year average 2001–2003;
- 25% reduction in community water usage by 2020, compared with benchmark year average 2001–2003;
- 30% reduction in community water usage by 2030, compared with benchmark year average 2001–2003; and
- Improvement in water quality of the local creeks, lakes, waterways and wetlands, measured by achieving a minimum of 60 points on the ICLEI Water Action Card system.

To achieve these goals, Council will need to continue to implement water saving measures in its day-to-day operations and continue to install water efficient fittings and fixtures in Council and community facilities. Council will work directly with the community and with other levels of government, the various water authorities and relevant industry organisations to encourage all sectors of the community to permanently reduce water consumption.

Council and the community have already achieved significant water savings through the actions taken in the *Water Action Plan (2004)* and as a result of water restrictions. An important underlying principle with the *Water Action Plan 2008–2013* is the implementation of sustainable water saving measures that balance the (often) competing demands for water between community benefit, quality asset management and environmental factors.

City of Whitehorse Profile

The City of Whitehorse, situated approximately 15 kilometres to the east of the Melbourne CBD, encompasses 64.3 square kilometres of predominantly residential land. The estimated 2008 population of the municipality is 151,000 people who represent a diversity of cultural and linguistic backgrounds. The city is valued for its natural assets including its green, leafy appearance and its extensive network of parks, gardens and reserves. The waterways of the Gardiners, Mullum Mullum, Dandenong and Koonung Creeks and Blackburn Lack Sanctuary are significant environmental landscapes and recreational locations. Mullum Mullum Creek is of considerable importance to the community because of the presence of platypuses and other species of significance. There are 78 retail and business centres in the municipality serving a range of catchments. The city contains several large educational and health institutions and has the biggest concentration of office space in Melbourne outside the CBD and St Kilda Road. Industrial activity in the city is a highly important part of the regional economy.



03 THE CURRENT SITUATION

Stage 3a water restrictions are now in place for every household, apartment and business in Melbourne. Local governments have a significant influence in water consumption within their municipality, as their core functions consume large amounts of water annually. These publicly visible functions include irrigation of sports grounds, open space, and established public gardens; street sweeping; operation of aquatic centres and maintenance of Council owned facilities. Local government is in a good position to lead by example, facilitate community involvement and education and promote sustainable water management.

As a result, local governments are progressively making a significant contribution to Victoria's efforts to conserve water and improve stormwater quality. Reducing water consumption also makes good business sense for Council, especially as water price increases are imminent.

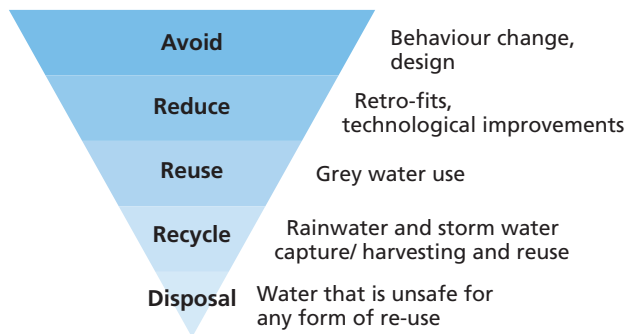


04 POLICY DIRECTION / STRATEGIC GUIDELINES

4.1 Water Efficiency Hierarchy

Council has adopted the application of the following water efficiency hierarchy to all its programs and will use this to assess any community suggestions that are related to water use within the municipality. The hierarchy will assist Council and the community to identify the most appropriate course of action to take for programs and projects that identify potential water saving initiatives.

This water efficiency hierarchy uses existing best practice to identify the most water efficient and integrated practices possible for any project.



- **Avoid:** behavioural change of staff, general users and the community, leading to a further commitment to avoid and reduce water consumption. Water efficient design that minimises or avoids the need for water.
- **Reduce:** retro-fitting older style appliances such as showerheads. Installing water efficient devices such as flow restrictors. Behaviour change to reduce water consumption.
- **Reuse:** reclaim stormwater and treated effluent systems such as greywater.
- **Recycle:** harvest rainwater and stormwater for urban use.
- **Disposal:** disposal of water only when it is unsafe, impractical and unsuitable for any form of re-use.

An example of Council using this hierarchy is the implementation and acceleration of a program to reduce watering regimes on sporting ovals by planting drought tolerant turf species, which require significantly less watering than existing turf.

4.2 Guidelines

Detailed guidelines are developed to provide information on the use of water harvesting systems and non-potable water on Council owned and managed land. Below are brief descriptions of each guideline being developed and an outline of the key components of the guideline.

4.2.1 Bores

Council understands that bore water is a significant part of the environment; however, applications for the construction of new bores on Council owned or managed land will not be supported, whether the proposal is from an external club, school or community group or from within Council itself. Depleting our underground aquifers is not considered to be a sustainable use of water. Using bore water is essentially using water from another source rather than pursuing water efficiency actions. There are environmental risks associated with extracting bore water such as water pollution and contamination, high salinity levels, reduction in surface water flows and land subsidence. Uncontrolled bores are also a particular concern in terms of public health and safety.

Council understands that there are existing bores installed prior to these guidelines being developed. However, Council will not support further applications for the construction of bores on Council owned or managed land.

4.2.2 Rainwater Tanks

Rainwater tanks allow for storage of rainwater and redistribution to parks, gardens, various Council facilities and residential dwellings. They assist Council and the community to reduce its potable water consumption and maintain facilities in a sustainable manner.

Council understands the installation of water tanks in principle, to assist the ongoing viability of public parks and gardens, sport, cultural activities, community recreation and development in Whitehorse. However, all installations on public property must adhere to Council's requirements as defined in the *Whitehorse Guidelines for the Provision of Water Tanks on Council Owned and Managed Land* whether the proposal is from an external club, community group, school/preschool, resident or from within Council itself. A planning permit is only required if the property is subject to a heritage overlay and a building permit may be required if the water tank is to be installed on a tank stand above ground.

Preference will be given to rainwater tank installations that:

- Provide a significant volume of water savings matched to the intended use;
- Are installed as part of a range of water saving measures;
- Provide year round water savings;
- Satisfy technical requirements in terms of adequate capture, suitable storage and efficient distribution arrangements;
- Suitable water quality is achieved;
- Include open space planning considerations, such as conservation, appearance and community use of sites, being resolved; and
- Are affordable and represents value for capital expenditure.

4.2.3 Stormwater

The capturing or harvesting of urban stormwater for re-use can contribute to water conservation, water quality and stream flow objectives. It complements other approaches to sustainable urban water management such as rainwater tanks and the re-use of greywater.

Council recognises the many benefits that can accrue from harvesting stormwater. In principle, Council supports the capture and safe re-use of stormwater on site at Council owned and managed land, whether the proposal is from an external club, community group or from within Council itself.

Stormwater capture and re-use projects will be considered on a case-by-case basis, subject to:

- Technical criteria being satisfied for adequate water capture, storage and distribution;
- Proximity to the re-use application (i.e. minimise transport/pumping of water);
- Achieving satisfactory water quality levels to ensure public health and water fit for purpose;
- Sufficient water capture to offset a significant amount of potable water use;
- Potential advantages to address drainage infrastructure efficiencies;

- Open space planning considerations, such as conservation, appearance and community use of sites, being resolved; and
- Affordability and value for capital expenditure.

4.2.4 Greywater

Council supports the re-use of greywater subject to installations satisfying Environmental Protection Authority (EPA) Victoria requirements. There are environmental and health issues associated with the re-use of greywater. A simple household diversion system that does not treat the greywater or store it for more than 24-hours is not subject to approvals or permits. However, a system that collects, treats and re-uses household greywater must be approved by EPA Victoria. The installation of a greywater treatment system requires a 'septic tank permit' from Council's Environmental Health Department. Council recommends a licensed plumber install any greywater system.

Re-use of greywater that places public health at risk may be investigated by Council officers under the 'nuisance provision' of the *Health Act 1958*. Greywater re-use that causes environmental pollution may be investigated by the EPA under the *Environment Protection Act (1970)*. Greywater should be contained within the boundaries of the property and should not enter stormwater drains, as contaminants may adversely affect the downstream environment.

Council therefore encourages and supports the installation of EPA approved greywater systems; however, installations must adhere to EPA requirements. The re-use of greywater at Council owned or managed facilities will be considered on a case-by-case basis subject to:

- Compliance with EPA requirements;
- Sufficient water capture to offset a significant amount of potable water use;
- Proximity to re-use application; and
- Affordability and value for capital expenditure.

4.2.5 Creeks and Tributaries

Natural creeks and tributaries improve the quality of our urban and rural environments. They often contain significant vegetation, provide important habitat for native animals and are valued as recreational assets. Applications for the construction of infrastructure to access water from and/or store water from natural creeks and tributaries on Council owned or managed land will only be supported in special circumstances and will be subject to strict criteria. Council is aware that extracting water from natural creeks and tributaries may have adverse environmental impacts, including:

- Destroying surrounding land and vegetation;
- Decline of native vegetation;
- Destroying animal and plant habitats that benefit from water;
- Soil erosion;
- Compaction;
- Instability of the earth's surface;
- Contamination;
- Acidity; and
- Open space planning considerations, such as conservation, appearance and community use of sites, being resolved.

Council will assess applications on a case-by-case basis in conjunction with Melbourne Water where applicable. Applications will only be considered if the proposed water extraction is being undertaken with other water saving or water harvesting measures, not solely relying on the use of the creek water.

Successful applicants will be subject to conditions that will mostly be dependant on the environmental flow of the creek or tributary and a range of technical and financial viability criteria. For example, a creek at peak flow may be acceptable to capture water however at the normal environmental flow, water may not be accessible. This system may be more useful for smaller sporting facilities but possibly not sustainable for larger ovals and reserves.

4.2.6 Purchasing and Transporting Water

Council in principle does not support the purchase and transport of water for use on Council owned and managed land primarily because of the large distance to suitable sources and the high cost of transport. However, where access to an acceptable alternative water source is readily available or where circumstances are deemed to be exceptional individual cases may be considered.

Purchase of water may be considered as a temporary arrangement subject to:

- Alternative water saving measures having been implemented and the water purchase is deemed essential for public health or asset preservation;
- The water is affordable and fit for purpose; and
- Transport distance is reasonable and not excessive.

Purchase and transport of water may be considered on a more regular basis subject to:

- Reliable supply source of water is affordable and fit for purpose;
- Transport distance is not excessive; and
- The purchase of water is part of a suite of water saving measures.

4.2.7 Mini-desalination

The potential benefits of desalination are good, but the economic, cultural, and environmental costs are high. Desalination typically relies on having access to a large water source such as an ocean, river, lake or underground aquifer. In many parts of the world, alternative measures can provide the same freshwater benefits of ocean desalination at far lower economic and environmental costs. These alternatives include improving conservation and efficiency, accelerating wastewater recycling and re-use, implementing smart land use planning, treating low-quality local water sources and encouraging regional water transfers.

There are very few potential sources of water at or near Council facilities that would suit the installation of a desalination plant. Therefore, desalination is not considered a necessary system for Whitehorse.

4.2.8 Recycled Water

Sewer mining is the process of tapping directly into a sewer (either before or after a sewage treatment plant) and extracting wastewater for treatment and re-use as recycled water. Local scale sewer mining is not widely adopted in Victoria on the basis that maintenance costs and requirements will be borne by the local government or private owner. This is problematic from a risk perspective as few Council or private owners have the technical or financial ability to continue maintenance regimes and therefore the risk of contamination is high.

Issues surrounding public health concerns related to recycled water schemes such as sewer mining require specific guidelines for which EPA Victoria have developed.

4.2.9 Other Systems

Other systems will be considered on a case by case basis using similar sustainable criteria for evaluation as those listed in section 4.2.2, 4.2.3 and 4.2.5. An example of an alternative system is the process of managed aquifer recharge, where stormwater or recycled water is injected into the underground aquifer for storage, then pumped back to the surface for re-use. Such systems are currently in operation at varying scale, from township water supplies to local golf club watering.





05 AUSTRALIA'S RESPONSE TO THE CURRENT WATER SITUATION

5.1 Australian Government

The Australian Government Department of the Environment, Water, Heritage and the Arts is working to facilitate the conservation and sustainable management of freshwater resources by progressing the development and implementation of Australia's water-related environment policy.

The Australian Government is committed to implementing a national water plan in line with its 2007 election commitments. The plan will include a number of actions to improve rural water management (such as reducing over-allocation of water; increasing the water use efficiency of the irrigation sector and improved water information management) and urban water management (such as improved planning to take account of climate change). Details of this approach are currently being developed.

The Australian Government is investing \$12.9 billion over 10 years through the *Water for the Future* plan to address four key priorities:

- Taking action on climate change
- Using water wisely
- Securing water supplies
- Supporting healthy rivers.

Council's management and conservation of water is mainly influenced by State Government initiatives and policy.

5.2 Victorian Government

In 2004 the Victorian Government implemented its long-term action plan for water - *Our Water Our Future*. The Victorian Government has indicated that water conservation is a first-order priority.

Our Water Our Future sets out 110 initiatives for water conservation aimed at every sector of the community.

Its actions aim to:

- Repair rivers and groundwater systems – the natural source of all our fresh water – by giving them legal water rights and conducting restoration works;
- Price water to encourage people to use it more wisely;
- Permanently save water in towns and cities, through common sense water saving and recycling measures;
- Secure water for farms through pioneering water allocation and trading systems; and
- Manage the water allocation to find the right balance between its economic, environmental and social values.

As a result of the community's efforts, Melbourne has become Australia's most water efficient capital city. Industry and business are required to save water through Stage 3a restrictions and recycling has increased from 2% of Melbourne's wastewater in 1999 to 14% in 2006/07.

Since the 1990s, Melbourne's annual per capita water consumption has reduced by 22% from 423 to 331 litres per day. With the additional savings achieved under restrictions, this reduction increased to 28% in 2006, which includes reductions in both household and industry use. This has enabled Victoria to adapt to the challenges posed by the 10-year drought and provides a good basis for future water-saving community actions.

The next stage of the Government's *Our Water Our Future* plan provides long-term solutions to secure Victoria's water supplies by building a desalination plant, saving water through upgrading irrigation channels, expanding the water grid to pipe water around the state and extending conservation programs and recycling.

Next Steps in the Government's Water Plans

Over the next five years, the State Government plans to spend around \$4.9 billion on major infrastructure and conservation projects to manage the risk that Victoria's worst drought will continue. The new projects hope to boost water supplies for Victoria's cities and towns.

Actions include:

- **Water conservation** – continue to develop an approach to water conservation to reduce household and industrial use of water;
- **Increasing recycling** – the government is committed to upgrading the Eastern Treatment Plant to tertiary standard, a level where a wide variety of re-use is possible. The upgrade of the Eastern Treatment Plant will be completed during 2012. It will produce over 100 million litres of high-grade recycled water;
- **Food bowl modernisation** – a \$1 billion works program to modernise Victoria's food bowl region and upgrade its ageing irrigation infrastructure. The food bowl project will recover an estimated 225 billion litres of water by 2012. The water savings will be shared equally between irrigators, the environment and Melbourne;
- **Expansion of the water grid** – the Victorian Government and water corporations will expand Victoria's water grid – a network of rivers, channels and pipes linking Victoria's major water systems. Key new elements of the grid will be built to enable water to be moved from where it is to where it is needed most; and

- **Desalination Plant** – a major desalination plant is planned for development in the Wonthaggi region to supply up to 150 billion litres of water a year to Melbourne, Geelong, South Gippsland and Western Port towns. Construction of the plant is scheduled to commence in 2009 in order to start delivering water by the end of 2011. The \$3.1 billion project will include an 85-kilometre pipeline to connect the plant to Melbourne. It will be capable of providing around a third of Melbourne's annual water supply. The plant is estimated to use about 90 mega watts (MW) of power, which will be purchased from renewable energy sources.

While the ongoing need to save water will continue, it is evident that the enforced restriction will not be sufficient. The State Government plan to increase water supplies through the initiatives above. This does not mean that Victorians should abandon the effort used to reduce water consumption to date.

Council should be aware that when water from the desalination plant is available the price of water will be more than double (see section 7), so maintaining water conservation programs and initiatives will be beneficial to the community and business into the future.



06 WHITEHORSE CITY COUNCIL'S COMMITMENT TO WATER CONSERVATION

Council enhanced its commitment to sustainable water management by joining the ICLEI Local Governments for Sustainability Oceania's (ICLEI Oceania) Water Campaign™ in July 2003. Whitehorse is now one of 111 Australian local governments participating in the Water Campaign™. ICLEI Oceania is an international association of local governments whose mission is to achieve tangible improvements in global sustainable development through cumulative local action. The Water Campaign™ encourages local governments to work in partnership with their water retailer to reduce water consumption and improve storm water quality in their own operations and within the community. The Water Campaign™ is based on a framework of five performance-based milestones.

The milestones are:

1. Inventory of water consumption and water quality management
2. Setting goals for water conservation and water quality
3. Development of a local water action plan
4. Implementation and measurement of the *Local Action Plan*
5. Monitor, review and report on implemented actions.

Milestone 1 was completed in 2003 and Milestone 2 in 2004. Council achieved Milestone 3 in late 2004 and is currently progressing to complete Milestone 4 and 5.

Milestone 1. *Completion of a water consumption and water quality management inventory for all of Council's facilities and the overall Whitehorse community. Completed by Council in October 2003.*

Council developed inventories for its corporate and community water consumption and completed a water quality analysis. This was an integral process to undertake before being able to improve water management. This enabled Council to be able to assess the 'state of play' and to know how much water was being consumed by Council and community and the main water quality issues.

Milestone 2. *Council to set reduction goals for water conservation and water quality. Completed by Council in March 2004.*

Based on the Milestone 1 inventory results, Council set a corporate reduction goal of 25% (from 2001/02 and 2002/3 base year average consumption levels) and a community reduction goal of 15% by 2012.

This goal was considered to be:

- Achievable and affordable over the next 10 years;
- Suitable as an indication of the Council's commitment as a responsible corporate organisation;
- Sufficient to raise awareness of water issues to the community, and to provide leadership on this issue; and
- An indicator that Council wants to be a local government leader in water conservation.

The water goals can be adjusted and fine-tuned over time. Councils can review their progress and increase or decrease the goal as required. This provides flexibility should Council's ability to implement the required water-saving measures change due to changing circumstances.

Milestone 3. *Develop and adopt a local water action plan. Council achieved this milestone in October 2004.*

The *Water Action Plan (2004)* recommended a number of strategies and actions required to achieve a 25% corporate reduction and a 15% community reduction in water use.

The actions focus on the themes:

- Education and awareness;
- Sensible water use;
- Incentives, policies and regulatory controls; and
- Stormwater management and water quality.

Council adopted the *City of Whitehorse Water Action Plan (2004)* in August 2004. The three-year plan details numerous Council and community actions with the aim of reducing water consumption and improving water quality within the City of Whitehorse.

The plan was an important component of Council's previous *EcoVision Strategy*. It was developed with considerable community consultation resulting in public endorsement of the actions and a degree of community commitment to achieving the desired outcomes.

Developing the *Water Action Plan (2004)* enabled Council to achieve Milestone 3 of the ICLEI Oceania program for the Water Campaign™ in 2004. Since 2004, Council has been progressively implementing the plan,

including measures to reduce the water consumption at playing fields by planting warm season grasses at 10 key reserves.

Milestone 4. Implement and quantify the local water action plan.

Council is currently in the process of completing the requirements of Milestone 4 and has achieved many savings through implementation of water conservation initiatives, as demonstrated below:

Examples of actions in the original Water Action Plan (2004) finalised since August 2004 or currently being implemented include:

- Installation of 1 million litre water tank at Bolton Reserve, Box Hill, to harvest an estimate 7 million litres a year of stormwater;
- “Turned Off?” Campaign – ongoing staff education and awareness raising of water use;
- Gardiner’s Creek project, in partnership with the EPA, aimed at achieving a more rapid response to pollution events;
- Assistance provided to the community in applying for water grants;
- Community Local Law introduced sediment controls at building sites to protect stormwater runoff;
- Continued planting of drought resistant grasses at Council reserves, 10 ovals planted to date;
- Drought tolerant plants planted in Council reserves, gardens, shopping centres and median strips;
- Upgrading of irrigation systems in Council sports grounds;
- Over 4 million litres of water recycled at Council’s nursery since upgrade of watering system;
- Installation of water tanks at 10 community centres and the Civic Centre;
- Installation of water tanks at five of Council’s leased facilities;
- Installation of water tanks at Box Hill Town Hall saving an estimated 373,000 litres and providing 80% of water requirements for ground floor toilets;
- Installation of water efficient fittings during Box Hill Town Hall upgrade and various other community buildings such as the aquatic centres, hostels and service centres;

- Funding provided to local schools to participate in the Sustainable Schools program; and
- Aqualink Nunawading water recycling project – recycling of pool backwash water for storage and re-use at nearby Forest Hill Reserve.

6.1 City of Whitehorse Water Reduction Goals

Council set the following water reduction goals for achievement by 2012 when the City of Whitehorse *Water Action Plan (2004)* was adopted in August 2004 (with base year at 2002 consumption levels):

	Water Reduction	Water Quality
Corporate	25%	60 points*
Community	15%	60 points*

**ICLEI Oceania uses a water quality action card where various actions are given a points value*

Completing the actions contained in the Water Action Plan ensures that Council remains on track to achieve the goals set at Milestone 2 for reducing water consumption levels and improving water quality.

Council has reviewed its progress towards the reduction goals and through this updated Water Action Plan, it is intended to add a long-term water reduction goal to the existing 2012 goals.

While the total resident population within the City of Whitehorse is forecast to increase from current levels by 2.9% by 2012 and 6.8% by 2020, the average household size is expected to slightly decrease, based on the 2005/06 figures. If there were no water restrictions and no changes to water use behaviour based on pre-restriction usage levels, there would be an increase by over 30% by 2020, which is unsustainable. It is therefore important to set water reduction goals to guide progress towards more sustainable water consumption levels.

State-wide water conservation goals were considered an important factor in the establishment of Council’s revised goals. In June 2004, the State Government announced its water conservation goals for the whole of Victoria. Extensive research and community consultation was undertaken to establish these goals, including review of water consumption habits, projected population growth, and non-residential growth trends.

The goals expressed for the state of Victoria are:

- To reduce per capita drinking water consumption by 15% by 2010; and
- To recycle 20% of Melbourne's waste water by 2010.

Further to the State Government targets, retail water authorities announced their target to reduce per capita water consumption by 20% by 2010 (based on the 1990s average). This is an increase on the State Government's target of 15% by 2010.

Council supports the targets set by the State Government and retail water authorities and believes that the directions and water saving measures proposed in the White Paper of *Our Water Our Future: Securing Our Water* will deliver both short and long-term water savings across the state. Through this plan, Council has endeavoured to support the direction of the State Government strategy and has established revised long-term water conservation goals. The two stretch goals will inspire Council to strive towards further conservation measures and to extend its innovative water approaches and conservative actions, including greater use of water-efficient technologies.

To achieve these goals, Council needs to continue to raise awareness of water conservation issues through educating staff and the community and working with other levels of government and water authorities to implement the water action plan. Council will continue to give priority to successful short and long-term measures that have substantial water savings such as the planting of warm season grasses at sporting reserves.

Council's current goal is:

- To reduce corporate water consumption by 25% by 2012.

Council's revised goals are:

- To reduce corporate consumption by 25% by 2012 (current goal);
- To reduce corporate water consumption by 35% by 2020; and
- To reduce corporate water consumption by 40% by 2030.

The current community goal is:

- To reduce community water consumption by 15% by 2012.

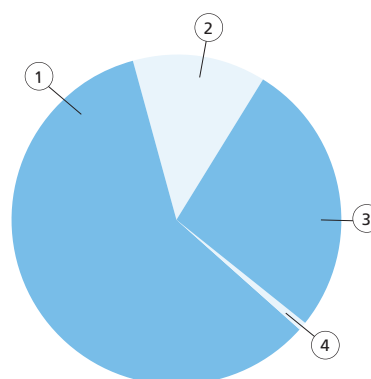
The revised community goals are:

- To reduce community water consumption by 15% by 2012 (current goal);
- To reduce community water consumption by 20% by 2012;
- To reduce community water consumption by 25% by 2020; and
- To reduce community water consumption by 30% by 2030.

For a summary of planned actions for the next two to three years, please refer to Section 9 of this plan.

6.2 Whitehorse Water Consumption

The City of Whitehorse's corporate and community water consumption in 2006/07 is outlined below:



- ① Single Dwellings 59% 7,893,360 KI
- ② Flats 13% 1,827,325 KI
- ③ Non Residential 27% 3,686,603 KI
- ④ Council 1% 181,534 KI

Figure 1: Elements of water use in the City of Whitehorse

Council has a significant influence in water consumption within the municipality and although the corporate water use represents just 1% of the City's total water consumption for Whitehorse, Council has a vital leadership role to play in water conservation and education within the community. Council has the ability to lead by example and encourage and influence many sectors of the community because much of Council's water use is publicly visible.

6.3 Community Water Consumption

Council receives an annual update of water consumption data from Yarra Valley Water for Council-owned facilities and the community. From Figure 2, it can be seen that the Whitehorse community has achieved a steady decline in water use since the base year. In the most recent financial year, 2006/07, the community sector achieved a reduction of 17.6% compared with the base year average 2001–2003.

This reduction may be attributed to high profile water-reduction campaigns conducted by the major water retailers and the implementation of water restrictions commencing with Stage 2 in 2005 and Stage 3 and 3a in 2007. These compulsory restrictions have affected every household, apartment and business in Melbourne. This reduction ensures the community is on track in achieving the water reduction goal of 15% by 2012. If this level of water saving can be sustained and even further improved, the community water reduction goal can be reviewed and a more challenging goal set for 2012.

Community Water Consumption Changes

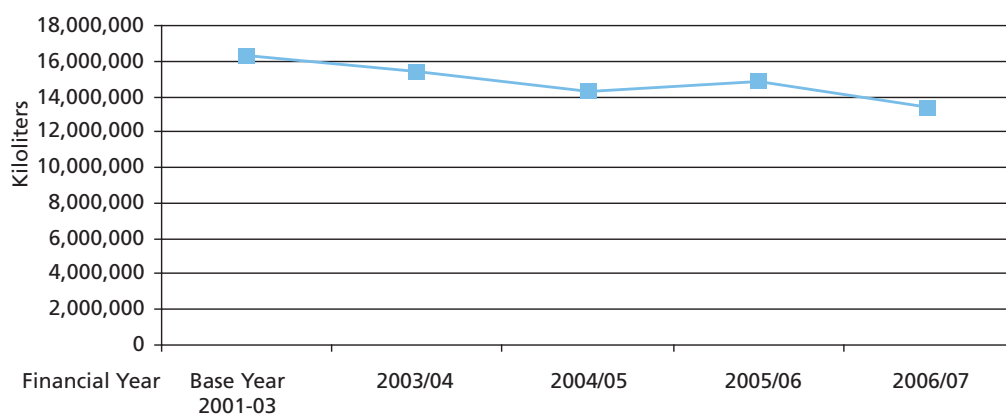


Figure 2: Community Water Consumption 2001/02 – 2006/07

Corporate Water Consumption Changes

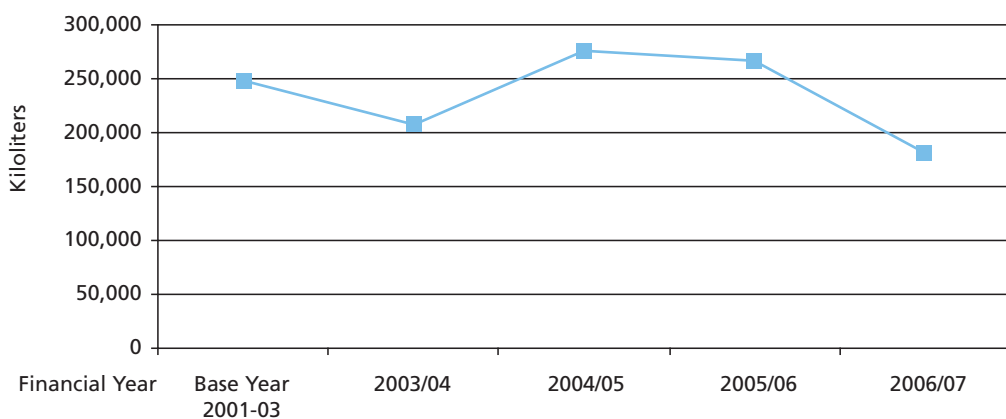


Figure 3: Council Water Consumption 2001/02 – 2006/07

The following tables outline the community water consumption, including residential dwellings and flats, commercial and industrial consumption. The table also provides the percentage change since the base year. The introduction of Stage 3a water restrictions in April 2007 has deemed it necessary to compare both 2005/06 and 2006/07 financial years with the base year, to show the significant impact that the Stage 3a restrictions have achieved.

Land Use Type	Base Year	2005/06	% Change
Residential	11,504,758	10,718,539	6.8% Decrease
Non Residential	4,769,014	4,139,723	13.1% Decrease
TOTAL	16,273,772	14,858,262	8.8% Decrease

Table 1. Community Water Consumption base year and 2005/06

Land Use Type	Base Year	2006/07	% Change
Residential	11,504,758	9,720,687	15.5% Decrease
Non Residential	4,769,014	3,686,603	22.7% Decrease
TOTAL	16,273,772	13,407,576	17.6% Decrease

Table 2. Community Water Consumption base year and 2006/07

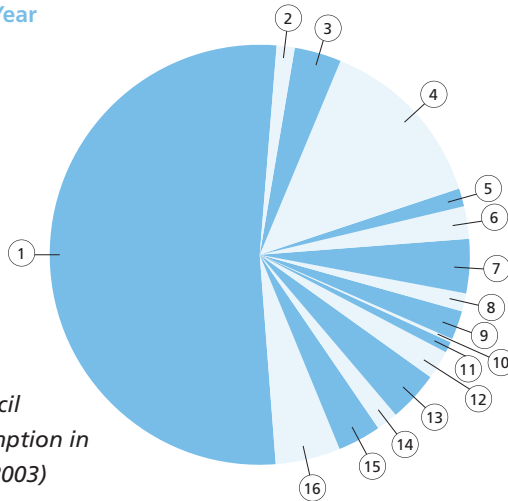
While the reductions show that the community is making a valued effort in water conservation, Council must help the community remain vigilant with water use, especially if restrictions are eased at some time in the future. At a local level, we all depend on the food and resources that agriculture provides, and while there are definite opportunities to increase water efficiency on farms, the solution requires a whole-of-community effort. Council and the community share responsibility for the sustainable management of water resources, which means ensuring the entire population of Whitehorse is using less water today and into the future. Council needs to provide leadership for the community to help achieve continued reductions beyond water restrictions.

6.4 Council's Water Consumption

Council's corporate water consumption has varied significantly over the last four years. An initial decrease in consumption in 2003/04 was largely attributed to the closure of Aqualink Nunawading for nine months during major renovations. 2004/05 saw water consumption increase above the base year levels as Council established warm season grasses and Aqualink Nunawading was re-opened with increased patronage and facilities. In 2004/05 stage 2 water restrictions and water saving initiatives became effective. While the 2006/07 results show a large reduction in water use, this was mostly due to the compulsory water restrictions. See Figure 3 for an overview of Council's corporate water consumption.

The following charts show the portion of water used by each Council sector in the base year, 2005/06 and 2006/07. Council's major water consumption is from playing fields, swimming pools, buildings and open spaces.

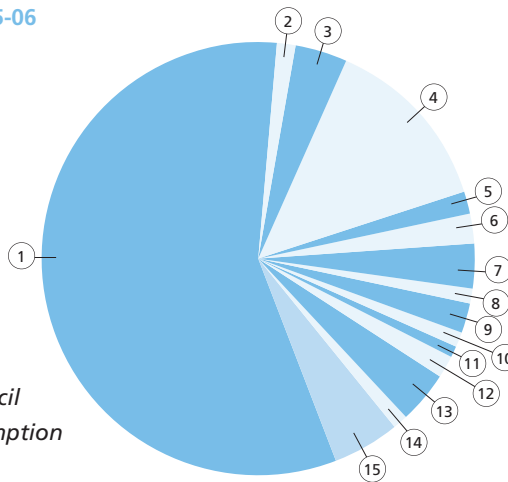
Water Use in Benchmark Year



- ① Playing Fields 52.6%
- ② Recreation Centres 1.6%
- ③ Residences 3.5%
- ④ Swimming Pools 13.7%
- ⑤ Town Halls 1.5%
- ⑥ Water Trucks 2.3%
- ⑦ Administration Buildings 4.4%
- ⑧ Child care centres 1.3%
- ⑨ Community centres 2.3%
- ⑩ Cultural Buildings 0.1%
- ⑪ Council Depot 0.9%
- ⑫ Facilities Toilets 2.2%
- ⑬ Gardens Planter Boxes 3.9%
- ⑭ Miscellaneous 1.8%
- ⑮ Nurseries 3.4%
- ⑯ Open Space 4.8%

Figure 2: Pie chart of Council departments water consumption in base year (average 2001 –2003)

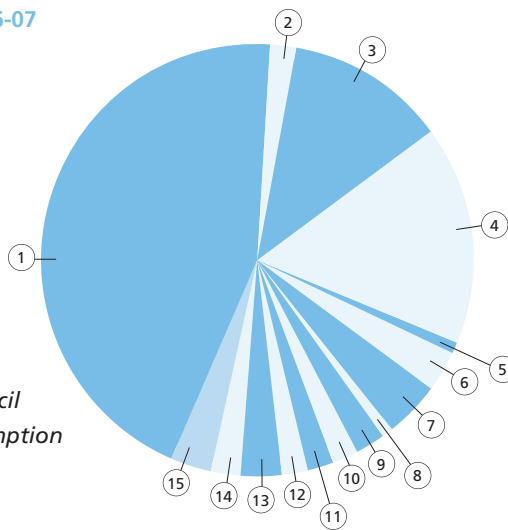
Water Use in 2005-06



- ① Playing Fields 57.2%
- ② Recreation Centres 1.6%
- ③ Residences 3.8%
- ④ Swimming Pools 13.4%
- ⑤ Town Halls 1.7%
- ⑥ Water Trucks 2.2%
- ⑦ Administration Buildings 3.3%
- ⑧ Child Care Centres 1.2%
- ⑨ Community Centres 2%
- ⑩ Cultural Buildings 0%
- ⑪ Depots 1.2%
- ⑫ Facilities Toilets 0.8%
- ⑬ Gardens Planter Boxes 1.8%
- ⑭ Miscellaneous 3.9%
- ⑮ Nurseries 1.1%
- ⑯ Open Space 4.9%

Figure 3: Pie chart of Council departments water consumption in 2005/06

Water Use in 2006-07



- ① Playing Fields 44%
- ② Recreation Centres 2%
- ③ Residences 12%
- ④ Swimming Pools 16%
- ⑤ Town Halls 1%
- ⑥ Water Trucks 3%
- ⑦ Administration Buildings 4%
- ⑧ Child Care Centres 1%
- ⑨ Pre Schools/Kindergardens 0%
- ⑩ Community Centres 2%
- ⑪ Cultural Buildings 0%
- ⑫ Depots 2%
- ⑬ Facilities Toilets 2%
- ⑭ Gardens Planter Boxes 2%
- ⑮ Miscellaneous 3%
- ⑯ Nurseries 2%
- ⑰ Open Space 3%

Figure 4: Pie chart of Council departments water consumption in 2006/07

The tables below outline Council's water consumption by sector including figures from the average base year (2001/02 and 2002/03), 2005/06 and 2006/07. Council has reconciled the 2006/07 data to create a more accurate inventory. Therefore, some areas show noticeable consumption increases due to additional facilities being added since the base year.

Table 5 provides the actual 2005/06 water consumption data for each council sector and the percentage change compared with the base year. Table 6 shows the percentage change from the base year to 2006/07.

The increase in water consumption to 2005/06 can be attributed to the additional watering of playing fields and the planting of warm season grasses at 5 ovals that required additional water to establish them. Council plans to progressively plant more ovals with warm season grasses, which will deliver long-term water savings.

The decrease in 2006/07 can largely be attributed to compulsory water restrictions, however there were many areas where Council has implemented water saving projects that has resulted in decreased water use at Council facilities. This includes a 38% decrease in water consumption at Council administration buildings attributable to the implementation of water efficiency measures such as the installation of dual flush toilets and rainwater harvesting systems. The Council nursery has also seen a 60% decrease in water use through water efficient irrigation systems and water harvesting and recycling systems.

Sector	2001/02 and 2003/03 Average	2005/06	Change from baseline - 2006/07	
	Consumption (kl)	Consumption (kl)	Change in Kilolitres	%
Administration buildings	10,847	8895	1952	18% decrease
Child care centres	3120	3,89	31	1% decrease
Community centres	5734	5349	385	7% decrease
Cultural buildings	163	20	143	88% decrease
Depots	2244	3,117	-873	39% Increase
Facilities Toilets	5416	2108	3308	61% decrease
Gardens Planter Boxes	9,558	4,701	4,857	51% decrease
Miscellaneous	4215	7799	3584	85% increase
Nurseries	8389	3037	5352	64% decrease
Open Space	11,807	12,979	1172	10% increase
Playing Fields	130,189	152,643	22,454	17% increase
Recreation Centres	3,860	4,224	364	9% increase
Residences	8763	12,732	3969	45% increase
Swimming Pools	33,848	35,681	1833	5% increase
Town Halls	3606	4455	849	24% increase
Water Trucks	5654	5899	245	4% increase
TOTAL	247,413	266,728	19,315	8% increase

Table 3. Council departments water consumption and changes from the base year to 2005/06

Table 6 provides the actual 2006/07 water consumption for each area of Council activity and the percentage change compared with the base year.

Sector	2001/02 and 2003/03 Average	2006/07	Change from baseline - 2006/07	
	Consumption (kl)	Consumption (kl)	Change in Kilolitres	%
Administration buildings	10,847	6703	4,144	38% decrease
Child care centres	3,120	2583	537	17% decrease
Pre schools / kindergartens		353		New facilities
Community centres	5734	4329	1405	25% decrease
Cultural buildings	163	16	147	90% decrease
Depots	2244	3717	1473	66% increase
Facilities toilets	5416	3706	1710	32% decrease
Gardens planter boxes	9558	3916	5642	59% decrease
Miscellaneous	4215	5723	1508	36% increase
Nurseries	8389	3369	5020	60% decrease
Open space	11,807	5279	6528	55% decrease
Playing fields	130,189	79,604	50,585	39% decrease
Recreation centres	3860	3439	421	11% decrease
Residences	8763	21,224	12,461	142% increase
Swimming pools	33,848	29,634	4214	12% decrease
Town halls	3606	2040	1566	43% decrease
Water trucks	5654	5899	245	4% increase
TOTAL	247,413	181,534	65,879	27% decrease

Table 4. Council departments water consumption and changes from the base year to 2006/07

07 WATER PRICING

It is important that the Whitehorse community are aware that while the State Government is introducing systems such as a desalination plant and covered irrigation pipelines to make water more plentiful to all of Victoria, there will be a significant increase in the price of water over the next few years to pay for upgrades to water infrastructure.

It has been announced by the Victorian Government's water retailers that water prices in Melbourne will increase by 100% by 2012. By July 2008, water prices will go up 15%. They will continue to increase until they have almost doubled in price by 2015.

Yarra Valley Water currently charges \$0.9178 per kilolitre for commercial customers. In December 2007, Yarra Valley Water indicated that the projected increase in water charges may be as follows:

2008 a 15% increase	=	\$0.13767 resulting in a new rate of \$1.0545 per kL
2009 a further 15% increase	=	\$0.13767 resulting in a new rate of \$1.1912 per kL
2010 a further 20% increase	=	\$0.18356 resulting in a new rate of \$1.3748 per kL
2011 a further 25% increase	=	\$0.22945 resulting in a new rate of \$1.6042 per kL
2012 a further 25% increase	=	\$0.22945 resulting in a new rate of \$1.8337 per kL
2012 total water increase (100%)	=	\$0.9178 resulting in a new rate of \$1.8337 per kL

By 2012 the total cost of water is expected to increase from \$0.9178 per kilolitre by a further \$0.9178 per kilolitre to a total of \$1.8356 per kilolitre. This represents a 100% increase in price by 2012.

Council's total water costs for all its facilities in 2006/07 was \$443,304. If water consumption remains at current levels, the increased tariff by 2012 would see an increase in Council's water costs from \$443,303 to \$886,607.

There are strong financial imperatives to reduce water consumption, as well as obvious environmental benefits.



08 CONCLUSION

Although great progress is being made towards Council's water saving goals, the severity of compulsory water restrictions has posed major risks to the quality and safety of Council's sporting fields, parks, reserves and other open space assets. The measures in this *Water Action Plan* strike a balance between the competing pressures of sensible water use, asset preservation and turf management to ensure high quality facilities for community use. High water consuming Council facilities need sustainable long-term water management plans to ensure that Council continues to lead by example and commits to long-term water conservation.

Water-saving actions in this plan include measures to reduce Councils' corporate water usage as well as actions to encourage the community to reduce water consumption. Council's corporate water-saving actions are guided by the Water Efficiency Hierarchy where priority is given to changing water use behaviour and reducing consumption. Water re-use and recycling measures complement the first order water reduction actions.

Specific water saving actions are detailed in the following section. These measures will be progressively implemented over the next five years, subject to an annual review to ensure that the actions remain relevant and affordable. Progressive implementation of these actions should ensure that Council achieves its ICLEI Oceania Water Campaign™ water-reduction goals by 2012, and will be well placed towards the longer-term 2020 and 2030 goals.

The *Water Action Plan 2008–2013* recognises that Council cannot achieve the community water-saving goals without the support of all sectors of the Whitehorse community. The actions within this plan are designed to encourage community support and strategically partner with other levels of government and water authorities to collectively make a difference.



09 LEADING ACTIONS FOR COUNCIL TO ACHIEVE ITS KEY PRIORITIES

The tables on the following pages document the measures that Council is putting in place to reduce corporate water usage. This section also lists the actions that Council will implement to encourage the community to reduce water consumption.



9.1 COMMUNITY

Work with the community to conserve water in private households						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Increased community education for water conservation.	Promote initiatives to reduce community water consumption through community education programs and strategic partnerships with education providers, water authorities, State Government and community groups.	Engineering and Environmental Services	Annually	Reductions in water use in the community based on the annual consumption figures provided by Yarra Valley Water.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Varies, up to \$50,000 p.a.
	Provide information for the community through workshops, fact sheets and Council website, on topics covering: <ul style="list-style-type: none"> • Conserving water outside of stage 3 water restrictions • Financial savings that can be made through conserving water • Conserving water in home gardens • Greywater, rainwater tanks and other water re-use and recycling systems. 	Engineering and Environmental Services	Annually	Reductions in water use in the community based on the annual consumption figures provided by Yarra Valley Water.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Varies, typically \$20,000 p.a.
	Include comprehensive water saving principles into Council's planning policy and prepare guidelines to assist architects, draftsmen, and designers of new developments to be more sustainable.	Development Strategy and Business Services	December 2009	Comprehensive principles included in Council policy. Guidelines developed and distributed.	ESD planning policy Municipal Strategic Statement	\$2000 p.a.
	Provide water saving information at Council events, customer service centres and via the Council website.	Engineering and Environmental Services Economic Development	Ongoing	Relevant information readily available.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Communications Plan	
Continue to provide Whitehorse residents with water saving incentive schemes.	Continue to provide residents with a 7% Council rebate for installing approved water tanks or water bladders on residential premises (subject to conditions).	Engineering and Environmental Services	Ongoing	The number of water tank rebates per annum. % water saving from mains?	State Government rebates	\$ 10,000 p.a.
	Periodically review and update the list of eligible water storage products as required, using products eligible for State Government rebate as the criteria.	Engineering and Environmental Services	Ongoing	List of eligible water storage products is up to date and relevant.		N.A
	Investigate opportunities for Council to provide rebates on installation of approved greywater recycling systems.	Engineering and Environmental Services	December 2008	Greywater rebate investigated.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	T.B.A
	Investigate options for further incentive schemes to encourage householders to retro-fit their houses with water saving technologies, e.g. dual flush toilets, low flow restrictor valves.	Engineering and Environmental Services	June 2009	Number of residents reporting retro-fits.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$5,000 p.a. for generic products and materials

➤ Table continued on next page

Work with the community to conserve water in private households

Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
	Liaise with Yarra Valley Water about the possibility of extending their showerhead exchange program to be available from Council's Customer Service Centres.	Engineering and Environmental Services Customer Service	August 2008	Number of residents to exchange their showerheads.	Yarra Valley Water's Showerhead Exchange Program	N.A
	Provide annual water efficiency audits to a minimum of 50 residential homes selected from participants in Council water saving programs (Number subject to Council's annual budget process).	Engineering and Environmental Services	June 2009	Minimum of 50 home water audits provided.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$10,000 p.a.
Improve tracking and reporting of community water consumption.	Consult with Yarra Valley Water to establish an improved method and frequency of obtaining and reporting residential consumption data.	Engineering and Environmental Services	Completed by June 2008	Data collected and regular reports provided.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$2,500 p.a.
	Report Council and community water consumption levels to the community and progress towards water saving goals on an annual basis.	Engineering and Environmental Services	Annually from September 2008	Annual report produced and communicated publicly.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No further funding required
	Work with external organisations such as Yarra Valley Water, Municipal Association of Victoria and Melbourne Water to promote progress towards water-saving targets and education about sustainable living in the community.	Engineering and Environmental Services	Ongoing	Regular liaison and reporting occurs.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No further funding required

Work with our local business and industry to conserve water						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Promote water savings in non-residential sectors.	Encourage business and industry to maximise water savings and identify projects to reduce water consumption by providing informative fact sheets, workshops and raising awareness about sustainable business programs.	Economic Development	2009	Information shared with businesses. Workshops held.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$5000
	Promote practical products and services for water recycling and re-use for local business and industry, sharing the information on the available products via Wbiz, fact sheets and workshops and Council events.	Engineering and Environmental Services	2009	List of products and services developed and distributed. Information shared with businesses.		\$3000
	Develop an EcoStar program for local business and industry. Pilot the program with a specific business or small group of businesses. <ul style="list-style-type: none"> Collaborate with Environmental Health Department to Link EcoStar audits to the Environmental Health 'Star Program' so the EcoStar assessment can occur alongside the health assessment. 	Economic Development Engineering and Environmental Services Environmental Health	December 2009	EcoStar program developed and piloted.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Minimum \$25,000 p.a.
	Provide incentives to small and medium businesses to reduce water consumption. For example, consider extending Council's water tank rebate scheme to SMEs, or offering water efficiency audits for up to 20 businesses per annum based on participation in Council's water saving programs.	Economic Development Engineering and Environmental Services	2009	Rebates investigated. Number of businesses undertaking audits	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$5000
Increase business and industry education for water conservation.	Partner with Yarra Valley Water's business programs where appropriate and promote the programs through Council's business networks and communications systems.	Economic Development Engineering and Environmental Services	Ongoing	Businesses informed about Yarra Valley Water programs.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional budget required

➤ Table continued on next page

Work with our local business and industry to conserve water

Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
	Encourage local plumbers through promotional campaigns and consider providing incentives for them to undertake the Master Plumbers and Mechanical Services Association of Australia (MPMSAA) GreenPlumbers® Training and Accreditation course.	Development Strategy and Business Services Engineering and Environmental Services	Ongoing	GreenPlumbers® program promoted via Wbiz and Building Development	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Some additional budget may be required, subject to sponsorship levels
	Work with real estate agents to distribute information to potential home buyers/sellers and renters that highlights the benefits of sustainable housing, including the environmental and financial savings.	Economic Development Engineering and Environmental Services	June 2009	Sustainable living information for renters/home purchasers developed and distributed to estate agencies.		\$5000

Work with our local community groups to conserve water						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Promote water savings to community groups.	Use existing networks to raise awareness of best practice and current research on the use of water efficient technologies and how this may apply for community facilities.	Engineering and Environmental Services Community Development Parks Planning and Recreation	2008/09	Community groups informed about water savings.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional budget required
	Work with occupants of Council's leased buildings to educate and provide appropriate information to reduce their water consumption. This may include fact sheets and annual workshops.	Parks Planning and Recreation Engineering and Environmental Services	December 2008, then ongoing	Decrease in annual water consumption. Annual workshops held.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$4000
	Provide information and assistance to encourage occupants of leased facilities to apply for available water grants.	Parks Planning and Recreation Capital Works Community Development Engineering and Environmental Services	List of grants developed by December 2008, then ongoing	Grant success, more water efficient technologies installed, more water reductions.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Staffing impact, part EFT needed. \$30,000 p.a.
	Facilitate the installation of water tanks/alternative water systems on Council owned/managed land.	Parks Planning and Recreation Capital Works Community Development Engineering and Environmental Services	Ongoing	Number of tanks installed.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	
	Consider incentives for occupants of leased buildings for water savings. Subject to verification of savings and development of assessment criteria.	Parks Planning and Recreation Engineering and Environmental Services	2009/10	Decrease in annual water consumption through metering system.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Additional funding will be required amount TBA

9.2 COUNCIL

Policy and leadership						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Set annual water reduction goals to achieve corporate reduction goals.	Calculate and set corporate water reduction goals for each year in order to meet the 2012 goal.	Executive Management Team Engineering and Environmental Services	June 2008 and annual reviews	Annual corporate water reduction.	<i>Whitehorse Sustainability Strategy 2008-2013</i> <i>Playing Fields Strategy</i>	No additional budget required
	Set water reduction goals for each department and report results for each department annually to the Executive Management Team.	Executive Management Team / relevant department managers	October 2008	Department reduction in water use.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Annual Water Use Plan	Resulting action to achieve goals will require varying amounts of operational and capital funding
	Adopt a policy for Council to commit to permanent water restrictions, generally based on stage 3 restrictions, to ensure ongoing water efficient work practices.	Councillors Engineering and Environmental Services	June 2009	Permanent water savings.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Resulting action to achieve goals will require varying amounts of operational and capital funding
Consider alternative water sources to reduce or replace the use of potable water at Council facilities and assets.	Develop detailed guidelines for water harvesting, recycling and re-use of non-potable water on Council owned and managed land. Water sources to include as a minimum: bores, rainwater tanks, stormwater, greywater, creek water, purchasing and transporting recycled water, mini-desalination and managed aquifer recharging.	Engineering and Environmental Services Other relevant department for consultation purposes	December 2008	Guidelines developed.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Some capital funding may be required, but these will be offset by annual savings from reduced water bills
Establish a revolving water conservation fund.	Consider establishing a revolving water conservation fund where savings generated by water saving actions are directed back to a fund for re-distribution based on competitive water saving goals. Examples of revolving funds include: <ul style="list-style-type: none"> • City of Newcastle • Mornington Peninsula Shire • Moreland Energy Foundation. 	Executive Management Team	March 2009	An increase in funding available for water saving actions. Staff encouraged to identify new water savings actions, knowing that funding is available.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	

▸ Table continued on next page

Policy and leadership						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Implement more ESD measures into Council policy and strategy.	Revise Council's Drainage Policy 1 and Drainage Policy 2 to include guidelines and possibly requirements to encourage stormwater <i>re-use</i> and recycling.	Engineering and Environmental Services	June 2009	Policies include stormwater recycling and <i>re-use</i> .	<i>Stormwater Management Plan</i> <i>Whitehorse Sustainability Strategy 2008-2013</i>	Likely to impact developers drainage contribution and capital works
Include provision in annual capital works and maintenance budgets to invest in water saving upgrades.	<p>When designing and approving capital works projects, ensure sufficient investments are made for Council buildings to be more water efficient by:</p> <ul style="list-style-type: none"> • Water saving measures being included in building upgrades, maintenance and new constructions • Provision made in appropriate budget to include the cost of water saving measures as standard installations. <p>Develop an annual building maintenance program that automatically replaces faulty or damaged appliances and fittings with a minimum of a 4-star water efficient rating.</p>	Capital Works	December 2008, then ongoing	ESD guidelines and checklist contain water-saving measures. Building maintenance program procedures upgraded to specific 4 star replacements.		<i>Whitehorse Sustainability Strategy 2008-2013</i> suggests an extra 10% capital works funding should be added to each project for ESD measures \$10,000 p.a. boost to be provided to building maintenance budget
Increase collaboration with other councils and organisations in water saving programs and projects.	Use existing and new networks with local government, the Municipal Association of Victoria, and ICLEI Oceania to identify opportunities to reduce water consumption and improve water quality, and strengthen ESD advocacy.	Executive Management Team	Ongoing	Regular liaison and communication with relevant organisations.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
Reduce sewerage charges.	Undertake an audit of sewer calculations for all Council owned sites, seeking to identify cost savings.	Engineering and Environmental Services	June 2009	Reduction in annual water cost from billing data.	Long-term Finance Plan	May result in budget savings
	Where appropriate, renegotiate with Yarra Valley Water for separate metering of water that does not place a load on the sewerage system (e.g. irrigation water).	Engineering and Environmental Services	June 2009	Reduction in annual water cost from billing data.	Long-term Finance Plan	May result in budget savings
	Review water invoices to identify potential water savings at least every 6-months.	Engineering and Environmental Services	June 2009, then every six months	Reduction in annual water consumption and cost.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	May result in budget savings

Monitoring, reporting and communication						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Improve monitoring of water consumption initiatives.	<ul style="list-style-type: none"> • Complete Milestone 4 of the ICLEI Oceania Water Campaign™ • Complete Milestone 5 of the ICLEI Oceania Water Campaign™ • Continue with the ICLEI Oceania Water Campaign™ beyond Milestone 5, including monitoring and reporting on water saving achievements as per ICLEI Oceania requirements. 	Engineering and Environmental Services and assistance from relevant departments	Milestone 4 by August 2008 Milestone 5 by July 2009	Milestone 4 and 5 achieved. ICLEI program requirements met.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Provision needs to be made to fund actions in the Water Action Plan in Council's annual budget
	Develop an actions database to: <ul style="list-style-type: none"> • Track and report the progress of implemented water efficient actions within the municipality • Archive completed or cancelled actions • Assist in quantifying water saving volumes. 	Capital works Engineering and Environmental Services and assistance from relevant departments	December 2008	Information and progress is readily available to all staff.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Monitor the water consumption and provide an annual public report that summarises Council's water consumption, showing key water use areas, and Council's progress towards water saving goals.	Engineering and Environmental Services	September 2008 and annually thereafter	Annual public report.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Adopt a water and energy bill monitoring and analysis system that readily provides electronic data to Council.	Engineering and Environmental Services	June 2008	Electronic data is readily available to Engineering and Environmental Services team.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$2500 p.a.
Improve reporting of water consumption initiatives.	Report water-saving actions to relevant department managers, to be included in quarterly departmental reports.	Engineering and Environmental Services	September 2008 onwards	Quarterly reports.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Develop a maintenance and retro-fit register to ensure efficient reporting of all water conservation actions undertaken in Council's facilities maintenance activities. Ensure it will be easily linked with the Integrated Asset Management System being developed.	Facilities Maintenance	December 2008	Maintenance register developed and regularly updated.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Additional administration and resources, approx \$8,000
	Produce monthly reports on high-use Council facilities, quarterly for others, and present data in a format that better matches Council's facility register and information needs.	Engineering and Environmental Services	September 2008 onwards	Quarterly reports.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
Improve electronic billing data.	Work with Yarra Valley Water and other interested councils and organisations to develop and implement an electronic billing system.	Finance and Information Services	2009	Electronic billing system introduced.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required

Sports grounds and open space						
Goal	Action	Responsibility	Timeframe	Measurable Outcome	Link to other strategies	Budget implications
Ensure Council open space and sports fields are managed sustainably.	Develop and implement a report that determines a framework and action plan for sustainable and cost effective water usage at Council's active sports fields.	ParksWide Parks Planning and Recreation	December 2008 and then ongoing	Plan developed implementation commenced.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Recreation Strategy Implementation Plan	Additional funds required if capital upgrade results from plan
	Enforcement where necessary of sporting ground use arrangements to limit over-use and to avoid deterioration of ground surface.	ParksWide Parks Planning and Recreation Compliance	Ongoing	Sporting ground adhere to arrangements.	Recreation Strategy Implementation Plan	Additional staffing resources required
	Investigate the most effective methods of reducing playing fields irrigation requirements, including for example: <ul style="list-style-type: none"> • Progressively implementing water saving technologies such as moisture sensing and controls, wetting agents, sub-surface irrigation • Monitoring the conditions of playing fields and if necessary to preserve the playing surface, reduce the use of the playing field • Facilitate the sharing of playing fields with other clubs • Consider the conversion of playing fields to synthetic surfaces where appropriate, subject to Council recreation strategy and capital works budget. 	ParksWide Parks Planning and Recreations	Ongoing	Irrigation technology progressively updated. Ground-sharing program and ground-use guidelines implemented. Synthetic surfaces introduced where appropriate, subject to funding.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Recreation Strategy Implementation Plan Eastern Region Soccer Strategy Open Space Strategy Sustainable Management Plan and Sports Field Maintenance and Development Project	Varying amounts will be required in capital works budget Many measures will lead to reduced operating and maintenance costs, with typical pay-back period of 10 years
	Progressively convert all Council owned sports fields to warm season grasses that require less water to sustain them.	ParksWide	2005-2012	Sportsfields planted with warm season grasses.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$125,000 p.a. initial capital, ongoing operational savings

Sports grounds and open space

Goal	Action	Responsibility	Timeframe	Measurable Outcome	Link to other strategies	Budget implications
	Consider Water Sensitive Urban Design (WSUD) principles in the design and construction of new sports grounds, open space, car parks and gardens.	ParksWide Parks Planning and Recreation Urban Design	Ongoing	WSUD principles included in all designs.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Open Space Strategy	Additional initial costs (up to 10% extra)
	Commit to the sustainable management of playing fields beyond stage 3 water restrictions by adopting a permanently reduced watering regime based on sustainable turf management and water-use principles.	ParksWide	September 2008 onwards	Ongoing water savings will contribute to Council's water saving targets.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Savings in operational budget due to lower water use
	Periodically review irrigation techniques and progressively implement to best practice water efficient measures.	ParksWide	Ongoing	Irrigation techniques reflect best practice.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Capital funding required if irrigation technology is upgraded
	Develop contingency plans to respond to the main water restriction scenarios, including the possibility of further restrictions on the watering of sporting fields (stage 4 water restrictions).	ParksWide Parks Planning and Recreation	August 2008	Contingency plan developed.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Sportsfields policy	TBA
Ensure Council parks and gardens are managed sustainably.	Increase the use of water efficient landscape practices such as mulch, water retaining soil treatments, and group planting of drought tolerant species.	ParksWide	Ongoing	Work practices reflect best practice.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	
	Design and construct new parks, gardens and landscaped areas with low water demand plants.	Parks Planning and Recreation Urban Design ParksWide	Ongoing	WSUD features included in all designs.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Varies – some elements may add costs, others will save costs
	Develop a water use plan for the Bolton Reserve Stormwater Retention System to ensure stored stormwater is used efficiently year round.	CityWorks ParksWide	October 2008	Plan developed and implemented.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional budget required

Buildings and property management						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Improve water efficiency of new Council buildings.	<p>Integrate water efficiency into the standard specifications for all new building and maintenance undertaken by Council. Standard specifications to include:</p> <ul style="list-style-type: none"> • Harvesting rainwater <i>re-use</i> for regular services (e.g. cleaning, street sweeping and drain cleaning, toilet flushing) • Water efficient tap-ware, showers and toilets • Water efficient appliances (e.g. dishwashers) to be within the minimum water efficiency standards as specified by the Australian Governments Water Efficiency Labelling and Standards (WELS) Scheme • Waterless urinals or similar • Smart flush toilets • Appropriate sub-metering of water use, and design, which facilitates maintenance. 	Capital Works	December 2008 and ongoing	Building specifications include water-saving fixtures and fittings as standard.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	<p>Varying amounts will be required in capital works budget</p> <p>Many measures will lead to reduced operating and maintenance costs, with typical pay-back period of 10 years</p>
Retro-fit Council owned buildings.	Undertake an audit of all Council buildings and progressively implement the recommendations from the audit. Revise the Building Asset Management Plan to incorporate the audit outcomes and recommendations.	Capital Works	2010	Audits completed.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$5000 p.a. for three years
	Retro-fit all water using appliances with water saving features to be within the minimum water efficiency standards (WELS).	Capital Works	Ongoing	Appliances comply with WELS 4 star rating.	<i>Whitehorse Sustainability Strategy 2008-2013</i> Pollution Policy	Within existing operational and capital works budgets with offset operational savings

➤ Table continued on next page

Buildings and property management

Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Integrate water efficiency into specification of maintenance works.	Integrate water efficiency into the standard specifications for building maintenance works undertaken by Council. Standard specifications to include: <ul style="list-style-type: none"> • Water efficient tap-ware, showers and toilets • Water efficient appliances (e.g. dishwashers) • Waterless urinals or similar • Appropriate sub-metering of water use, and design, which facilitates maintenance • Prompt repair of leaks including replacement of faulty pipe works. 	Facilities Maintenance	December 2008	Building maintenance specifications and work practices include water-saving fixtures and fittings as standard.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Initial capital investment varies, but typically the payback period from operational savings is a maximum of 10 years \$10,000 p.a.
	Maintenance to go beyond what is required at individual buildings e.g. if maintaining/renovating kitchen area of a building also look at bathroom and see what water efficient devices can be replaced/installed.	Facilities Maintenance	Ongoing	Work practices and checklists include extended site inspections and assessments.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Initial capital investment varies, payback from operational savings is a maximum of 10 years
	Progressively install rainwater tanks across Council properties for toilet flushing, garden watering and other water re-use purposes as appropriate in accordance with water tank guidelines.	Capital Works	Ongoing	Number of tanks installed is progressively increased.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Average tank installation \$7,000 to \$10,000 each
Work with building users to ensure a commitment to water conservation.	Encourage staff and patrons to report leaking taps, toilets, showers and water mains. Develop a clear procedure for reporting leaks and receiving feedback when leaks have been fixed.	Facilities Maintenance	June 2008	More efficient facilities, reduction in water use.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funding required
Reduce water at Council facilities.	Identify specific facilities with increased water use and work with managers and facility users to reduce consumption eg. residencies, sports pavilions.	Engineering and Environmental Services and relevant departments	Ongoing	More efficient facilities, reduction in water use.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	May require capital investment, varies site to site
	Install smart meters at all major facilities.	Capital Works Arts and Recreational Development	Ongoing	Water consumption measured exactly.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$15,000 p.a.

Leisure and recreation						
Goal	Action	Responsibility	Timeframe	Measurable outcome	Link to other strategies	Budget implications
Continuous improvement of water savings at leisure centres.	Review pool set-up to allow for re-use of backwash water on Council's ovals and reserves, subject to cost/benefit demonstrating that this is worthwhile, practical and affordable.	Leisure Facilities	2009	Reduction in water use.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Approx \$200,000 depending on treatment required
	Regularly maintain pool infrastructure to avoid leakage (including use of Smart meters).	Leisure Facilities	Ongoing	Reduction in water losses.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$12,000 for Smartmeters
	Maintain water saving tapware, showers and toilets at Aqualink and all Council leisure facilities progressively upgrading fittings and using WELS rated appliances.	Leisure Facilities Capital Works	Ongoing	Water efficient fittings installed.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Extra 10% for capital works upgrades, offset by operational savings
	Work with YVW to provide advice/guidance for Aqualink facilities with implementation of WaterMAP and report to Council for both centres.	Leisure Facilities	Ongoing	Compliance with WaterMAP requirements.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
Continuous improvement of water savings at recreational venues.	Consider replacing en-tout-cas tennis courts and lawn bowling greens with synthetic surfacing when upgrading, subject to club preference and budget.	Leisure Facilities	2008-2013	Increased number of facilities with synthetic surfaces.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Amounts will vary, could be up to \$200,000 per club or more
	Consider water reduction technologies for facilities such as bowling and tennis surfaces, and liaise with industry and clubs to monitor best practice and emerging technologies.	Leisure Facilities	Ongoing	Information researched and shared.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Provide advice and encourage sporting clubs to apply for community water grants and other water-related grants.	Engineering and Environmental Services	Ongoing	Clubs apply annually for water grants	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Assist with installation of water saving fixtures and fittings subject to resources.	Engineering and Environmental Services Parks Planning and Recreation	Ongoing	Implementation of water saving initiatives	<i>Whitehorse Sustainability Strategy 2008-2013</i>	0.5 EFT
	Consider alternative sustainable water sources for Morack Golf Course to reduce reliance on potable water supply.	Leisure Facilities	2009/10	Water savings	Recreation Strategy Implementation Plan	TBA

Water quality						
Aim	Action	Responsibility	Timeframe	Measurable Outcome	Link to other strategies	Budget implications
Sediment and erosion control.	Ensure staff and contractors are aware of and can access Council's guidelines on management practices for sediment and erosion control.	Engineering and Environmental Services ParksWide	Ongoing	Guidelines publically available and promoted.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
Herbicide, pesticide and fertiliser control.	Undertake a review of the herbicide, pesticide and fertiliser use and demonstrate a reduction in applied chemical use.	ParksWide	2009	Work practices reviewed and updated.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
	Educate staff, contractors and residents on the impacts of the use of herbicide, pesticide and fertilisers.	Engineering and Environmental Services	Ongoing	Work practices reviewed and updated.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funds required
Gross litter control.	Develop and implement targeted litter campaigns in accordance with the Stormwater Management Plan in litter hotspots upstream from waterways and drainage inlets.	Engineering and Environmental Services	December 2008 and periodically thereafter	Reduction in litter.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	
	Periodically research/investigate types of gross litter devices that would provide best capture of litter.	City Works Engineering and Environmental Services	December 2008, every six months thereafter	Best practice devices included in Council specifications.	Waste Management Plan Stormwater Management Plan	No additional funds required
	Continue Council's annual installation of gross pollutant traps at key upstream locations, as per recommendations from the Stormwater Management Plan, subject to annual budget.	Engineering and Environmental Services	Annual	GPT(s) installed and litter reduced.	Stormwater Management Plan	Typically \$100,000 p.a.
	Collect and collate data on the quantity and type of litter trapped for use in education and awareness raising campaigns.	City Works	December 2008	Information included in Annual Report.	Stormwater Management Plan	\$5,000 p.a.
	Review maintenance regime to optimise the efficiency of permanent litter trapping devices, and adjust maintenance program accordingly.	City Works	December 2008	Work practices reviewed and updated.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Some additional funds may be required
	Provide maintenance to street litter bins to a standard and schedule that minimises overflow into nearby drains.	City Works	Ongoing	Litter bin overflow is minimised.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	May require additional funding

➤ Table continued on next page

Water quality						
Aim	Action	Responsibility	Timeframe	Measurable Outcome	Link to other strategies	Budget implications
	Evaluate and remove unnecessary rubbish bins in parks and install educational signage encouraging users to take litter home.	City Works Parks Planning and Recreation	Ongoing	Litter dumping is minimised.	Waste Management Plan Open Space Strategy	TBA
Wastewater treatment.	Develop Council guidelines that address wastewater re-use and water treatment requirements for Council and residents e.g. greywater and blackwater re-use.	Engineering and Environmental Services Environmental Health	2008/9	Guidelines developed and promoted.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	No additional funding required
Water quality monitoring and education for residents and schools.	Continue supporting Waterwatch programs including the involvement of schools and advisory groups throughout the municipality.	Parks Planning and Recreation	Ongoing	Waterwatch program continues.	Open Space Strategy	\$5000
	Ensure Council receives Waterwatch reports and information of results.	Engineering and Environmental Services	Annually by December	Waterwatch reports included in Annual Report.	Open Space Strategy	No additional funding required
	Consider the development of a pollution hotline for the City that links to EPA programs: Liaise with EPA to track pollution incidents and investigate the possibility of a program which issues fines to pollution offenders.	Engineering and Environmental Services	2010	Pollution hotline established if viable.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	TBA
Conduct a stormwater quality improvement program	Develop a program in conjunction with Yarra Valley Water and EPA that assists with educational material and site visits for local schools.	ParksWide	2009/10	Educational program developed and implemented.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	\$2000 p.a.
Instigate a pollution investigation and compliance program for the City.	Conduct educational/compliance campaigns to detect pollution incidents and promote awareness of pollution issues across the organisation and the community. For example: detect and remove cross connections between sewer and stormwater systems, target dumping in drains	Environmental Health	Commence in 2009 and conduct at least annually	Campaign conducted, pollution reduced.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	Could be cost neutral (income from fines)
		Local Laws				
		Yarra Valley Water				
Use of street sweeping as a water quality improvement strategy.	Review current street sweeping programs. Design and implement a street sweeping program that includes environmental best practice to improve stormwater quality.	City Works	2009	Street sweeping reflects best practice.	<i>Whitehorse Sustainability Strategy 2008-2013</i>	TBA

➤ Table continued on next page

Water quality						
Aim	Action	Responsibility	Timeframe	Measurable Outcome	Link to other strategies	Budget implications
Incorporate WSUD requirements in new capital works.	<p>Incorporate water sensitive urban design (WSUD) requirements into relevant new Council works projects. The requirements should be quantitative to simplify determination of compliance. Parameters with quantitative requirements could include:</p> <ul style="list-style-type: none"> • Peak stormwater flow from the site to be modelled to be no more than for a site with no impervious surfaces (i.e. benchmarked against an undisturbed site). Design features include stormwater collection, swales and pervious drains. • Rainwater harvesting storage volume (improves stormwater quality and reduces peak flows). • Rainwater re-use applications. • Swimming pools to utilise rainwater for topping up and filter backwashing. • Including wetlands or rain gardens in open space projects, stormwater diversion projects or as upstream treatment in creeks or lakes. • Adopting quantitative WSUD requirements for Council capital works as a prerequisite for requiring private sector developments to incorporate WSUD. 	<p>Engineering and Environmental Services</p> <p>Urban Design</p> <p>Parks Planning and Recreation</p>	Ongoing	Engineering Design and Construction Environmental Guidelines and Council capital works building specifications to reflect WSUD requirements as standard.	<p>Engineering Design and Construction Environmental Guidelines</p> <p><i>Whitehorse Sustainability Strategy 2008-2013</i></p> <p>Open Space Strategy</p>	Varying amounts will be required in Capital Works budget
Require WSUD in new for planning permits.	Develop WSUD requirements to apply to projects that require a planning permit.	Development Strategy and Business Services	June 2009	Reductions in water use in the community.	<p>ESD Planning policy</p> <p>Municipal Strategic Statement</p>	\$2000
Stormwater to irrigate gardens and recharge groundwater.	Investigate the feasibility of modifying drainage in parks to incorporate pervious swales when any park with impervious surface or underground drains is to be redesigned.	<p>Parks Planning and Recreation</p> <p>Engineering and Environmental Services</p>	2009/10	Feasibility study completed.	<p>Stormwater Management Plan</p> <p><i>Whitehorse Sustainability Strategy 2008-2013</i></p> <p>Open Space Strategy</p>	\$10,000

10 GLOSSARY

Aerobic treatment	Biological process by which microbes decompose complex organic compounds in the presence of oxygen and use the liberated energy for reproduction and growth.	Domestic greywater	Domestic greywater is household wastewater, which has not come into contact with toilet waste. It includes wastewater from bathtubs, showers, bathroom basins, washing machines, laundry tubs and kitchen sinks. There are environmental and health issues associated with this practice which can, however, be managed.
Afforestation	To convert (open land) into a forest by planting trees or their seeds.	Groundwater	All subsurface water, generally occupying the pores and crevices of rock and soil.
Anaerobic treatment	Reduction of the net energy level and change in chemical composition of organic matter caused by micro-organisms in an oxygen-free environment.	kL	1000 litres of water
Baseflows	The component of stream flow supplied by groundwater discharge.	'Light' greywater	Household wastewater from the shower, bath and bathroom.
Blackwater	Household wastewater from the kitchen, toilet and bidet.	ML (megalitre)	1,000,000 litres of water.
Catchment	An area of land where run-off from rainfall goes into one river system.	Outfall	The site of discharge where a sewer discharges to a treatment works or receiving water.
Catchment Management Authorities (CMAs)	Catchment Management Authorities are the caretakers of river health, responsible for regional and catchment planning and coordination, and waterway, floodplain, salinity and water quality management	Potable water	Reticulated (piped) water distribution.
Desalinisation	The removal of salt from water sources.	Process energy requirement	The energy directly related to the manufacture of a material.
E.Coli	Faecal bacteria found in the digestive tract of animals, which are used to indicate presence of wastewater contamination within an environment.	Rainwater	Roof runoff, generally stored in rainwater tank.
Ecosystem	A dynamic complex of plant, animal, fungal and micro-organism communities and the associated non-living environment interacting as an ecological unit.	Recycled water	Treated stormwater, greywater or blackwater suitable for a range of uses.
Effluent	As applied to sewage treatment, waste water which flows from treatment works.	Reforestation	To replant (an area) with forest cover.
Embodied energy	The energy consumed in by all the processes associated with the production of a product from the acquisition of natural resources to product delivery.	Salinity	The total amount of water-soluble salts present in the soil or in a stream.
Environmental flow	The stream flow required downstream of a water storage to maintain appropriate environmental conditions in a waterway.	Sewage	The waterborne wastes of a community.
Environmental water reserve	The share of water resources set aside to maintain the environmental health of rivers, wetlands, estuaries, lake and aquifers.	Sewerage	A physical arrangement of pipes and plant for the collection, removal, treatment and disposal of liquid waste.
Estuaries zones	Where a river meets the sea, influenced by river flows and tides, and characterised by a gradient from fresh to salt water.	Stormwater	Catchment runoff from impervious areas like roads and pavements.
Fit-for-purpose	Water that requires no further treatment for its intended use.	Suspended solids	Particles in water that can be removed by sedimentation or filtration.
Floodplain	The relatively smooth valley floors adjacent to and formed by alluvial rivers which are subject to overflow during flood events.	Water authorities	Authorities charged with supplying water to towns and cities across Victoria, for urban, industrial and commercial use. They administer the diversion of water from waterways and the extraction of groundwater.
		Water right	Rights held by irrigators in an irrigation district.
		Wetlands	Inland, standing, shallow bodies of water, which may be permanent or temporary, fresh or saline.
		WSUD	Water Sensitive Urban Design – design to minimise and improve the water quality of stormwater



CONTACTING COUNCIL

Postal Address

Whitehorse City Council

Locked Bag 2
Nunawading Delivery Centre 3131

Telephone 9262 6333
Fax 9262 9490
TTY 9262 6325 (Service for deaf or hearing impaired people)
TIS 131 450 (Telephone Interpreter Service. Call and ask to be connected to Whitehorse City Council)

Email

customer.service@whitehorse.vic.gov.au

Website

www.whitehorse.vic.gov.au

Service Centres

Whitehorse Civic Centre

(main Service Centre)
379–397 Whitehorse Road
Nunawading 3131

Box Hill Service Centre

Box Hill Town Hall
1022 Whitehorse Road
Box Hill 3128

Forest Hill Service Centre

Shop 130,
Forest Hill Chase Shopping Centre
Canterbury Road
Forest Hill 3131

For a large print version of this brochure, please call 9262 6124

Sustainable and proud of it

This booklet is printed on 100% recycled paper

Publication no. 171008020