
CITY OF KELOWNA

MEMORANDUM

Date: January 6th, 2009
File No. 5600-01 Water Sustainability
To: City Manager
From: Utility Operations Manager
Subject: Water Sustainability Action Plan Update

RECOMMENDATION:

THAT Council receive, for information, the update on the Water Sustainability Action Plan attached to the Report of the Utility Operations Manager dated January 6, 2009.

BACKGROUND:

In 2007, Council adopted a Water Sustainability Action Plan for the City of Kelowna water utility (attached). This plan outlines a number of initiatives that are designed to reduce overall water consumption within the Kelowna water utility by a further 15% by 2012. This reduction will complement a 20% overall reduction in water use that has already been achieved since the Water Smart program was established. Although there have been successes with water use reduction over the past number of years further reductions are both necessary and achievable in support of water sustainability. Kelowna still remains one of the highest water users per capita in North America.

The Water Sustainability Action Plan is managed by the water utility under the direction of the Utility Operations Manager. H2Okanagan provides contracted services to deliver the elements of the action plan through its Water Smart program. The Water Sustainability Action Plan and Water Smart program are both nationally recognized and were selected as presentation for the national FCM conference in Ottawa in 2007.

The Water Sustainability Action Plan focuses on seven (7) initiatives related to water sustainability best practice. The initiatives include:

1. Demand Side Management Programs
2. Customer Education
3. Linking Water Conservation to Development Approvals
4. Ensuring Effective Full Cost Pricing
5. Reducing Water System Leakage
6. Ensuring the Use of Water Efficient Fixtures
7. Exploring and Developing Water Reuse Programs



2008 Accomplishments / 2009 Planned Activities

The following is an overview of progress on the plan during 2008. Although progress was made on most elements the primary focus over the past year was on initiatives #1 and #3

1. Demand Side Management Programs

The water utility now has 10 years of water metering data, and continues to use this data to identify specific customers to work with on water conservation efforts. For example, the Parks Division uses approximately 20% of total water production between May and September. While we must be sensitive to public expectations and park user needs we are working with the Parks Division to build on the successful approaches to conservation they have implemented over the past few years and to identify any opportunities for further water use reductions. We are also working with our Strata customers by reviewing their water consumption. Water consumption in some strata developments is five to 10 times higher than equivalent residential customer consumption. Changes to the current strata rate structure are being made to ensure more equity exists between the strata and residential customer rate classes.

2. Customer Education

A number of water conservation experiments concluded in 2008, including drought tolerant grass, compost tea, and the soil amendment program. Results will be used to identify possible rebate programs in the future. Water Smart continues to offer free leak inspections and irrigation/landscape audits for residential and commercial customers. We are active in the community and in the school district. In 2008 Water Smart staff continued to focus on assisting the Parks Division, Multi-Family, and other specific groups identified through water meter data analysis.

3. Link Water Conservation to Development Approvals

In summer months the water utility delivers about 90 million litres of water per day to its customers. During the irrigation season 75- 80% of this water is used for outside irrigation of turf and landscaping. Poor soil, improperly designed irrigation systems, and excessive use of turf grass contribute to water waste. During 2008 the water utility worked with community stakeholders to develop draft landscape and irrigation standards and to develop draft bylaw language to support these standards. An information report will be presented to council in mid January for council comment and discussion prior to the delivery of a final report in early spring for council approval. The landscaping standards and related bylaws will ensure that water conservation principles are "built in" to all new landscaping practice. Kelowna will be the first city in Canada to implement such standards, subject to council review and approval. This initiative has been supported by the development community and the irrigation industry.

4. Ensure Effective Full Cost Pricing

The utility continues to review and revise its rate structure. Significant work has been done over the past 3 years reviewing rate structures to provide for full cost of service. Additional work needs to be done with further analysis of water meter data which has revealed some customer classes who do not pay their full share for the water they use. Recommendations on rate adjustments for these customers will be brought to council very soon to ensure equitable distribution of costs among the various customer classes.

5. Reduce Water System Leakage

The water utility is now in the process of completing a comprehensive water audit and leak detection survey for its distribution system. This audit follows best practices by the AWWA and will identify specific areas where water losses may be occurring. The water utility has an obligation to ensure its infrastructure is providing efficient delivery of water and must minimize any leakage that is discovered. Early indications are that our system is very tight and that leakage by industry standards is likely minimal.

6. Ensure the Use of Efficient Fixtures

The section of the plumbing regulation bylaw that details low flow fixtures (toilets, showers, and faucets) has not been updated since 1993. In that time there have been major improvements in low flow toilet technology. Water Smart is consulting with stakeholders about the implications of revising the bylaw to make High Efficiency Dual Flush toilets the new standard. HET's are common in the United States, but Kelowna would be the first city in Canada to make the dual flush models mandatory.

7. Explore and Develop Water Reuse

Water reuse is popular in Australia, Europe, the United States and some Canadian jurisdictions. The current upgrade at the Kelowna wastewater treatment plant is now making provision for treated wastewater effluent to be reused for all on site irrigation and non potable water needs within the plant site. There are several other possibilities the water utility and the Parks Division are also exploring. These include using drainage from detention ponds for parks irrigation and the potential of constructing localized holding tanks within new or existing subdivisions to capture drainage for irrigation purposes. These options will be explored this year

EXISTING POLICY: **Council Adopted Action Plan**

Considerations that were not applicable to this report:

INTERNAL CIRCULATION TO:

LEGAL/STATUTORY AUTHORITY: N/A

LEGAL/STATUTORY PROCEDURAL REQUIREMENTS: N/A

FINANCIAL/BUDGETARY CONSIDERATIONS: N/A

PERSONNEL IMPLICATIONS: N/A

TECHNICAL REQUIREMENTS: N/A

EXTERNAL AGENCY/PUBLIC COMMENTS: N/A

COMMUNICATIONS CONSIDERATIONS:

ALTERNATE RECOMMENDATION:

Submitted by:


D. Degen
Utility Operations Manager

Approved for Inclusion:



c.c. General Manager, Citizen Services
Director, Infrastructure Operations

Attachment:

1. City of Kelowna Water Sustainability Action Plan
2. Power Point Presentation



City of Kelowna Water Sustainability Action Plan

The following initiatives outline a Water Sustainability Action Plan for the City of Kelowna. This plan is an integral part of the corporate Sustainability Action Plan and is in keeping with city council's goal to reduce water consumption by a further 15% by 2012. Each of the elements listed represent a call for action corporately over the next 5 years, as well as throughout the community.

1. Require, Implement and Track Demand Side Management Programs (DSM)

Implement the City Council endorsed water reduction strategy by reducing overall water consumption by a further 15% by 2012.

Track internal and external customer consumption data to ensure consumption patterns are in keeping with reduction targets.

Build relationships with the community and help guide the planning and implementation of DSM programs that require citizen participation.

Work with all corporate customers to develop DSM reduction plans that reflect the overall corporate reduction objectives.

Monitor and adapt DSM programs over the long term and plan for water sustainability beyond 20 years.

2. Enhance Customer Education through Effective Social Marketing Programs

Continue to implement permanent water conservation programs and resource these with staff that possess technical skills and understanding in the fields of economics and customer education.

Develop relationships with high water users in all customer classes and work with these users to develop reduction strategies.

Develop incentive-based social marketing programs designed to reduce outdoor water use.

Provide direct assistance to all customers who need to reduce water use.

Provide leadership and innovation in outdoor water conservation research..

Work with all other water purveyors within Kelowna to ensure a consistent approach is applied throughout the community.

3. Link Water Conservation to Development Approvals

Make Development Permit approval contingent upon demand management planning that provide demonstrated outcome.

Require that all new developments and retrofits of existing facilities and homes make use of the best available water conservation technologies.

Require water sensitive Urban Design by limiting “green sprawl”
Develop mandatory landscaping standards that demonstrate water use reduction and ensure installations occur as part of final inspection processes.

Encourage the provincial government to tie major infrastructure funding to demonstrated water conservation planning.

4. Ensure Effective Full Cost Pricing with Volume Based Pricing Structures

Implement full cost pricing with volume based pricing structures.

Reflect the importance and value of water to promote conservation and ensure equitable access through water rates.

Target high and excessive users and send a strong signal during peak demand periods.

Promote revenue neutrality and provide incentives by penalizing heavy users and rewarding low users.

Review opportunities for alternate metering technologies as part of meter replacement programs.

Work with all other water purveyors within Kelowna to ensure a consistent approach to full cost pricing is applied throughout the community.

5. Reduce Water System Leakage That Results in Water Loss

Confirm percentage of water system losses as part of the utility’s overall unaccounted for water formula. Identify costs associated with delivery and lost revenue.

Enhance the current leak detection program by identifying priority areas and completing leak detection surveys.

Develop a 5 year revolving plan to rectify system leakage.

Work with all other water purveyors within Kelowna to ensure a consistent approach to water system leakage is being applied.

6. **Promote and Ensure the Use of Water Efficient Fixtures**

Review existing fixture bylaws to ensure they reflect the latest technology available and reconfirm that all new development continues to be installed using mandatory water efficient fixtures.

Work with all internal departments in 2007 to identify water use reduction opportunities within all city owned facilities.

Develop 2 year plans that require fixture retrofits to all facilities beginning in 2008.

7. **Explore and Develop Water Reuse Opportunities**

Identify water reuse opportunities within existing city divisions.

Explore retrofits or new installation potential where water reuse makes sense.

Water Sustainability Action Plan

2008 Review

2009 Plans

Presented by Neal Klassen

City of Kelowna Water Smart Program

H2Okanagan Water Conservation



WATER SUSTAINABILITY ACTION PLAN

1. Demand Side Management Programs
2. Customer Education
3. Link Water Conservation to Development Approvals
4. Ensure Effective Full Cost Pricing
5. Reduce Water System Leakage
6. Ensure the Use of Efficient Fixtures
7. Explore and Develop Water Reuse

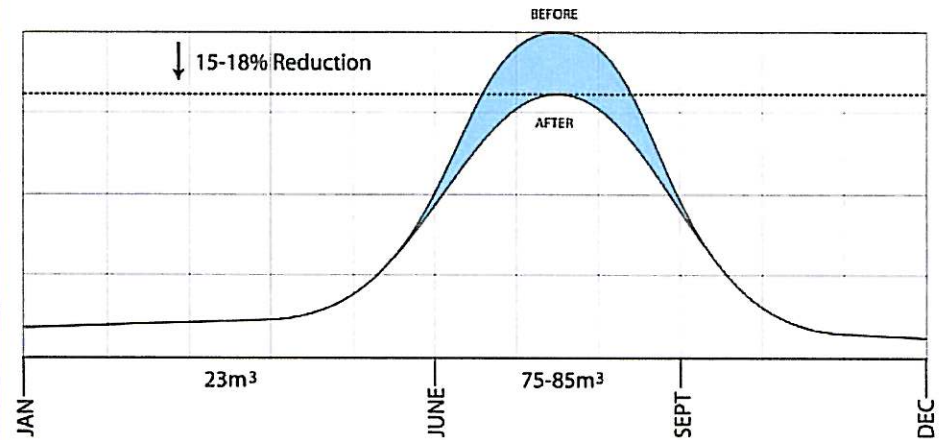


1. Demand Side Management Programs

Using Consumption Data to Identify Conservation Priorities

- Parks Department
- Bare Land Stratas
- Single Family Residential

Primary focus continues to be reducing water used for landscape irrigation



2. Customer Education

2008:

Tests/experiments concluded:

- Compost Tea
- Soil Amendment
- Drought tolerant grass
- Odd/Even Watering Restrictions
- Irrigation audits of 45 parks

2009:

- Developing rebate programs
- Implementing test results in neighborhood parks



3. Link Water Conservation to Development Approvals

75 – 80% of summer consumption is used for landscape irrigation

2008:

Worked with stakeholders to develop draft standards and bylaws to ensure water efficient landscaping in new construction

2009:

Information report to council in early 2009, with final report for council approval in spring, 2009.



4. Ensure Effective Full Cost Pricing

2008:

No rate changes in 2008. Comprehensive rate review identified certain customer groups do not pay their share for the water they use.

2009:

Recommendations on rate adjustments will be brought to council in spring 2009.

This will help ensure equitable distribution of costs among the various customer classes.



5. Reduce Water System Leakage

To ensure that the water distribution system itself is as efficient as possible.

2008:

Completed a comprehensive water audit and leak detection survey for water distribution system.

Early indications suggest that leakage in Kelowna's system is minimal by industry standards.

2009:

Develop recommendations and actions based on report.



6. Ensure the Use of Efficient Fixtures

- Plumbing Fixture Bylaw has not been reviewed since 1993.
- Significant improvements in low flow technology since then.

2008:

Studied Plumbing Fixture Bylaws and toilet rebate programs in other Canadian/U.S. Cities.

2009:

Will recommend changes to bylaw and pilot toilet rebate program.



7. Explore and Develop Water Reuse

- Water re-use is popular in some other jurisdictions.
- City of Penticton uses treated waste water to irrigate parks.
- Exploring water re-use opportunities in Kelowna such as:
 - 1) Use drainage from detention ponds for parks irrigation.
 - 2) Construct localized holding tanks to capture drainage for irrigation purposes.



Water Sustainability Action Plan

2008 Review

2009 Plans

QUESTIONS?

