Report to Council

City of Kelowna

Date: July 12, 2012

File: Water Sustainability

To: City Manager

From: Mike Gosselin, Acting Manager, Utility Services, Civic Operations

Subject: 2012 Water Sustainability Action Plan Update

Recommendation:
THAT Council receives, for information, the Report from the Acting Manager, Utility Services, Civic Operations dated July 12, 2012 with respect to an update on the Water Sustainability Action Plan;

THAT Council approves the Irrigation Incentive Programs which have been developed in support of the City of Kelowna Water Sustainability Action Plan.

Purpose:
Provide an update on the Water Sustainability Action Plan and seek City Council's approval on an incentive program.

Background:
In 2007, Council adopted a Water Sustainability Action Plan for the City of Kelowna's Water Utility. The Plan was designed to reduce overall water consumption (measured in litres per capita) within the utility by 15 % between 2007 and 2012. This reduction was intended to complement the 20 % reduction in water use already achieved since the Water Smart program was established in 1996.

In addition, the Plan looks to reduce peak water usage as this will reduce the need for more infrastructure to provide more potable water.

The Water Sustainability Action Plan is managed by Utility Services. H2Okanagan provides contracted services to deliver the elements of the action plan through its Water Smart program. The Plan focuses on seven (7) initiatives related to water sustainability best practice. The initiatives are:

- Demand Side Management Programs
- Customer Education through Effective Social Marketing Programs
- Link Water Conservation to Development Approvals
- Ensure Effective Full Cost Pricing with Volume Based Pricing Structures
- Reduce Water System Leakage
- Promote and Ensure the Use of Efficient Fixtures
- Explore and Develop Water Reuse Opportunities

2007-2011 Accomplishments

The following provides an overview of the Plan's progress since the start of 2007.

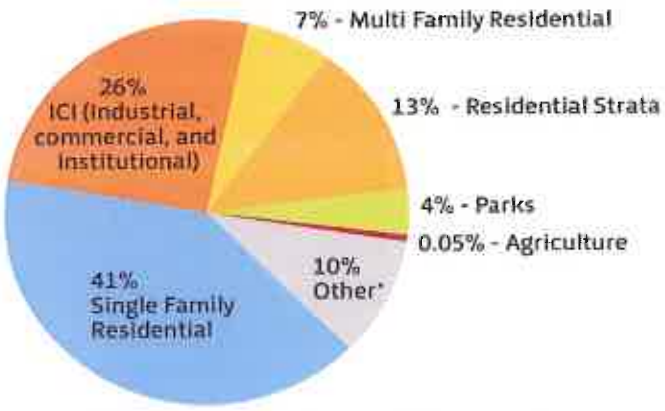
Demand Side Management Programs

Essentially Demand Side Management programs focus on customer behaviour to reduce water consumption. For example, the customer can change when they water their lawn and run one larger load versus three smaller loads of laundry. The pie chart below shows how water within the Utility is consumed by various customer categories. This information helps the Utility determine which demand side management programs should be initiated. The Utility then works directly with individual customers and high water users to eliminate waste, reduce leakage and identify other water saving practices. For example, the City has been identified as a high water user and been targeted for reductions. A major focus has been improvements to the Parks' irrigation systems. Preliminary results show a 10 per cent reduction of water use in metered parks, but it is expected that future reductions will be more significant.

This individualized approach is being used rather than a generalized water conservation program built around brochures, advertisements and water saving tips promoted to the public. With that noted, the City does maintain a series of web pages (kelowna.ca/watersmart) which provides customers and the general public with water savings tips and practices.

Water Use by Sector

Total Supply 2010: 14,603,806 m^3



* *Other refers to unmetered water used by the utility for reservoir and water main flushing, water used by the fire department, and system loses due to leaks, theft, etc.*

Link Water Conservation to Development Approvals

In April 2011, Council adopted new requirements for irrigation system installations that tie water conservation to the development approval process. Under the requirements, all new residential and commercial irrigation system installations, as well as renovations to existing landscapes over 100 sq. m., require an application, a water budget calculation and subsequent permit. There is no fee for the application or permit.

Prior to the adoption of the bylaw, stakeholders such as Urban Development Institute and the Irrigation Association of BC were consulted and they suggested that the Utility provide incentives to landscape and irrigation professionals to help ensure the new requirements are met for both new construction and existing properties.

As a result of a review of the 2011 application process and results, it has been determined that an incentive program may encourage compliance with the regulations. The following incentives are now being recommended:

- $150 rebate on an approved Evapotranspiration-Based (ET) Irrigation Timer; or
- $150 rebate towards the purchase and installation of drought tolerant turf (sod).

An "ET" based timer saves water by using historical weather data to calculate irrigation run times. Special blends of drought tolerant sod can use up to 50 per cent less water than traditional turf.

This incentive program will be targeted to the irrigation and landscape industry as well as existing homeowners to help ensure awareness of and compliance to the new bylaw. Budget to fund the incentive program is currently available within the 2012 Water Smart budget.

Reduce Water System Leakage
Annually, the Water Utility conducts a comprehensive water audit and leak detection survey for its water distribution system to identify specific areas where water losses may be occurring. The 2011 report indicates 10 per cent of water was unaccounted for, which by industry standards is considered exceptionally low and therefore positive for the city.

"Unaccounted for" water includes water that is used for reservoir and water main flushing, fire fighting and training, system losses due to leaks and theft and services that have been provided but not appropriately processed.

Ensure the Use of Efficient Fixtures
Average residential indoor water use (measured in litres per capita) has declined almost 13% between 2007 and 2011. This is due in part to the plumbing regulation bylaw that ensures low flow fixtures in new construction.

The utility studied the feasibility of a low-flow toilet rebate program for older homes. The report determined that replacing an older toilet with a new, low flush model would reduce water use by approximately 43 cubic metres per home per year, but this would have little impact on peak water use which is caused by irrigation.

Overall Results from 2007-2011
- 13.88 % reduction in litres per capita per day (Chart 1)
- 13.98 % reduction in average monthly consumption for single family homes (Chart 2)
- 14.12 % reduction in outdoor water use (litres per capita per day) (Chart 1)
- 12.82 % reduction in indoor water use (litres per capita per day) (Chart 1)

Although water use fluctuates somewhat from year to year due to temperature and precipitation, generally the Water Utility is pumping the same volume of water today as it did when conservation measures began in 1998, despite a 39 % increase in our customer population over the same period.

Looking Forward (2013+)

Customer Education

The residential sector (single and multi-family dwellings) accounts for about 61 per cent of the Water Utilities total water demand. More than half of this water is used for non-essential outdoor uses like landscape irrigation. Reducing wasteful irrigation at single family homes remains the primary focus for customer education efforts.

Ensure Effective Full Cost Pricing with Volume Based Pricing Structures

The initiative is now in place and the Water Utility will continue to review water rates based on full cost of service.

Ensure the Use of Efficient Fixtures

Since the plumbing regulation bylaw has helped reduce indoor residential water use by nearly 13 %, and the primary focus of the 2007 Water Smart Action plan was to reduce peak water use, it was concluded that any rebate program in the short term should be targeted toward reducing outdoor water use. While there are no immediate plans to implement a toilet rebate program, this is something the Utility may re-consider in the future.

Explore and Develop Water Reuse Opportunities

Water reuse is popular in many jurisdictions in the United States, and now many Canadian municipalities are exploring the potential of using non-potable water for irrigation. In 2009 we analyzed the water used for irrigation at the Waste Water Treatment Facility and the two large adjacent facilities: Kelowna Secondary School (KSS) and Okanagan College (OC), and determined that if all irrigation systems were retrofitted to use treated waste water from the facility, it would save an estimated 46,276 cubic metres of potable water annually. We will work with KSS and OC in an attempt to use non-potable water.

Conclusion:

Water conservation within the boundaries of the City's Water Utility has been successful to date. In order to achieve further success a new Five Year Plan will be developed for City Council's consideration in 2013.

Financial/Budgetary Considerations:

All costs of the incentive program (approximately $25,000) will be funded through the existing Water Smart program.

Internal Circulation:

Director, Finance Department
Director, Communications Department

Considerations not applicable to this report:

Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
Existing Policy:
Personnel Implications:
External Agency/Public Comments:
Communications Comments:
Alternate Recommendation:

Submitted by:

Mike Gosselin, Acting Manager, Utility Services, Civic Operations

Approved for inclusion:  Joe Creron, Director, Civic Operations.

Cc John Vos, G.M., Community Services
Carla Stephens, Director, Communications
Keith Grayston, Director, Financial Services

Appendix 1 - Charts

Chart 1- Reduction in Litres per Capita per Day

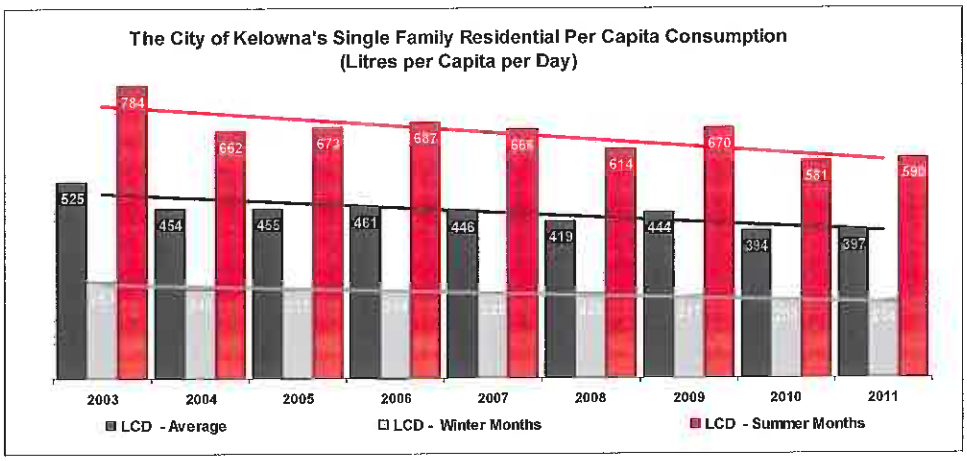


Chart 2 - Average Monthly Consumption for Single Family Dwellings