

Report to Council



Date: October 5 , 2015
File: 1890-01
To: City Manager
From: Kevin Van Vliet, Utility Services Manager
Subject: Kelowna Water Utility - Consumption Update

Recommendation:

THAT Council receives, for information, the report from the Utility Services Manager dated October 5, 2015 with respect to Kelowna Water Utility - Consumption Update,

AND THAT Council directs staff to bring forward amendments to the Water Regulation Bylaw to provide authority to implement a watering restriction program for the management of the water utility as described in the report from the Utility Services Manager dated October 5, 2015 with respect to Kelowna Water Utility - Consumption Update,

AND THAT Council directs staff to bring forward amendments to the Water Regulation Bylaw and Bylaw Notice Enforcement Bylaw to provide for enforcement options for when voluntary compliance efforts have been unsuccessful.

Purpose:

To update Council and the community on 2015 Okanagan drought status and City of Kelowna Water Utility response.

Background:

The City of Kelowna water utility provides potable water to properties located in the area of Kelowna outlined by Appendix A. Water in the other areas is provided mainly from one of the following four water purveyors:

- Black Mountain Irrigation District
- Glenmore Ellison Improvement District
- Rutland Waterworks
- South East Kelowna Irrigation District.

Coming out of the 2009 drought, the Provincial Government developed the BC Drought Response Plan that included a scale of four levels of drought. Drought declarations would be done at a watershed level and would be based mainly on hydrological conditions including snowpack, rainfall and stream flow, but would also consider economic, social and environmental impacts.

In April 2010 in response to anticipated drought conditions, Council approved implementation of Stage 1 of the City's drought management plan, which included moving residential properties to an "odd / even" watering schedule based on their address (odd numbered properties can water on odd numbered calendar days, etc). Implementation was restricted to the summer of 2010. This plan is provided as Appendix B.

2015 Actions and Results

On July 17, 2015 the Province declared the Okanagan Valley to be at drought level 3. At this time the Thompson Nicola Region, the Lower Mainland and most of Vancouver Island were declared to be at drought level 4.

On July 27, 2015 the Province announced that the Okanagan reached drought level 4, the highest level in the Province's drought scale. Both the level 3 and level 4 drought declarations include a request that water users voluntarily reduce their water consumption by 30%. Level 4 indicates that the Province may mandate reductions if required.

Blanket water conservation targets result in different levels of impact to different water providers, depending on how successful past water conservation initiatives have been. The City of Kelowna water utility has made significant strides in water conservation and creating a culture of conservation over the last 20 years resulting in a per capita reduction from single family dwellings of over 20%. We have achieved this primarily through:

1. Implementation of universal water metering. Charging customers for the water they use is generally regarded as the most effective means of changing water consumption behavior.
2. Implementation of an increasing block rate structure for residential use. In addition to a fixed monthly access fee, single family dwelling customers pay more for water per cubic metre as they use more:

Volume (monthly)	Cost per cubic metre
First 30 cubic metres	\$0.412
Next 50 cubic metres	\$0.554
Next 45 cubic metres	\$0.840
Balance	\$1.681

Few other water providers have both universal metering and an increasing block rate structure.

For reference, the typical Kelowna single family home uses between 10 and 15 cubic metres of water per month for indoor use.

On August 4, 2015 the Kelowna Water Utility implemented Stage 1 of the City's drought management plan in response to the Provincial level 4 drought declaration. Residential

properties were restricted to irrigating every other day until September 30 (“Odd/Even”). In addition Parks Operations changed their park watering strategies to significantly reduce irrigation of parks.

A communications summary regarding this year’s odd/even watering restrictions is provided in Appendix C. In response to complaints from residents or staff witnessing properties irrigating outside of permitting times we have sent approximately 30 letters to property owners. Our water conservation contractor has visited 29 properties to address irrigation questions or concerns and has worked with 7 strata properties to help implement a compliant watering schedule. Eleven strata title properties have been provided irrigation exemptions as their watering schedule cannot strictly comply with the odd / even requirements but does comply with irrigating every second day.

Kelowna Water Utility customers have responded positively to the Provincial drought declarations and our request to reduce water consumption including the implementation of odd/even water restrictions. 2015 saw the early arrival of warm, spring temperatures. From mid April through July 24 daily water production averaged over 15 per cent higher than the previous 10 year (2005-2014) daily average. However through the period of July 25 to September 15 daily water production averaged over 8 per cent lower than the previous 10 year average, demonstrating a good response to the drought challenge as can be seen in Appendix D.

Odd/Even irrigation restrictions for residential and commercial properties are the normal operating practice for the other four major water providers within the Kelowna Joint Water Committee. This is an area where operational consistency has not been achieved.

Odd/Even residential/commercial irrigation restrictions are the normal operating practice for many other large water providers in the BC Interior including West Kelowna, Summerland, Peachland, Penticton, Vernon, and Kamloops. See Appendix E for a more comprehensive summary of annual water regulations in neighbouring communities. In addition, watering restrictions are normal practice for cities in Metro Vancouver, and on Vancouver Island.

The main benefit of odd/even restrictions is for managing peak demands which can extend the life of existing distribution infrastructure and may allow new distribution infrastructure to be sized smaller. The water conservation benefit is generally considered small (0-10 per cent depending on the study), and can be difficult to clearly identify due to the significant variation in daily water use driven by temperature and rainfall changes. However the fact that residents need to consider their irrigation dates is beneficial in enhancing a culture of water conservation. The literature does support the fact that water restrictions do reduce water consumption depending on the level of restrictions, education, and enforcement.

A secondary benefit to Kelowna residents will be a more consistent set of rules for residential irrigation for all water users in Kelowna which should help to increase awareness and compliance across all Kelowna water users.

The Water Regulation Bylaw allows the Manager the ability to impose sprinkling restrictions when the Manager considers water to be in short supply. Enacting permanent irrigation restrictions will require a change to our bylaw to remove the reference to water being in short supply as well as to enact consequences of failing to comply. Our current bylaw does not have a system of fines for minor infractions and this will need to be implemented.

2016 will see a re-focus of the City's Water Smart conservation program with a focus on water conservation behaviour and specific education about the Water Regulation Bylaw changes. The Water Smart program will be supported through the existing Utility budget. In the longer term enforcement would start through correspondence from Utility staff and could ultimately require Bylaw Enforcement staff time. With the exception of drought years and implementation of further restrictions, Bylaw enforcement is expected to require minimal resources and could be addressed with the 2017 operating budget submission.

Impact on Kelowna Parks and Civic Properties

Although the focus of these changes is on residential and commercial properties, there will be some impacts on irrigation of Kelowna's parks and civic properties, as the public will expect City properties to follow the same rules. Kelowna's parks system, comprising over 200 parks totaling over 1100 ha of which 150 ha are irrigated turf, is a significant water user. There are 348 separate irrigation systems and a total irrigation infrastructure valued at approximately \$21 million. Parks and sport fields are not only important to local residents, they play a critical role in hosting major events, tournaments and generating tourism and economic activity. A Kelowna Tourism survey found that the number one reason for visiting Kelowna in July and August is "lake, beaches and parks", which are enjoyed by 88% of visitors.

Most parks can be maintained in acceptable condition with watering restrictions, but there are some challenges particularly for sport fields and beach parks. These are premium sites that receive very high levels of use from the general public, and are rented by user groups or event organizers who have high expectations regarding turf quality and safety. Some challenges include:

- Watering schedules are sometimes adjusted to accommodate outdoor events, park maintenance, or to minimize vandalism on a weekend. Staff may try to catch up with additional watering after a scheduled shut down.
- Watering less frequently requires longer sprinkler run times, which means that a large site can't be watered in one night within the 12AM - 6AM irrigation window. A large site may have to be watered every night, with different irrigation zones operating each evening.
- Aging infrastructure and soil conditions (e.g. very sandy soils in some beach parks) can make it challenging for staff to keep parks green without more frequent watering when conditions are very hot and dry.

Daytime watering is necessary for regeneration of sport fields, and this was a source of many complaints in 2015 after water restrictions were implemented. Sport fields are heavily booked in the Spring and Fall each year, and Summer is the only time available for scheduling field closures to allow maintenance and regeneration of worn areas and patchy turf. During a closure period, fields are aerated, top dressed and over seeded. Short cycles of day time watering are necessary during hot weather in order to keep new seed moist and repair damaged areas. However when daytime watering occurs, the sprinklers in any one location only operate for 5-10 minutes and the amount of night time watering is reduced, thus the total amount of water applied over 24 hours does not increase.

During periods of drought, staff may reduce watering on sport fields in areas outside of the playing surface. Turf can go dormant in areas that don't receive heavy play and still recover,

but allowing turf to go dormant on a field can significantly reduce the amount of play that is possible on a field and lead to more costly repairs.

If the recommendations are approved by City Council we would expect to bring a Bylaw forward in early 2016 addressing water restrictions and enforcement along with some additional unrelated housekeeping items.

Internal Circulation:

Sustainability Coordinator
Community Communications Supervisor
Utility Planning Manager
Bylaw Service Manager
Park Services Manager

Communications Comments:

Bylaw changes will be supported through corporate communications and the Water Smart conservation program. A review of the Water Smart program will take place in the spring of 2016.

Alternate Recommendation:

THAT Council receives the report Kelowna Water Utility - Consumption Update for information.

Considerations not applicable to this report:

Legal/Statutory Authority:

Legal/Statutory Procedural Requirements:

Existing Policy:

Financial/Budgetary Considerations:

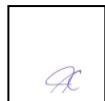
Personnel Implications:

External Agency/Public Comments:

Submitted by:

K Van Vliet, Utility Services Manager

Approved for inclusion:



Joe Creron, Divisional Director, Civic Operations

cc:

Sustainability Coordinator
Community Communications Supervisor
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Director Civic Operations
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