Memo

Date: May 8th, 2010

File: 1390-90 Water Sustainability

To: City Manager

From: Utility Services Manager

Subject: Drought Response Plan

Recommendation:

THAT Council receives the report from the Utility Services Manager outlining a Drought Response Plan for the City of Kelowna Water Utility,

AND THAT Council authorizes staff to implement the Drought Management Plan for the City Water Utility for the months of June through September, 2010, based on the common criteria and conditions established by the Kelowna Joint Water Committee (KJWC).

Purpose: To advise council of the city water utility response to drought and how this response fits with other authorities having jurisdiction

Background:

In any given year drought may strike different areas in the Okanagan Basin and affect individual watersheds while other areas experience normal conditions. Analysis of previous droughts by the province indicates that there are three (3) major contributors to drought occurrence in BC:

1) low winter snow accumulation as measured near the end of winter
2) low precipitation during spring
3) low precipitation during summer

For drought to occur two of these three conditions needs to exist. Severe drought is said to be occurring when all three conditions are present. The Okanagan Basin, as defined by the Province, may be in a state of drought this year however there is uncertainty as to what the proposed approach and guidelines will be. The drought criteria currently used by the Province assesses lake inflow data and lake levels. Water use across the entire basin indicates that domestic indoor use is not a major concern however agriculture is the single highest water user followed by domestic outdoor use (power point slides attached)

At the recent Provincial Drought Workshop (March 25) there was significant stakeholder input and the province will be suggesting guidelines and or triggers in the next few months. Each watershed in the basin and the source for water can vary from jurisdiction. Therefore it is not one solution for the entire basin and the practical approach that each water purveyor takes will be based on a common approach wherever possible to ensure efficiency and effectiveness as conditions progress.

Common Drought Plan Stages and Approach

In preparation for drought conditions and recognizing that current forecasts suggest the likelihood of a drought condition, the city water utility has worked cooperatively with the Kelowna Joint Water Committee (KJWC) to develop a common drought response plan , (attachment 1 – Water Sprinkling Restrictions) based on guidelines set out by the province in their 2009 Provincial Drought Response

Guidelines. These guidelines serve as a framework for drought planning and are organized around five (5) successive levels ranging from normal to emergency.

The Kelowna water utility continues to take a water conservation approach under all conditions as part of its Water Sustainability Action Plan and recognizes that the conditions of adjacent water purveyors can be in a totally different state even with similar dry climatic conditions throughout all service areas. As an example SEKID is already in a more severe drought response stage due to insufficient supply in their source water reservoirs. The Kelowna water utility uses Okanagan Lake as its source of supply which will always be present however judicious use of this resource is an important component of our overall Water Sustainability Action plan which covers the entire spectrum of water use best practice.

Due to low seasonal stream inflow to Okanagan lake, low winter snow accumulation and low spring precipitation to date, it is recommended that a Stage 1 Mild Drought condition and restrictions be implemented effective June 1 and continue until the end of September or until more severe stages of the drought plan are implemented due to change in local conditions. The time frame between now and June 1st will allow staff to communicate to customers and give customer's time to adjust to changes in irrigation practice by setting or adjusting their irrigation system control accordingly. The public will be notified of watering restrictions under Stage 1, or any other stage if necessary, through a variety of media including the Utility's Pipeline newsletter, City website, and newspaper/internet advertising. Because many homeowners rely on irrigation companies to set their irrigation timers, communication is now occurring with irrigation professionals on the pending plan, subject to council's approval. Staff from the City's Water Smart program will also continue to offer a service to help homeowners set or reset their irrigation timers at no charge. Water Smart staff will also handle public comments, questions, and any reports of non-compliance. If stream inflow and lake levels continue to degrade and reach more critical levels the program will shift from stage1 to stage 2.

Watering Restrictions

Water regulation Bylaw No. 2173 item 24, authorizes City staff to implement water restrictions and fix certain hours during which it will be unlawful to sprinkle or use water upon lawns, gardens or yards. The drought plan is made up of five stages, ranging from normal to emergency. Each of the five water purveyors in Kelowna has their own primary indicators that will trigger movement from one stage to the next. The plan will focus on reducing outside water use through sprinkling for all customer classes. Each stage will be contingent on provincial guidelines for stream inflow to Okanagan Lake and lake level. These measurements will serve as trigger points to set the specific stage that is being implemented. Requirements for sprinkling have now been defined for each stage and the KJWC has developed the following common criteria for each of the five stages outlined below.

In the N**ormal stage**, the goal is efficient on-going water use practices. Odd/even watering will now become part of the normal condition for the Kelowna water utility to coincide with similar practices in all other water districts in Kelowna and to ensure a consistent approach city wide. Odd/even watering is effective in reducing peak water demand and reductions in overall water use through an odd/even approach will be determined based on actual metered consumption. All odd addressed numbered homes and commercial customers may water on odd calendar days and even numbered addresses may water on even calendar days. Sprinkling will be allowed on the 31st day of the month. Underground sprinklers will be allowed to operate between 10:00 p.m. and 6:00 a.m. Manual watering by hose will be allowed between the hours of 6:00 AM and 11:00 a.m. and between 6:00 p.m. and 12:00 pm, must be supervised and limited to 30 minutes in each area. Class one Parks will be allowed sufficient watering to maintain healthy sports fields .Class two Parks (neighborhood parks and boulevards) and Class three parks (cul de sacs and green spaces) will water to a maximum of five days and 3 days per week respectively

In Stage 1, M**ild drought** condition, the goal is a 10% reduction in total and peak water use. Stage 1 restrictions are being recommended to begin June 1st of this year. For residential and commercial customers, odd/even watering restrictions will remain the same as in the normal stage with the exception that sprinkling will no longer be allowed on the 31st day of the month. Class one, two, and three parks and agriculture customers will be expected to reduce water consumption by 10%.

.

In the Stage 2, M**oderate drought** condition, the goal is a 20% reduction in total and peak use. Residential and commercial irrigation will be reduced to two times per week. Class one, two, and three parks will be expected to reduce watering by 20%. Golf courses and agricultural customers will be required to reduce consumption by 20%.

In the Stage 3, severe **drought** condition, the goal is a 35% reduction in total and peak use. All residential and commercial watering will be prohibited with the exception of food gardens, where hand watering will be allowed through a garden hose. Class one, two and three parks will be expected to reduce by 35%, two times per week. Golf courses and agricultural customers will be required to reduce consumption by 35%.

In the E**mergency stage**, all outdoor watering will be prohibited with the exception of watering needs for livestock.

Internal Circulation :N/A
Existing Policy:
Water regulation Bylaw No. 2173 item 24.

Considerations not applicable to this report N/A

Legal/Statutory Authority: N/A

Legal/Statutory Procedural Requirements: N/A

Financial/Budgetary Considerations: N/A

Personnel Implications: N/A

External Agency/Public Comments: N/A

Community & Media Relations Comments: N/A

Alternate Recommendation: N /A

Submitted by:

D. Degen, Utility Services Manager

Approved for inclusion:  J. Creron, Director Civic Operations

CC: J. Vos, General Manager Community Services
R. Cleveland, Director Infrastructure Planning
C. Stephens, Director Community & Media Relations

Attachment 1

WATER SPRINKLING RESTRICTIONS

NORMAL CONDITIONS

a) **Domestic:** Odd numbered street addresses restricted to sprinkling on the odd numbered days of the month. Even numbered street addresses restricted to sprinkling on the even numbered days of the month. All properties may water on the 31st day of the month. Underground sprinklers restricted to operate between 10:00pm to 6:00am on the applicable day. Manual watering will be allowed between 600 am and 11:00 am and 6:00 pm and 12:00 pm

b) Industrial, Commercial, Institutional: Indoor use not restricted. Outdoor restrictions same as domestic underground sprinklers.

c) Class 1 Parks (High profile community parks, beach parks, sport fields, cemetery): Irrigate as required to maintain healthy sports fields to accommodate high level of activity.

d) Class 2 Parks (Neighbourhood parks, boulevards, medians): Irrigation **r**estricted to 5 days per week.

e) Class 3 Parks (Cul-de-sacs, green spaces): Irrigation restricted to 3 times per week

f) Golf Courses: Water use is metered and controlled with volumetric flow restrictions. Maximum water rate to golf course is 4.5 to 5.0 US gpm depending on soils, but can be buffered by on-site storage ponds.

g) Agriculture: Restricted to 4.5 to 5.0 US gpm/acre unless soils stipulate otherwise.

STAGE 1 – MILD DROUGHT (DRY):

a) **Domestic:** Same restrictions as NORMAL condition except no sprinkling on 31st day of month.

b) Industrial, Commercial, Institutional: Indoor use not restricted. Outdoor use the same as Domestic restrictions.

c) Class 1 Parks (High profile community parks, beach parks, sport fields, cemetery): Reduce normal volume by 10%.

d) Class 2 Parks (Neighbourhood parks, boulevards, medians): Same restrictions as NORMAL condition and reduce normal volume by 10%. Restricted to 5 days per week.

e) Class 3 Parks (Cul-de-sacs, green spaces): Reduce normal volume by 10% and restricted to 3 days per week.

f) Golf Courses: Same as NORMAL condition.

g) **Agriculture:** Same as NORMAL condition but reduce normal allotment by 10%.

STAGE 2 – MODERATE DROUGHT (VERY DRY):

a) **Domestic:** Sprinkling restricted to two (2) days per week and none on 31st day of month.

b) Industrial, Commercial, Institutional: Indoor use reduction expected with closer monitoring of high users. Outdoor use to be the same as Domestic restrictions.

c) Class 1 Parks (High profile community parks, beach parks, sport fields, cemetery): Reduce normal volume by 20%

d) Class 2 Parks (Neighbourhood parks, boulevards, medians): Reduce normal volume by 20% and restricted to 4 days per week.

e) Class 3 Parks (Cul-de-sacs, green spaces): Reduce normal volume by 20% and restricted to 3 days per week.

f) Golf Courses: Reduce consumption/total allotment by 20% of normal usage/allotment

g) **Agriculture:** Reduce consumption/ total allotment by 20% of normal usage/allotment

STAGE 3 – SEVERE DROUGHT (EXTREMELY DRY):

a) **Domestic:** All outdoor water prohibited except food gardens with hand watering by garden hose.

b) Industrial, Commercial, Institutional: Indoor – all unnecessary process uses prohibited. All Outdoor watering prohibited. Closer monitoring of high users.

c) Class 1 Parks (High profile community parks, beach parks, sport fields, cemetery): Reduce consumption by 35%. Restricted to 2 days per week.

Class 2 Parks (Neighbourhood parks, boulevards, medians): Reduce by 35% Restricted to 2 days per week

Class 3 Parks (Cul-de-sacs, green spaces): Reduce by 35%**.**Restricted to 2 times per week

d) **Golf Courses:** Reduce consumption/total allotment by 35% of normal usage/allotment

e) **Agriculture:** Reduced consumption /total allotment by 35% of normal usege/allotment

LOSS OF COMMUNITY SUPPLY (EMERGENCY):

a) **Domestic:** All water usage (indoor and outdoor) prohibited except for lifeline to maintain public health.

b) Industrial, Commercial, Institutional: All water usage (indoor and outdoor) prohibited except for lifeline to maintain public health.

c) Class 1 Parks (High profile community parks, beach parks, sport fields, cemetery): Water supply line shut off.

d) Class 2 Parks (Neighbourhood parks, boulevards, medians): Water supply line shut off.

e) Class 3 Parks (Cul-de-sacs, green spaces): Water supply line shut off.

f) Golf Courses: Water use prohibited.
Agriculture: All water use prohibited except water for livestock.