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**SUBJECT:** 2012 Greater Vernon Water Master Water Plan  
Technical Memorandum No. 6  
Water Conservation Strategies

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Summary date: January 2016 / Updated: January 2016

## TM6 PURPOSE:

Water conservation is one strategy used to reduce water demand for a water utility that can defer or eliminate the need for new capital projects and reduce operating costs by reducing energy and chemicals required for treatment. In 2011, the average GVW residential customer water consumption was found to be 271 liters/capita/day (l/c/d). In TM1, it was assumed that GVW would see a target reduction in residential water use to an average of 250 l/c/d. For agriculture, it was assumed that the overall water demand was to remain the same 550 mm/ha. Any additional water requirements, due to climate change, would be met by irrigation efficiency techniques. These assumptions were used to forecast future GVW water demands that are used throughout the GVW MWP to assess water supply, size infrastructure in conceptual designs, develop costs and stage projects. In order to realize the planned reduction in customer water demand, TM6 presents a Water Conservation Strategy to guide GVW in achieving these target goals.

## METHODS:

The following was completed to develop the GVW Water Conservation Strategy:

- Water consumption trends and water conservation initiatives for GVW since 2001 were reviewed and assessed to develop future targets,
- Successful Water Conservation programs in other Okanagan communities were reviewed,
- A Water Conservation Plan was developed that details specific initiatives, targets, measures of success and resource requirements (staffing and direct costs), and
- The possible contribution of using reclaimed water as part of the overall conservation strategy was assessed.

## RESULTS:

Current GVW water conservation strategies include educational programs (workshops, public education, auditing programs, websites, media releases), financial programs (metering and tiered rates), regulatory programs (bylaws) and drought response (water restrictions).

The review of other Okanagan water conservation programs found that successful programs were typically linked to education, water metering and rate policies that penalize over consumption of agricultural allotments. Table 3-2 of TM6 below provides a comparison of water use in Okanagan communities.

**TM6 - Table 3-2. Sample Statistics from Comparable Communities to GVW  
(Source: Associated Engineering, 2009)**

Community	Population within Utility	Winter Residential Demand (L/ca/d)	July Per Capita Demand (L/ca/d)	Current MDD (ML/d)	Total Demand (ML/y)
City of Kelowna	62,000	208 (260 in 2003)	561 (784 in 2003)	151	14,600 (2010)
City of Penticton	35,000	330 (approx.) <sup>1</sup>	920 (approx.)	389 (53 in 2003)	6,851 (2011) 8,300 (2002)
South East Kelowna ID	6,000	233	1200	104	16,251 (2009)
Glenmore Ellison ID	15,000	277	1155	68	N/A
Black Mountain ID	22,000	343	1415	158	N/A
GVW (2011)	53,421	292		192	22,270
GVW (2014) <sup>2</sup>	55,000	286	1779	161	15,964

Note 1. Values extracted from graph in report in City of Penticton (2011).

Note 2. 2014 provided for interest, not reported in MWP.

Table 4-1 of TM6 provides a Water Conservation Plan that details specific initiatives, targets, measures of success and resource requirements (staffing and direct costs). The table below provides a summary of the proposed initiatives within the Water Conservation Plan and strategies of implementation.

**TM6 - Summary of Table 4-1 – Conservation Initiatives Targeting GVW General Operations**

Outcome	Strategy	Program Details
Better Information	Accurate Data Management	Provide accurate, precise and defensible data processed from water meter data
	GVW Annual Water Audit	Provide an annual report summarizing all water use practices within GVW
	Updating OKIM <sup>1</sup> Database	The Okanagan Irrigation Management Program allows farmers to see their water use and provides comparisons and recommendations for water use
Improved Operations	Reduction of unaccounted for water losses	Identifying major leaks using leak detection technologies. Completion of rehabilitation programs.
Better Policy	Revisions of standards, bylaws and policies	
	Revised drought management plan	Use latest available data. Revise plan every 3-4 years
Environmental Planning	Support Okanagan Basin Research	Promote local research into water conservation activities and participate in local committees.
Public Education	Irrigation Management (OKIM)	Work with irrigators to manage their irrigation practices and improve efficiencies using OKIM
	Annual Workshops on advanced technologies	Provide resources and professional assistance to educate water users.
	Media Releases	Provide information to the general public on a continuous basis.
Audits	Agricultural Audits	Target agricultural connections with unusually high water demands
	Industrial, commercial and institutional (ICI) audits	Target ICI users with high water demands to promote water conservation
Enforcement of Bylaws	Year-round water restrictions	Continue practice of year-round water restrictions for domestic outdoor water use
	Consumption fee review	Confirm that fees meet revenue requirements needed to operate Greater Vernon Water
	Inclined block rate program	After surpassing allocation, agricultural water uses are fined increasing amounts as they use increasingly more quantities of water
Rebates	Rebate Programs	Promote landscape changes by awarding grants and rebates to concepts and technologies that promote water conservation

Note 1. OKIM disbanded in 2013 and replaced with AgConnect in 2014 (provided for information only, not reported in MWP)