



Utilities Committee Meeting Date: May 9, 2012

To: Utilities Committee

From: Dan Donnelly, Division Manager, Water Treatment & Systems Control,  
Operations and Maintenance Department  
Stan Woods, Senior Engineer, Utility Planning Department

Date: April 16, 2012

Subject: **Water Supply and Water Consumption Update for Summer 2012**

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*Recommendation:*

That the Board receive for information the report dated April 16, 2012, titled *Water Supply and Water Consumption Update for Summer 2012*.

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**1. PURPOSE**

To provide the Board with an update on the current water supply and water consumption situation in consideration of the current snow pack conditions and the approaching summer peak demand period.

**2. CONTEXT**

Water supply status reports have customarily been provided to the Board each spring. Section 2.1 of this report provides a summary of the current snow pack and stored water. Section 2.2 of this report discusses trends in per-capita water use and ongoing and new water conservation actions.

**2.1 Current Water Supply Situation**

**Snow Pack**

Snowpack measurements are taken at five separate locations across the three watersheds. The early April, 2012 measurements indicate that the water equivalent of the current snowpack was approximately 134 percent of average for that time of the year. While snow pack in some years is important, it should be noted that snow can melt rapidly in the spring and with full lakes, this melt water would not be captured for summer use.

**Stored Water**

**Main Lakes**

a) **Capilano Lake**

At the time of writing, Capilano Lake was 92 percent full. As per standard operating protocol, the lake is currently being refilled in stages and is expected to be 100 percent full by the end of June.

b) **Seymour Lake**

Seymour Lake is currently being managed under the normal winter operating protocol with the lake currently at 84 percent of full summer storage capacity. It is expected that spring runoff from snow melt will bring the lake to 100 percent of full summer storage capacity by the end of June.

c) **Coquitlam Lake**

Coquitlam Lake's level is controlled by B.C. Hydro within criteria established by agreement with the GVWD. It is anticipated that spring runoff will replenish Coquitlam Lake sufficiently to provide

for adequate summer domestic water supply and the necessary allocation for fisheries flows in the Coquitlam River.

Alpine Lakes

The District's three alpine lakes, Palisade, Burwell and Loch Lomond, which are used as reserves during the late summer period, are all expected to be at 100 percent of capacity prior to the summer peak demand season.

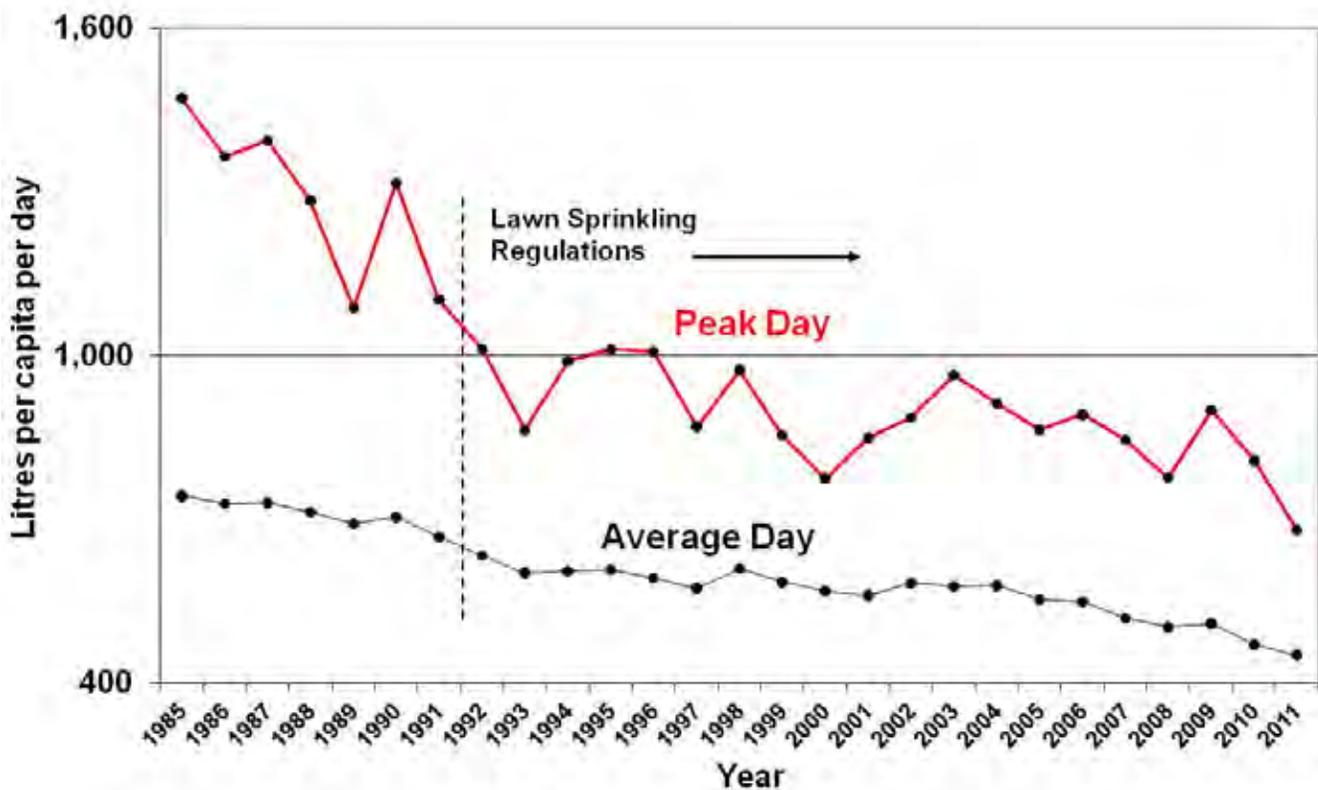
2.2 Water Consumption in Metro Vancouver

Since 1993, municipalities and Metro Vancouver have progressively increased their water conservation actions. Attachment 1 lists some examples of these ongoing water conservation actions and demonstrates the significant increase in resources devoted to water conservation in recent years.

Trends in Per-capita Water Use in Metro Vancouver

Figure 1 shows water use in the region in litres per-capita per day for the years 1985 to 2011. This is total water use in the region, inclusive of leakage, and all water users at home, work and school.

**Figure 1 – Peak Day and Average Day Water Use in the Region (inclusive of all users)**



Water use in the Metro Vancouver region is lower than the average day per-capita water use in other regions of British Columbia, Canada, and the United States by 12 percent, 7 percent, and 13 percent, respectively.

The upper line in Figure 1 is the peak day or the highest day of consumption for the year. The peak day usage occurs on a hot-dry summer day when many people in the region are sprinkling their lawns. Since 1993, the regional Water Shortage Response Plan has been used to manage lawn sprinkling and other outdoor water use during the June 1 to September 30 period of every year. The lawn sprinkling regulations in the Water Shortage Response Plan help to:

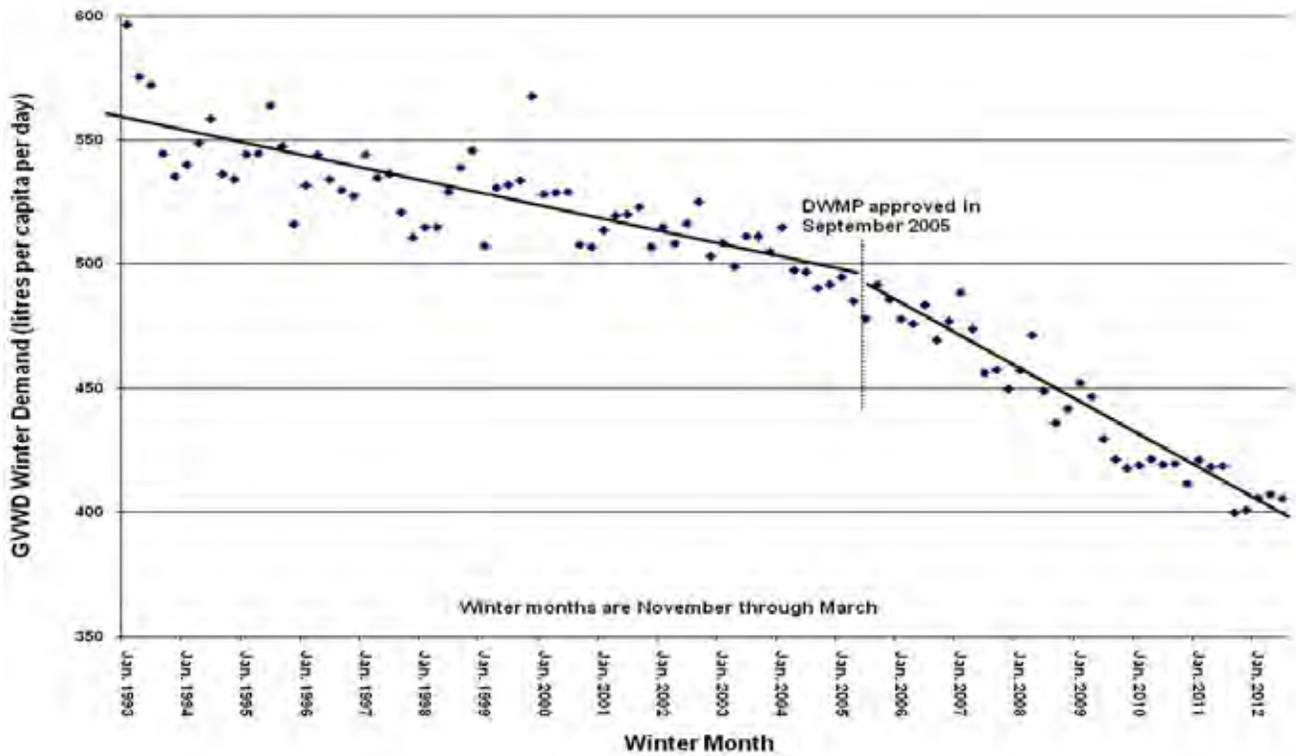
- Manage overall water use throughout the summer to conserve limited water storage in the source lakes;
- Reduce peak period water demands (peak hour, peak day, peak week);
- Reduce pumping and other operational costs and defer costly new supply infrastructure.

Peak day water use, and to a lesser extent average day water use, vary depending on summer weather conditions, being higher in years with hot-dry summers such as 2003 and 2009 and lower in years with cool-wet summers such as 2008 and 2011. Since 1993, average day per-capita water use has trended down by about 23 percent.

Benefits of the Drinking Water Management Plan and Municipal Water Conservation Actions

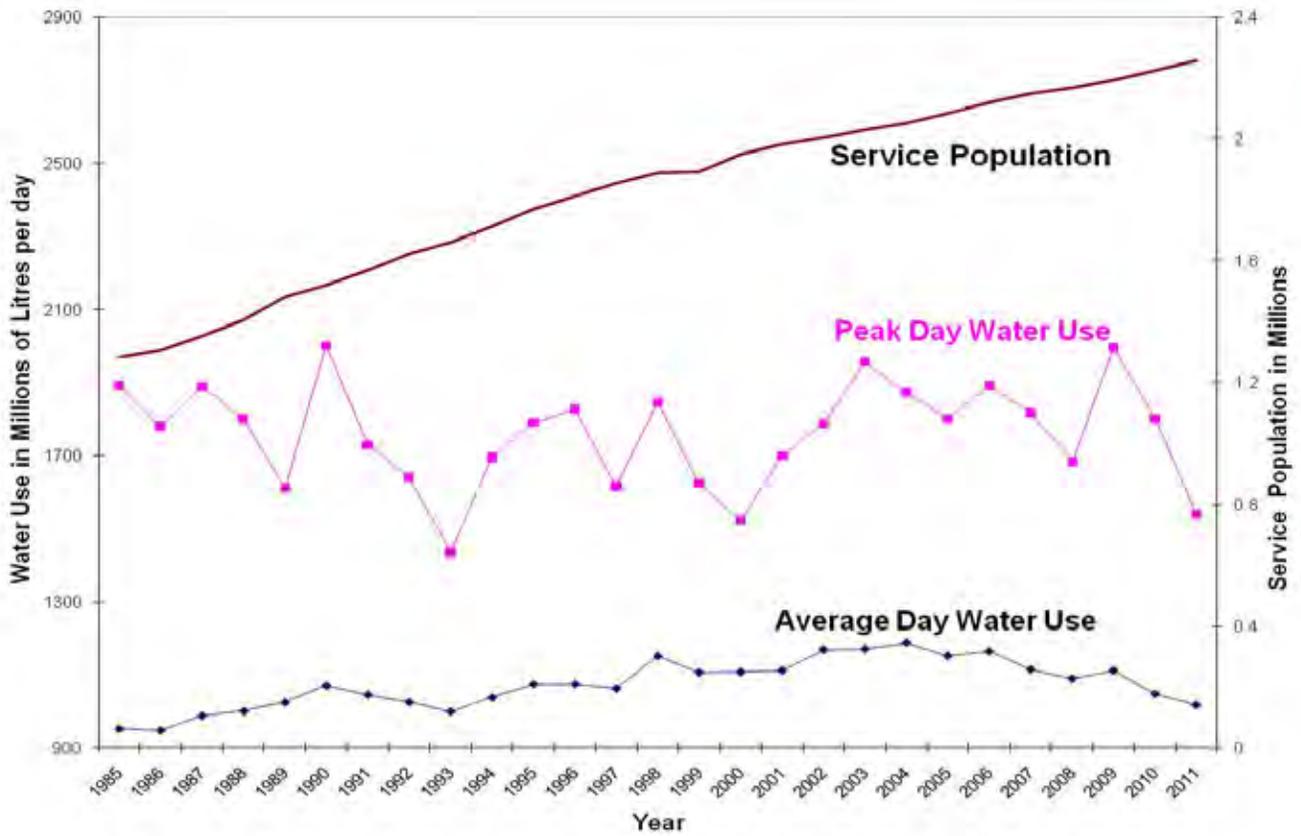
Figure 2 shows per-capita water use for the winter months of November to March for 1993 to 2012, when outdoor water use is minimal and water use is insensitive to weather conditions. The decline in winter per-capita water use has steepened since the September 2005 implementation of the Drinking Water Management Plan and municipal water conservation actions such as the requirement for 6 Litre per flush toilets in new construction.

**Figure 2 – Winter Per-capita Water Use in the Region (inclusive of all users)**



Despite a growing service population, average day water use in the region has been roughly constant in recent years (Figure 3) and is forecast to remain roughly constant through 2025.

**Figure 3 – Population Growth and Water Use**



Vancouver staff are working with municipal staff to implement a water conservation campaign in support of the June 1 initiation of the summer lawn sprinkling regulations.

The existing snow pack and lake levels should be sufficient to ensure adequate water supply for the 2012 summer season. In the event of an extreme drought or unusually high demand for water, Metro Vancouver has the ability to increase its use of the Coquitlam source or, if necessary, implement additional demand management measures.

**ATTACHMENT**

Examples of Ongoing Water Conservation Actions by Municipalities and Metro Vancouver and Year Initiated (6099385)

6099289

## ATTACHMENT

### Examples of Ongoing Water Conservation Actions by Municipalities and Metro Vancouver and Year Initiated

Year Initiated	Ongoing Action	Lead Agency	Benefits
1993	Lawn Sprinkling Regulations – restrict lawn sprinkling from June to September to two days a week, by address, from 4 to 9 in the morning and 7 to 10 in the evening.	Municipalities and Metro Vancouver	Reductions in per-capita water use of 25% for peak day
1995	Vancouver initiates water conservation program and 6 Litre per flush toilet bylaw.	Vancouver	Reduced per-capita water use
1996	Metro Vancouver Livable Region Strategic Plan – leads to more compact and water efficient communities with less outdoor water use and lower water system leakage	Metro Vancouver and Municipalities	Reduced per-capita outdoor water use and leakage rates
1999	Metro Vancouver’s teach the teacher programs include water conservation and water efficiency as do programs aimed at the public and businesses	Metro Vancouver	Encourage voluntary actions to reduce water use
2000	Actions to subsidize purchase of rain-barrels, expand water metering, improve leak reduction, expand education programs, and reduce water use in municipal buildings	Municipalities	Reduced per-capita demand for drinking water
2002	Metro Vancouver’s Liquid Waste Management Plan - actions to conserve drinking water that also benefit the wastewater and stormwater management systems	Metro Vancouver and Municipalities	Reduced per-capita demand for drinking water
2004	Water Shortage Response Plan revised to improve clarity and add an emergency stage. Review of water use - especially outdoors - at municipal parks and facilities	Metro Vancouver and Municipalities	Improved ability to manage water demand
2005	Approval of the 2005 Drinking Water Management Plan and 19 water conservation actions including requiring 6 Litres per flush toilets in new construction, municipal rebate programs, leak reduction programs, and water pricing and education actions	Metro Vancouver and Municipalities	Reduced per-capita demand for drinking water
2006	Standardized Water Audit process developed for Industrial, Commercial, and Institutional water users and provided on Metro Vancouver and municipal websites	Metro Vancouver and Municipalities	More efficient water use by IC&I facilities
2007	Participation in federal/provincial initiative developing guidelines for treating household reclaimed water for use in toilet and urinal flushing	Metro Vancouver	Will lead to reduced per-capita demand for drinking water
2008	Projects become more water efficient, including the Richmond Olympic Oval, Seymour-Capilano Filtration Plant and Southeast False Creek - Olympic Village	Development Community	Will lead to reduced per-capita demand for drinking water
2009	Mid-summer water conservation campaign, emphasizing advantages of sprinkling lawns in the morning to reduce peak hour demands in the evening.	Metro Vancouver	Reduced per-capita peak hour and peak day water use
2011	Approval of the 2011 Drinking Water Management Plan, approval of the Regional Growth Strategy, and provincial approval of the Integrated Liquid Waste and Resource Management Plan. These plans will lead to more compact and water efficient communities with lower indoor and outdoor use of drinking water.	Metro Vancouver and Municipalities	Reduced outdoor and indoor per-capita water use.
2012	Full implementation of new lawn sprinkling hours of three mornings per week to improve water efficiency and reduce per-capita peak hour and peak day.	Metro Vancouver and Municipalities	Reduce per-capita peak hour by 12% and peak day by 3%

**Benefits of Water Conservation:** Since 1993, average day per-capita water use has trended down by 23 percent.