

# TRENDS ANALYSIS: WATER CONSUMPTION

FALL 2014



## *What does this measure & why is it important?*

This indicator considers two measures of consumptive water use:

- average per capita daily supply, and
- gross annual supply (total fresh water withdrawal per water utility).

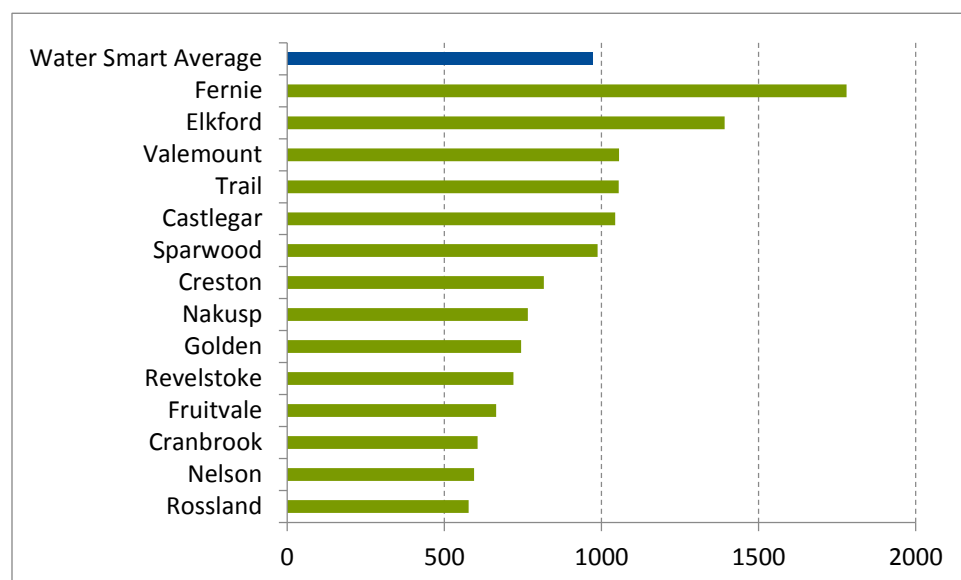
2009 is used as a baseline year to compare change in gross annual supply. Fifteen Basin-Boundary municipalities are included in the analysis. Data and contextual information for this indicator were provided by the [Columbia Basin Water Smart Initiative](#) and the City of Grand Forks.

Consumptive water use is an important issue in the Basin-Boundary region for several reasons. First, rates of water use in this region are typically higher than the averages for BC and Canada (Environment Canada, 2011). Second, the diversion, treatment, and delivery of drinking water has costs—both financial (e.g., infrastructure operations, maintenance, and expansion costs) and environmental (e.g., drawdown of water sources). These costs increase with growing water demand. Third, certain areas of the region sometimes experience water shortages during periods of peak demand. This issue may become more widespread if projected climate changes materialize and Basin-Boundary communities are not prepared to adapt.

## *What are the trends & current conditions?*

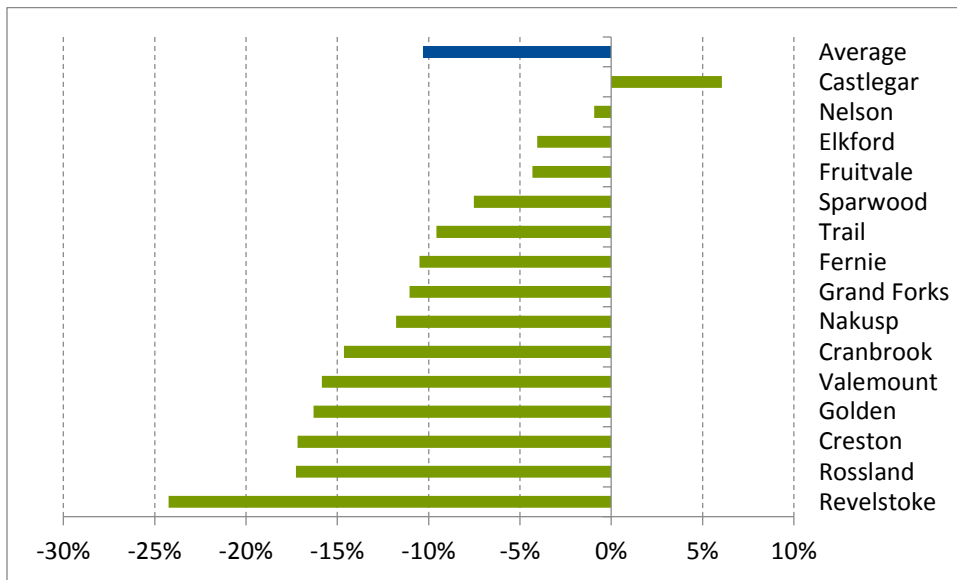
Across all Water Smart communities, average per capita daily supply stands at 972 litres per person per day (Figure 1) (detailed data and maps are available on the [Digital Basin](#)). This figure does not include the City of Grand Forks, where there is uncertainty around the total service population. In 2011, Environment Canada reported that average per capita daily use in BC stood at 606 litres. The usage rate in our region is therefore roughly 160% of the BC average. The most probable reasons for this variation are related to three issues:

- water distribution infrastructure in the region is generally aging and therefore prone to leakage,
- there is a common perception in the region that sees water an abundant resource, and
- residential and commercial water use is largely unmetered and may be under-priced in comparison to other areas in British Columbia and Canada.



**Figure 1: Municipal per capita daily water supply, 2013**  
Source: Columbia Basin Water Smart Initiative (2014)

Most reporting communities reduced their consumptive water use over the period 2009-2013 (Figure 2). Gross annual supply (which includes commercial, industrial, institutional, and residential consumption as well as water loss in the distribution system) changed by an average of -10.3%. In many cases, these numbers are significantly different than those reported last year, when average change was calculated at -13.5% across reporting municipalities. In most communities, this adjustment is primarily due to the relatively hot, dry summer that the region experienced in 2013. Monthly water demand figures show that water usage increased considerably from 2012 to 2013 as residents increased the frequency and duration of irrigation activities in June, July and August.



**Figure 2: Change in gross annual water supply, 2009-2013**

**Source: Columbia Basin Water Smart Initiative (2014), City of Grand Forks (2014)**

Most Basin-Boundary municipalities are building their capacity to effectively manage and reduce water demand. Community actions, which may not yet be reflected in gross annual supply figures, are primarily taking the form of water data acquisition improvements, infrastructure repair and replacement, and improvements in distribution system operations and maintenance. Some utilities are choosing to install water meters on their systems in an attempt to better understand their community's usage profile. These investments in our region's water systems are expected to result in substantial water savings in future years.



The Columbia Basin Rural Development Institute, at Selkirk College, is a regional research centre with a mandate to support informed decision-making by Columbia Basin-Boundary communities through the provision of information, applied research and related outreach and extension support. Visit [www.cbrdi.ca](http://www.cbrdi.ca) for more information.

### *References*

City of Grand Forks (2014). Gross Water Consumption [Dataset].

Columbia Basin Water Smart Initiative. (2014). 2013 Data [Dataset].

Environment Canada (2011). 2011 Municipal Water Use Report. Government of Canada. Retrieved from:  
<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=B77CE4D0-80D4-4FEB-AFFA-0201BE6FB37B>