

**Water Consumption  
Snapshot: Green College  
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# Water Consumption Snapshot: Green College



Source: Green College, UBC website.

## I. Summary

Green College is an interdisciplinary graduate residence located north of Chancellor Boulevard and east of the Museum of Anthropology. This profile examines water meter readings obtained through UBC Energy and Waster Services from January 2011-September 2014.

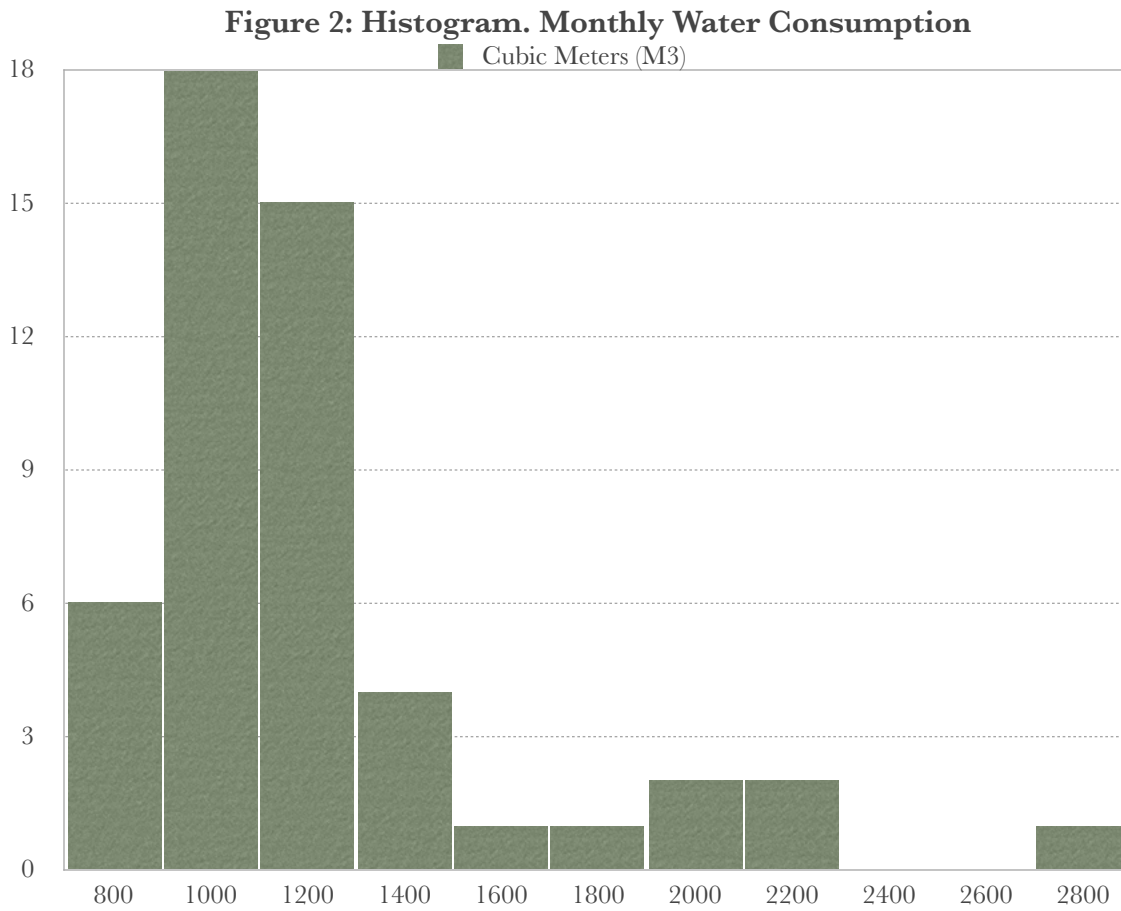
### **Good to know**

- Green College houses approximately 100 graduate students and researchers.
- Since September 2011, after a change in the residency contract, vacancy rates have been relatively stable throughout the year.
- Summer 2013: Replacement of approximately 60% of suite shower heads and toilets (low-flow)
- Summer 2014: Replacement of approximately remaining 40% of suite shower heads and toilets.

## II. Data Analysis

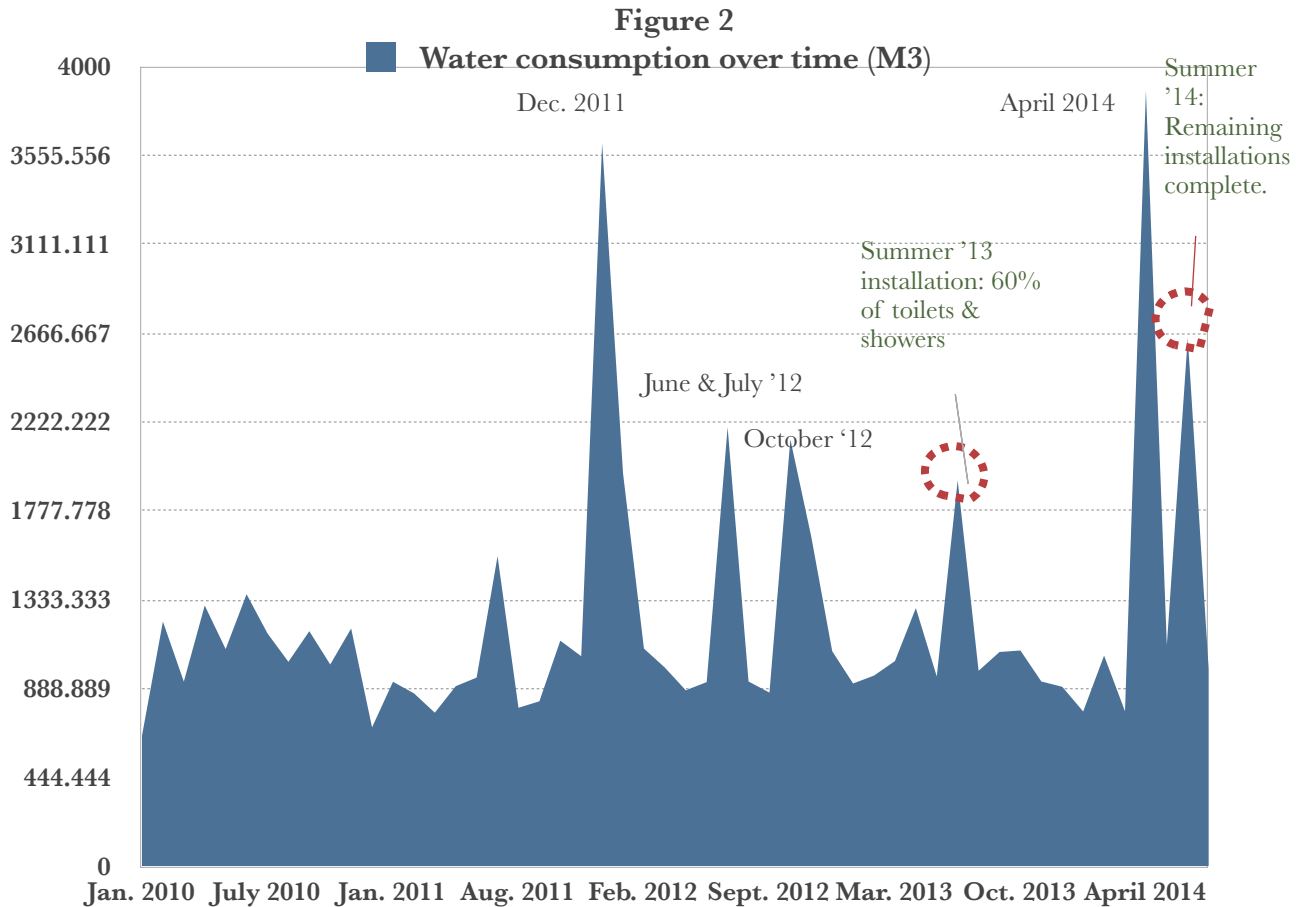
**Table 1: Summary Statistics for 53 months:  
January 2010-September 2014**

Count	51
Mean	1246.33
Variance	419716.45
Standard deviation	647.85



### 1. Water Consumption Over time

Figure 2 illustrates consumption at Green College over the last four years. This chart notes the initial installation of low-flow technologies (shower-heads and toilets) in the summer of



2013, and the final completion of this renovation the next summer. Figure 2 gives provides wide lens and shows minor reductions in water consumption over the last four years. Unsurprisingly, consumption fluctuates seasonally, with September-November and March-May being the highest periods of use (summer time spikes between June-July are result of those readings being grouped together due to missing June readings). Summer and the Winter Holiday period are low usage periods. However, December 2011 stands out clearly as an outlier, skewing the results higher in this typically low usage month.

## 2. Results of Renovations

Table 2 compares two periods: Fall 2012, when no low-flow technologies had been introduced, and Fall 2013, when 40% of suites had just been retrofitted with low-flow shower heads and toilets. The table shows a significant *decrease of 30.5% in water consumption*. Is this due to water conservation renovations? Perhaps. Some alternative or contributing explanations could be that September 2012 was an unseasonably warm month, and therefore water usage increased.<sup>1</sup> It is plausible UBC campus engagement efforts around conservation during this Fall period (ie. “Do it in the Dark”) could have contributed to consumption reductions as well.

While the statistics in this table suggest the renovations had an impact, a larger post-renovation study period needs to be assessed before conclusive results can be obtained.

**Table 2: Pre and Post Renovation**

	Fall 2012	Fall 2013
September	871	1074
October	2137	1081.5
November	1650	926.5
December	1078	900
<u>Mean</u>	1434	995.5
<u>% change</u>		<b>+30.5</b>
<u>Standard deviation</u>	572.878	95.637

## 3. Conclusion

Green College is achieving water savings. These savings are a part of campus wide water reductions due to significant retrofitting program and the inclusion of low-flow technologies in all new UBC facilities and major residential developments (ie. UTown) ([Water Action Paper](#), [SustainUBC](#)).

This data analysis demonstrates a steady reduction in water consumption over the last 4 years at Green College and a more pronounced reduction since the installation of water saving technologies. The reductions observed in Fall 2013 reflect only 60% of low-flow renovations, with the remainder occurring in the Summer of 2014. A review of readings from Fall 2014 should soon illustrate a more accurate understanding as to what extent these new technologies are responsible for the Green College water savings.

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<sup>1</sup> For most of the Metro Vancouver region, summer is a high-usage season for water. UBC’s unique demographics (ie. large population of students and a high vacancy in the summer) means that summer is a low-usage season for its facilities. An extended summer heatwave into September might explain higher September water usage in 2012 when compared to September 2013.