Landmark at Richmond on the Fairway

A Water Conservation Case Study

August 1, 2013

Overview

Landmark at Richmond on the Fairway is a 243 unit apartment complex located on over 30 acres at 3348 Fairway Oaks Drive Lawrenceville, Georgia 30044, a suburb of Atlanta, Georgia. The complex contains 26 buildings that are one to three stories high and contain no elevators. There are also three swimming pools, one of which is operational and three resident laundry rooms. Richmond has maintained a ninety-five percent plus (95%+) occupancy figure and did not have a large percentage of two bathroom units thus keeping the users of the toilets to a maximum number.

The water and sewer needs of the complex are serviced by Gwinnett County Department of Water Resources, located in a metropolitan area of Atlanta, which has some of the highest water and sewer rates in the country. It must be noted that the water department was very helpful in the implementation of the retrofit plan by providing free toilet and cardboard recycling and a general willingness to help complete the water conservation efforts at the Richmond apartment complex.

Gwinnett County Building and Zoning Department also helped the water conservation efforts greatly by not requiring a licensed plumber to pull permits or complete work as the replacement of inefficient but functioning toilets is considered a “maintenance function”.

Prior to the bathroom fixture retrofit by AWMC, GA., L.L.C. (AWMC) the Richmond apartment complex used 3.5 gallon per flush (gpf) toilets, 2.5 gallon per minute (gpm) shower heads, and 2.5 gallon per minute aerators. The complex was built in 1976 and had not been previously retrofitted, although a few toilets and shower heads had been replaced over the years with slightly more efficient models.

Starting in 2013 the water and sewer bills had hit a high of $28,723.84 per month (January, 2013) and the corresponding water usage for 31 days was 2,218,437 gallons. In anticipation of the AWMC Retrofit Richmond had leaks at their swimming pools repaired and lowered the water and sewer bills to $23,293.62 per month (April, 2013) and the water usage for 31 days to 1,974,035 gallons per month. (See Exhibit 1).

The Retrofit

On May 9, 2013, after receiving new Water Sense approved Ultra High Efficiency Toilets (UHET) from Niagara Conservation Industries, the work of retrofitting four-hundred and eighty-one (481) bathrooms began. Niagara also supplied shower heads, aerators, water supply lines, and wax rings for use at the project.

The toilets used were Stealth models flushing at 0.80 gallons per flush. The shower heads were Earth Massage using 1.5 gallons per minute. The aerators were universal models allowing 1.5 gallons per minute.

Armed with the water conserving fixtures, installers hired from local tradesmen began their tasks of installing new fixtures, checking for other leaks in the units they were working in, and removing old, inefficient fixtures and disposing of those fixtures properly.

AWMC also discovered, in the implementation of the water usage analysis component of the retrofit, a two inch (2”) irrigation water meter that had not been used since 2009 but was costing Richmond over six-hundred dollars ($600.) a year. A recommendation to discontinue use of said meter was made by AWMC to Richmond.

When the work was completed on June 7, 2013, AWMC had changed 481 toilets, 302 shower heads, and 705 aerators and replaced them with water conserving devices.

Results

Due to the completed bathroom fixture retrofit along with efforts to conserve water and lower associated bills by repairing swimming pools and a main line water valve, Richmond has lowered the monthly water usage at the complex by forty-eight percent (48%) since January, 2013. That lower usage has translated into monthly monetary savings of $12,897.62.

While AWMC cannot take credit for the entire monetary savings results achieved at Richmond because part of the water conservation effort was undertaken by the project owner after the owner recognized that the retrofit bill would be based on savings, and the lower the water and

sewer bills prior to retrofit, the lower the AWMC retrofit bill after the project was completed.

AWMC is entitled to credit for the lowering of the water usage from the combined average of the February and March, 2013 water and sewer bills (the two months before the retrofit) less the July, 2013 bill (the month after the retrofit). That figure which was used by AWMC for billing purposes equated to a forty-three and eight-tenths percent (43.8%) monthly reduction in water usage and an equally impressive monetary savings of $11,690.89 per month. With a traditional payment schedule and a cost of $350 per water unit which included a complete toilet, shower head and one or two aerators, the payback period for the retrofit project will be fourteen and a half months (14.5).

Summary

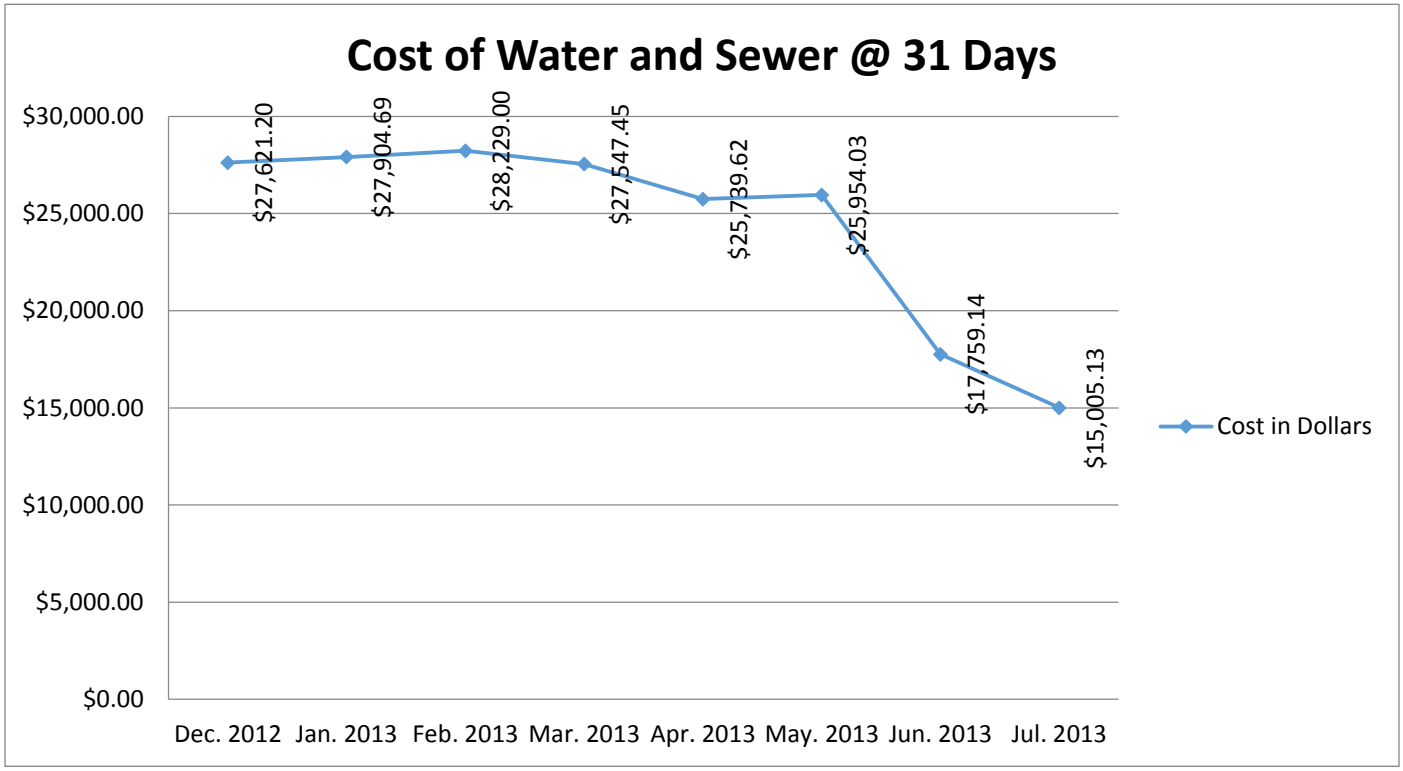
In summary, this bathroom fixture retrofit project has proven that you can help save the planet by conserving water and saving large amounts of money in the process.

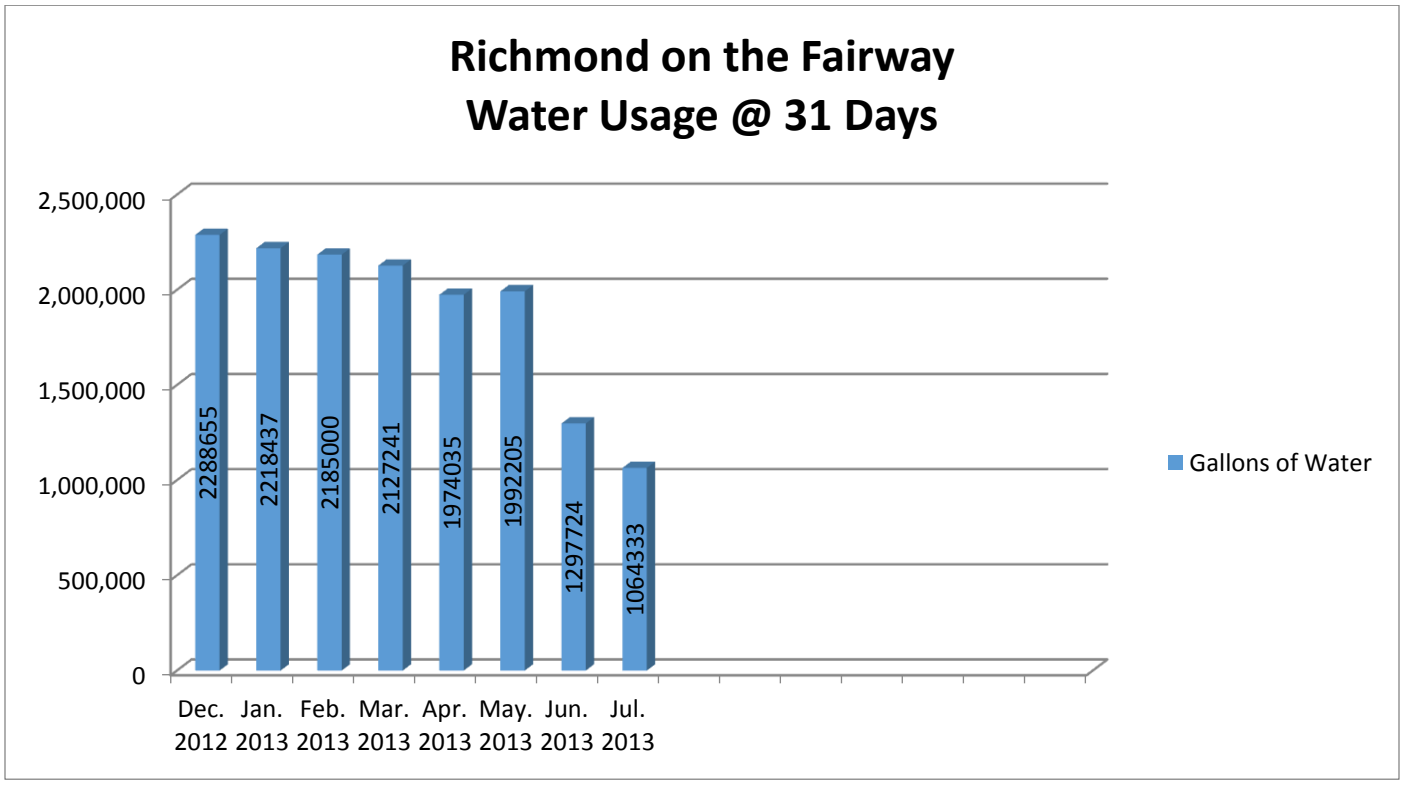
With water and sewer rates rising substantially on an annual basis and no relief in sight, the benefits of a water conservation project can only improve over time.

With annual savings of $140,000 a year, not including water and sewer rate increases, an increase in Net Operating Income of the same magnitude results in enhancing the worth of the complex by a multiple of five to seven or more times the annual dollar savings number.

While continuing to monitor the Richmond project, AWMC has not found any evidence of excessive sewer stoppages due to the retrofit, and the water and sewer bills do not indicate “double-flushing” or improper use of the newly installed toilets by the residents.

Exhibit 1


Cost of Water and Sewer @ 31 Days
$30,000.00
$25,000.00
$20,000.00
$15,000.00
$10,000.00
$5,000.00
$0.00
$27,621.20
$27,904.69
$28,229.00
$27,547.45
$25,739.62
$25,954.03
$17,759.14
$15,005.13
Dec. 2012
Jan. 2013
Feb. 2013
Mar. 2013
Apr. 2013
May. 2013
Jun. 2013
Jul. 2013
Cost in Dollars


Richmond on the Fairway
Water Usage @ 31 Days
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2288655
2218437
2185000
2127241
1974035
1992205
1297724
1064333
Dec. 2012
Jan. 2013
Feb. 2013
Mar. 2013
Apr. 2013
May. 2013
Jun. 2013
Jul. 2013
Gallons of Water