

Utility and Environmental Conservation measures and the impact on the Hightstown Housing Authority

The Hightstown Housing Authority has undertaken several projects in the last 3 years with a goal of reducing the carbon footprint of the Housing Authority and reducing operating expenses. Shrinking budgets due to lack of funding from the federal government have left major gaps in the budgets of every federally funded agency. In order to survive in the new normal of federal funding, The Hightstown Housing Authority completed the following projects.

Water and Sewer

Condition: Water and Sewer as a combined utility over the last 10 years have cost the Housing Authority just over \$80,000 per year. This equates to approximately 4.87 million gallon of water per year. Based on the 100 units on our campus, this would equal approximately 133 gallons per unit per day. This is fairly typical for a residential household, designed in the 1960's, and well within typical engineering standards of that period.

Solution: The HA undertook the installation of water saving devices that would bring the community up to the modern standards of water conservation. This included 1.0 gallon kitchen aerators, 1.7 gallon shower heads, 1.0 gallon bathroom aerators and 1.6 gallon toilets. The modern water saving devices provide residents with the same pressure and water quality experience, while lowering the overall consumption.

Results: Based on the last 18 months experience, our usage has dropped to an average 3.7 million gallons per year or just over 100 gallons per unit per day. This is a 24% decrease in our water usage that saves approximately \$1000 per month in water and sewer fees bringing our annual cost to approximately \$68 thousand dollars. The cost of the project was done through normal operating and maintenance expenses. The total cost of the installed devices is just under \$35 thousand dollars. The payback is just under 3 years.

Condition: The Hightstown Housing Authority has 2 commercial laundry facilities for resident use. The combined facilities that on average process approximately 250 loads of laundry per month. The laundries utilize traditional top load machines and standard dryers.

Solution: In October, 2013 the HA installed all new super high efficiency laundry machines that use less than 20% of the traditional water usage for laundry, saving an additional 8000+ gallons per month. The machines are designed for "Cold Water Wash" which will save on the fuel side of the equation also.

Results: We have recorded a significant reduction in usage, approximately 100,000 gallons per quarter. This was the lowest water usage on the property in the last 10 years of data we have available.

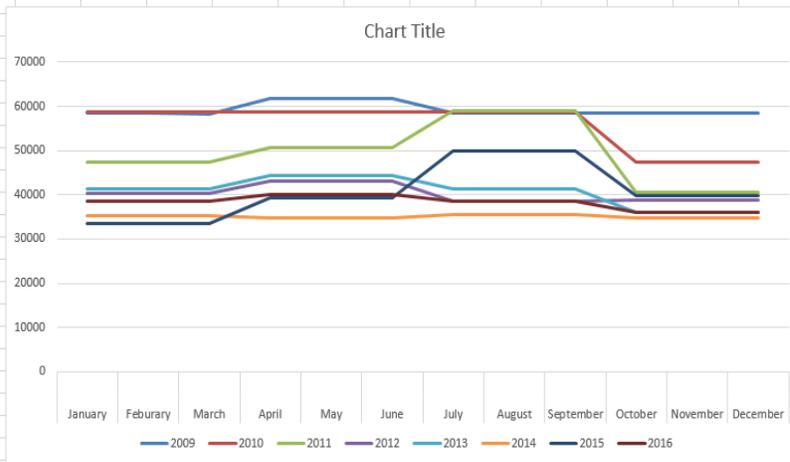
The natural gas savings will be more difficult to measure, and will be taken under the heating system improvements.

Global Impact: Water conservation also saves on electricity and fossil fuel consumption. In Hightstown, it is estimated that each gallon of water requires .00686KWH to produce, treat, distribute and the retreat. By reducing our consumption, we are having the global equivalent impact annually of:

- Planting 2.38 acres of trees
- Permanently removing 1.16 cars from the road
- Saving 747 gallons of gasoline from being burned
- Preventing 2.96 tons of CO2 from going into the atmosphere

Water Cost Study- Cubic Feet													
Hightstown Housing Authority													
	January	February	March	April	May	June	July	August	September	October	November	December	
2009	58417	58417	58147	61800	61800	61800	58400	58400	58400	58500	58500	58500	711081
2010	58766	58766	58766	58766	58766	58766	58686	58686	58686	47433	47433	47433	670953
2011	47400	47400	47400	50800	50800	50800	59133	59133	59133	40633	40633	40633	593898
2012	40366	40366	40366	43100	43100	43100	38500	38500	38500	38900	38900	38900	482598 614632.5
2013	41333	41333	41333	44300	44300	44300	41400	41400	41400	36166.67	36166.67	36166.67	489599
2014	35233	35233	35233	34866	34866	34866	35600	35600	35600	34866	34866	34866	421695
2015	33400	33400	33400	39233	39233	39233	49866	49866	49866	39800	39800	39800	486897
2016	38566	38566	38566	40066	40066	40066	38633	38633	38633	36033	36033	36033	459894

4597451 Gallons on average historically used.
 3154279 Gallons used in 2014
1443173 Savings due to water saving projects.
 9900.163 KWH to produce and distribute water in Hightstown



- Our Water savings is the equivalent of:**
- ▶ Planting 2.87 Acres of trees
 - ▶ Removing 1.41 cars from the road
 - ▶ Saving 900 gallons of gasoline
 - ▶ Saving 3.57 tons of CO2 from entering the atmosphere