

# COMPREHENSIVE WATER MASTER PLAN



## The Village of Algonquin

Algonquin is located in both McHenry and Kane counties and has a population of 30,000. Algonquin operates and maintains eight shallow sand and gravel wells and one deep well that supply groundwater to residents. The village developed its initial water conservation program in 2003 during a time of significant strain on the system. The original effort included outside watering restrictions, public outreach, operations improvements, and a seasonal water rate structure. The program was a success, resulting in a water use reduction of roughly 30 gallons per person/day. Because ongoing population growth in the village is expected to put upward pressure on water demand, the village's next step was to update the Comprehensive Water System Master Plan to evaluate the potential of further water conservation efforts to meet long-term water demands.

## Comprehensive Water Master Plan

A comprehensive water master plan provides a framework for future improvements and expansion of the system. It provides an overview of the current water system performance, evaluates current and future water use, and determines infrastructure investment needs. This allows for examining the potential long-term cost savings of "investment in demand management" (conservation programs) versus the more traditional "investment of supply augmentation." An effective water conservation program can save money for the water utility by affecting the timing of capital facility construction.<sup>1</sup> Considering a cost between \$0.46 and \$1.40 per 1,000 gallons for conservation, most utilities are paying more than \$1.40 for 1,000 gallons to develop new supplies.<sup>2</sup> Conservation is financially advantageous when the utility's avoided cost of supplying new water is greater than the cost of conserved water.

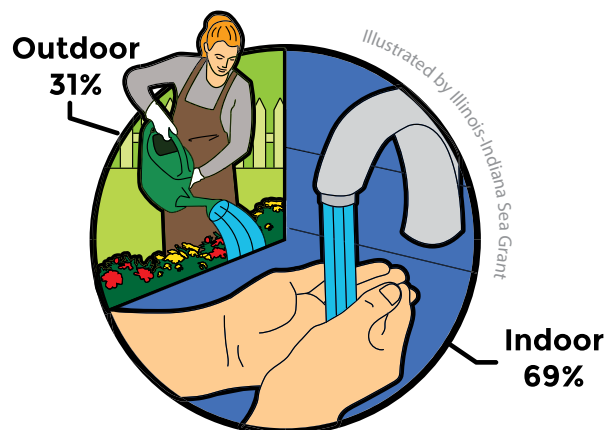
### At a Glance

Population: 30,000

Water savings: 30 gpcd

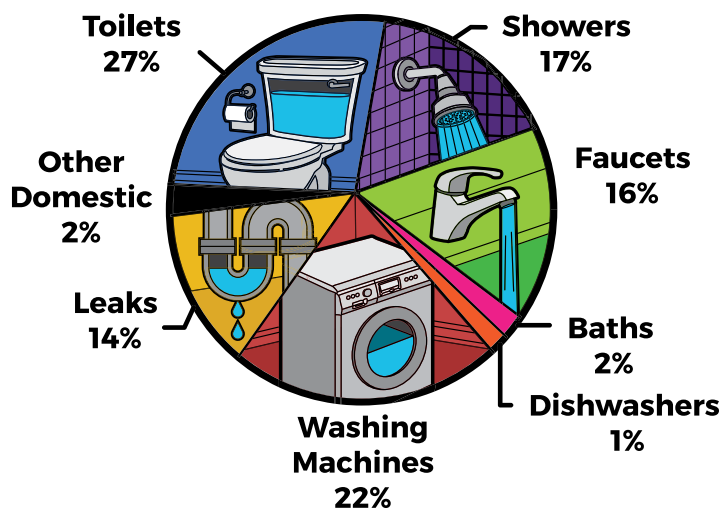
Potential savings with conservation: \$6,360,000

### Average Indoor and Outdoor Water Use



Nonresidential outdoor water use is largely devoted to turf irrigation. 80–90% of the outdoor component of residential water goes to watering lawns, plants and gardens.

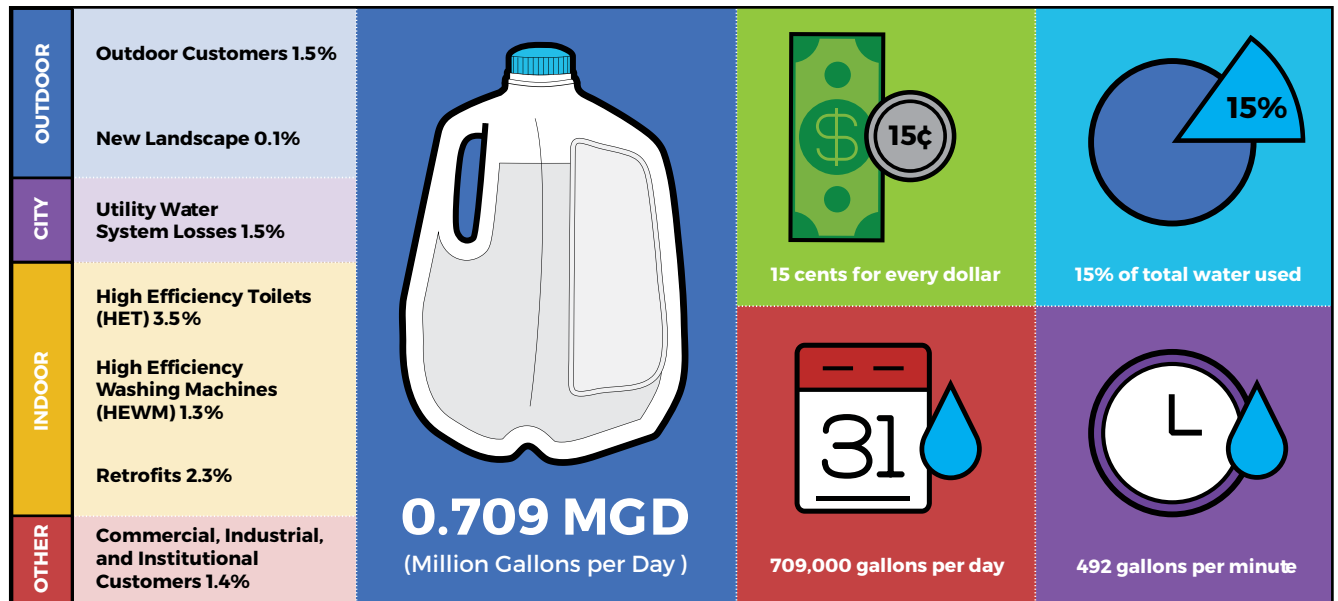
### Indoor Water Use by Application<sup>1</sup>



<sup>1</sup> American Water Works Association, 2006. Water Conservation Programs – A Planning Manual. AWWA Manual 52. First Edition.

<sup>2</sup> Mary Ann Dickinson. "Water Conservation: How to Make it Happen!" February 27, 2009 presentation to the East Central Regional Water Supply Planning Committee, Bloomington, Indiana.

## Potential Water Savings from Water Conservation and Efficiency



## Approach

In Algonquin, the goals of the Comprehensive Water System Master Plan update were to evaluate overall water system performance, evaluate current patterns of water use, predict future patterns of water use, and determine the infrastructure necessary to use less water resources. The plan was formulated with the *Water 2050 Northeastern Illinois Regional Water Supply/Demand Plan* in mind, with the common goal of promoting sustainable water use. The Algonquin Comprehensive Water System Master plan examined the current status of the water works system, historical water use, and projected water use, and set forth a series of best management practices for water conservation. While stewardship and sustainability are the main drivers of water conservation in Algonquin, village leaders also wanted to understand how an effective water conservation program can result in a reduction in capital expenditures through the timing of capital investments.

## Key Findings

### What were the results?

The Village of Algonquin Comprehensive Water System Master Plan was completed in 2012 by Engineering Enterprises, Inc. It is a valuable planning tool for the village's Water Works System and shows the major potential for reductions in water use.

### If the plan were to be implemented, what would be the impact?

When comparing current water use trends and potential less resource intensive scenarios, the planners found a nearly \$6,360,000 capital cost difference and showed that water conservation policy can have a huge impact.

### Resources

- [Village of Algonquin Comprehensive Water Master Plan – 2012](#)
- [Water 2050: Northeastern Illinois Regional Water Supply/Demand Plan.](#)

