City of Woodbury

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Organization Background

The City of Woodbury, established in 1967, is a suburb of the southeastern Twin Cities Metro area and is the largest community in Washington County with a population of 68,820 in 2016 according to the United States Census Bureau. Woodbury belongs to the Washington County Municipal Water Coalition and is a member of Minnesota Green Step Cities.

"Being an intern through MnTAP has provided me with many technical and personal experiences to improve water conservation in the City of Woodbury. I gained knowledge about city government and how to effectively manage my time and a project. I will be able to carry these experiences with me in my future career." ~ LB

Project Background

The City of Woodbury is committed to improving water efficiency and created a goal to "strive towards flat total water use by 2030" in 2014. Two MnTAP summer intern projects were conducted with Woodbury in 2015 and 2016 to evaluate the effectiveness of smart irrigation technology on both commercial properties and residences.

As a continuation of the previous projects, a pilot study was conducted by a MnTAP Intern for the summer of 2018 on six randomly selected residential homes by implementing pressure-regulated sprinklers to calculate the water savings potential between a traditional residential sprinkler system and an updated, pressure-regulated system. There is potential for a future program to be implemented for residents in Woodbury to receive pressure-regulated sprinklers at a discounted price and a contractor hired by the city to install the sprinklers. The project also involved creating educational resources for residents on irrigation best practices. Woodbury is working with Washington County to share these resources and evaluate the potential for project replication for other cities in the county.

Incentives To Change

Woodbury is a growing community and will need to provide more water than it is today to the additional population. New wells or treatment and infrastructure of a surface water source will cost millions of dollars and increased rates to users.

Woodbury uses three times more water during peak times in the summer than it does in the winter. Non-essential water use for irrigation comprises 42% of total water use. Some cities in Washington County also have high non-essential water use for irrigation, like Cottage Grove, Lake Elmo, Oakdale and Stillwater. These cities seek to replicate program success from the pilot study in Woodbury.

Most of Woodbury has a higher water pressure than what is optimal for an irrigation system. The installation of

"By partnering with MnTAP, we have a better understanding of where water is being wasted in our community, how the city could implement an efficiency program for sprinkler heads and how much we'll need to budget to do so. This project was challenging and required specific attention to gather the depth of information required to make a recommendation, which could not have been done without the talent and guidance provided by the MnTAP intern and staff."

~ Kristin Seaman
Environmental Resources Specialist,
City of Woodbury

Solutions

pressure-regulated sprinklers is one solution to the water waste associated with traditional sprinklers. When water pressure in an irrigation system is too high, the sprinkler will mist or fog the lawn with small water droplets. This leads to increased evaporation, more water carried away with the wind, poor distribution uniformity, and a potential increased need for irrigation system maintenance. As a result, system run times are set longer to compensate, and more water is used.

Pressure-regulated technology decreases the pressure before water outlets from the head, creating larger and more evenly-sized droplets. This correlates to improved distribution uniformity and water conservation.

Install Pressure-Regulating Spray Sprinklers*

By implementing pressure-regulated spray sprinklers on residential properties, there is an average reduction of 0.5 gallons used per minute per spray sprinkler when compared to traditional sprinkler systems.

Install Pressure-Regulating Rotor Sprinklers*

By implementing pressure-regulated rotor sprinklers, there is an average reduction of 1 gallon used per minute per rotor sprinkler when compared to traditional sprinkler systems.

Implementation Cost

The cost of implementation, per household would be $830, or, $83,000 per 100 households.

Before
without a pressure-regulated spray head

After
with a pressure-regulated spray head

Recommendation	Annual Water Savings (per household**)	Annual Water Savings (per 100 households)	Consumer Savings (per 100 households)
Install pressure-regulating technology	32,000 gallons	3,200,000 gallons	$4,000

* Both reduction potentials are based off of manufacturer specified reduction rates
** Based on pilot study results; assumes 10 spray sprinklers and 18 rotor sprinklers per property

MnTAP Advisor: Nathan Landwehr, Waste Reduction Specialist