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Organization Background

The State of Minnesota formed the Office of Enterprise Sustainability (OES) in 2017 under the Department of Administration to assist state agencies in reaching state sustainability goals. It defines sustainability as meeting the economic, social, and environmental needs of the present without compromising the ability of future generations to meet their needs. OES helps agencies develop plans, identify funding opportunities, track progress, and report on accomplishments related to sustainability. The OES team is made up of five members



"During my time working with the Office of Enterprise Sustainability, I had the opportunity to visit sites across Minnesota, work with colleagues across state agencies, and dive into the ins and outs of state government work. The OES team's passion for sustainability and commitment to enact meaningful change was incredibly inspiring to me. I am grateful for their support, as well as the support I received from MnTAP." ~LW

Project Background

The State of Minnesota comprises 23 cabinet agencies as well as the Metropolitan Council. Among these 24 organizations, there are 1,900 sites that host 3,900 buildings across the state. Overseeing so many buildings has been a barrier to making statewide changes to water use, especially with irrigation. The state's data collection program, B3 Benchmarking (B3), helped identify which agencies use more water, particularly in the summer. After further analysis, 12 sites were identified as having great potential to reduce water use based on current irrigation practices, estimated turfgrass area, and average rainfall data. Additionally, the 12 sites were chosen for their variety of locations, purposes, and anticipated needs.

Incentives To Change

OES is committed to helping state agencies reach statewide sustainability goals, including reducing building water use per square foot by 15% by 2030 compared to a 2017 adjusted baseline. Currently, the Minnesota State Government is 57% towards reaching its goal. State agencies are progressing at different rates towards this goal. Reducing water use can be challenging for agencies with many facilities, especially those irrigating lawns while yearly rainfall fluctuates.

SOLUTIONS

Adjust Seasonal Dial

The first recommendation is to implement a percent adjustment on irrigation dial clocks based on the minimum irrigation each site needs. Across the 12 facilities, the seasonal dial could be reduced to 5% to 75% depending on the facility. This solution simply requires changing the setting on the irrigation controller or system. To implement this recommendation, the facilities management would lower the percentage by a certain amount (e.g., 10%) on a weekly or biweekly basis. If a lawn appears to look and feel healthy with 10% less water, the run time could be further decreased until it gradually reaches a recommended percentage or the turfgrass appears to need more water.

"We greatly appreciated working with MnTAP and our intern, Lucy, for the summer. Without their expertise, we would not have had the capacity to dig into seasonal trends in water use. Even though this was a short-term project, the potential savings, both cost and environmental, are enormous!"

*~ Caroline McFadden,
Enterprise Sustainability Planner,
Office of Enterprise Sustainability (OES)*

Solutions

Implement Irrigation Deduct Meter

For systems without an irrigation specific meter, they should install a deduct meter. Having an irrigation specific meter will allow a site to accurately track their irrigation use as well as deduct this use from their sewer bill to reduce costs. Knowing how much water is used for specific purposes gives both the site and OES more comprehensive data about water use, and this could help calculate water reduction opportunities.

practices can reduce mowing frequency. Additionally, choosing grasses that fit the lawn's purpose can optimize lawncare needs. Areas with less foot traffic may benefit from a longer, lower maintenance grass, such as a fescue grass.

Install Weather Stations, Rain Sensors, or Soil Moisture Sensors

Automating a site's irrigation system by adding sensors based on weather data, rainfall, and soil moisture can prevent overwatering or watering during unfavorable conditions. These sensors set irrigation levels or override irrigation controls based on predicted rain, sensed rainfall, or soil moisture. While it is difficult to quantify water and cost savings associated with these recommendations, they can reduce unnecessary irrigation and reduce labor associated with staff manually shutting off irrigation systems.

Implement Lawncare Best Practices

Implementing lawncare best practices will promote drought-tolerant and healthy lawns. Raising the mowing height of turfgrasses to a minimum of 3 inches helps promote longer roots while removing one-third or less of the grass length minimizes stress on grass. These



This table gives water and cost savings by agency for adjusting the seasonal dial and/or implementing an irrigation deduct meter as needed by each site.

Agency	Annual Reduction	Annual Savings	Status
Administration	2,820,000 gal water	\$25,700	Recommended
Corrections	4,100,000 gal water	\$23,900	Recommended
Human Services - DCT	2,740,000 gal water	\$10,300	Recommended
Labor & Industry	110,000 gal water	\$1,200	Recommended
Veterans Affairs	720,000 gal water	\$20,500	Recommended

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