

# **MN Department of Administration, Office of Enterprise Sustainability: State Facility Irrigation Water Reduction**

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# Background



## Office of Enterprise Sustainability (OES)

- Assists state agencies in sustainability goals
- Comprised of 5 team members

## The State of Minnesota

- 24 agencies (including Met Council)
- 1,900 sites
- 3,900 buildings



Waste sort at William O'Brien State Park

# Incentives to Change

## Minnesota Sustainability Goals in Six Focus Areas

### Water Goals

- Reduce building water use per square foot 15% by 2030
- Based on a 2017 adjusted baseline
- Reached 9% reduction, 57% of goal

Fleet



Energy



Water



Solid Waste



Procurement

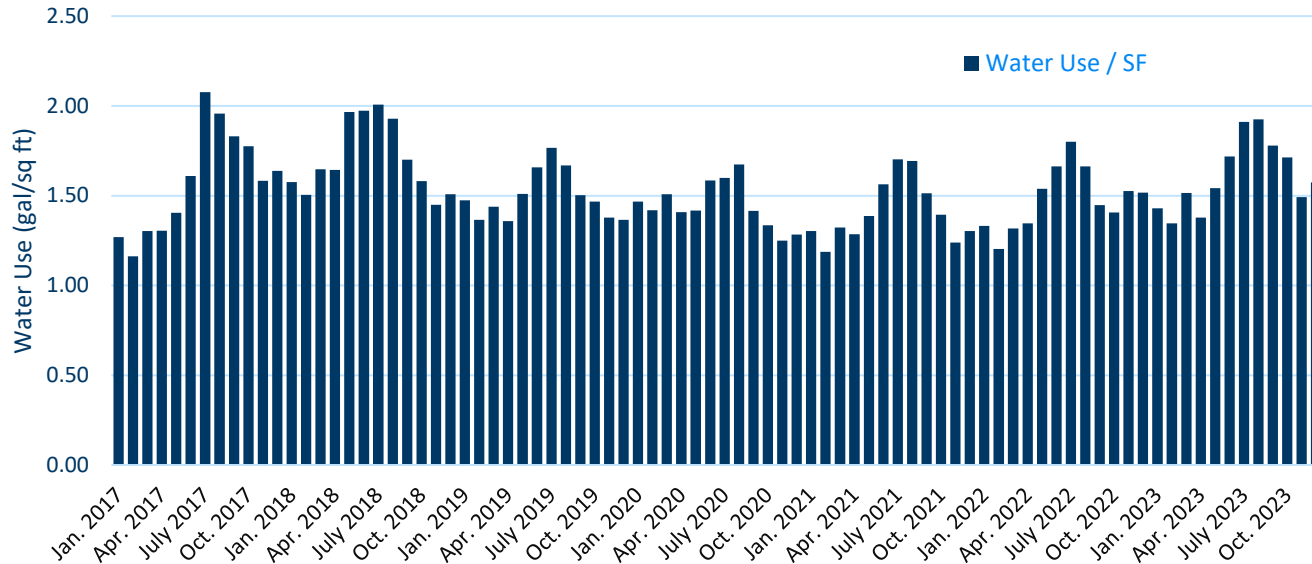


GHG Emissions



# State Monthly Water Use

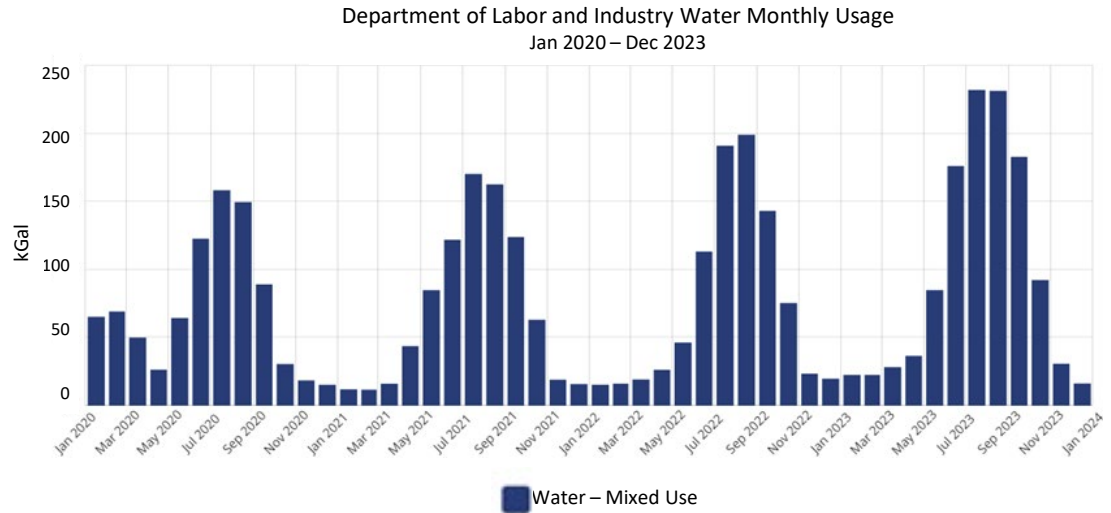
Enterprise Monthly Mixed Use Water



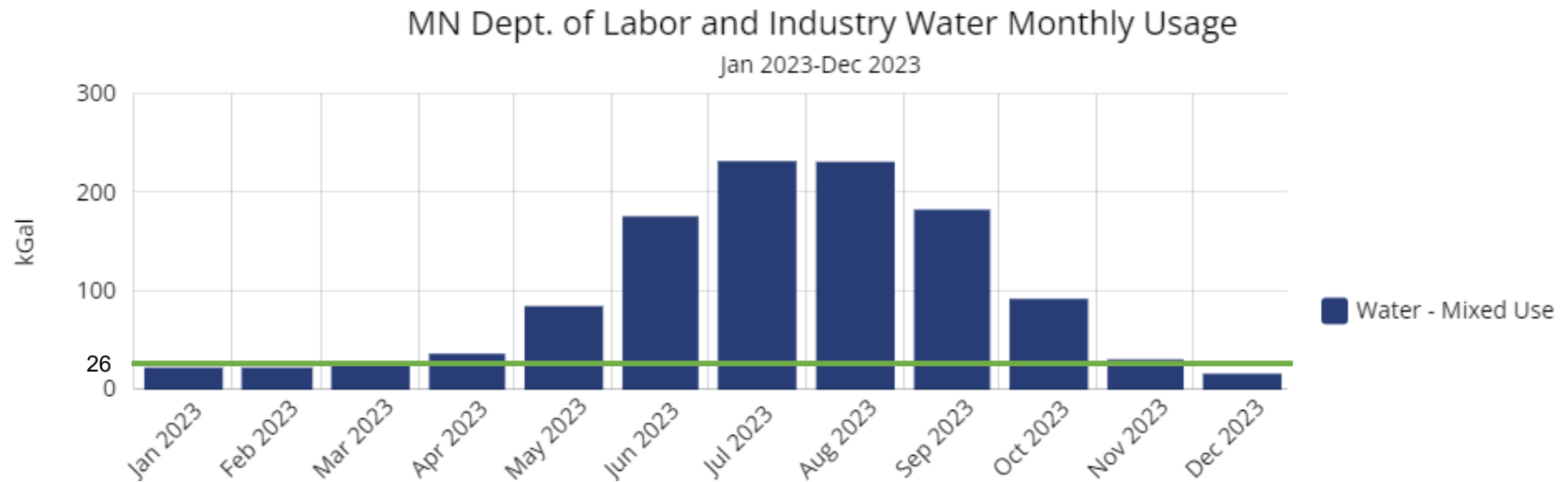
\*Does not include process water (Met Council and DNR)

# Identifying Sites

- Data and visualizations in B3 Benchmarking (B3) of monthly water use (mixed and irrigation)
- Sites with greater water use and greater summer use
- Agencies with process water disregarded



# Calculation Example



# Identifying Reduction Potential

- GIS Parcel data and Google Earth estimations were used to determine irrigation area
- Turfgrasses need 1-1½ inches of water per week
- 12 unique sites were identified



Using Google Earth to estimate irrigation area

# Implement Irrigation Meters

## Benefits:

- Accurately track how much water is going towards irrigation
- Deduct irrigation water use from sewer fees



Example of irrigation deduct meter

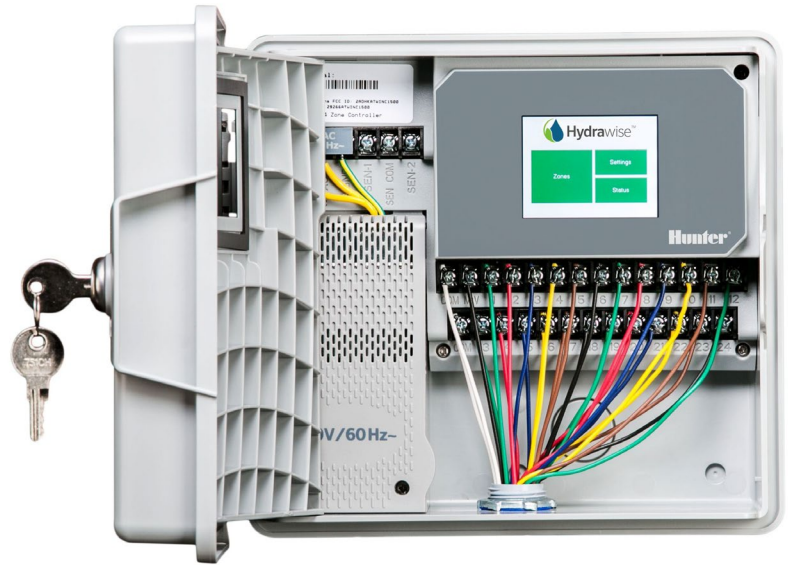
<https://www.toro.com.au/product/irrigation-water-meters--25mm-to-50mm-multi-jet?c3=accessories-1&c4=water-meters>



# Seasonal Dial Adjust

## Benefits:

- Easily change the amount of water irrigated
- Over time, identify optimal settings for specific zones, seasons, plant types



Example of a WaterSense Certified Irrigation Controller

<https://www.hunterindustries.com/irrigation-product/controllers/pro-hc>

# Integrate Sensors

## Benefits:

- Rain, weather, or soil-moisture sensors can prevent overwatering or watering during unfavorable conditions
- Affordable and required by state statute for systems built after 2003 (103G.298)



Example of weather sensor

<https://www.hunterindustries.com/irrigation-product/sensors/mini-weather-station>

# Update Lawncare Practices

## Benefits:

- Reduce labor costs
- Decrease amount of water turfgrasses need
- Contribute to natural environment
- Raise mowing height to at least 3 inches



Stormwater pond at Duluth Veterans Cemetery

# Solutions

Agency	Number of facilities	Annual reduction	Total cost	Annual savings	Payback period	Status
Administration	4	2,940,000 gal	\$4,000	\$26,100	2 months	Recommended
Corrections	2	4,100,000 gal	\$5,000	\$19,000	3 months	Recommended
Human Services-DCT	4	2,510,000 gal	\$4,000	\$7,900	6 months	Recommended
Labor & Industry	1	90,000 gal	\$1,000	\$900	1 year	Recommended
Veterans Affairs	1	720,000 gal	\$2,000	\$20,300	1 month	Recommended
<b>Total</b>	<b>12</b>	<b>10,360,000 gal</b>		<b>\$74,200</b>		

\*Cost will vary based on specific meters, controllers, and sensors and site needs

# Personal Benefits

- Site visits across Minnesota
- Improved communication and presentation skills
- Problem solving with limited information
- Participation in state government



**Meeting Lieutenant Governor Flanagan!**