



VA Hospital Minneapolis



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Organization Background

The VA Medical Center - Minneapolis (VAMC)

provides healthcare to veterans, trains future healthcare providers, and conducts medical research through a program connected with the University of Minnesota. The medical center was founded more than 100 years ago in 1921. The hospital employs a staff of 4,800 and has 1.5 million square feet. They offer a wide range of services for veterans including surgery, mental health care, neurology, cancer treatment (oncology), dentistry, addiction care, and many others.



"I was very thankful that I had the opportunity to work at the VAMC this summer. This internship allowed me to apply technical knowledge and refine my problem-solving skills. It's rewarding to know that my work will contribute to sustainable changes within the VAMC. I'm thankful for this opportunity that has not only honed my skills but also reinforced my passion for sustainable solutions." ~ SZ

Project Background

The VAMC is a large facility serving patients 24/7. Consequently, the facility consumes a large amount of water to maintain operations. They are looking for areas where water use can be reduced to save money and improve sustainability. It is important to decrease the amount of irrigation water as it is sourced from a local well, and over-pumping aquifers can lead to numerous environmental risks.

Additionally, the facility produces three meals a day for the hospital's inpatients. The VAMC kitchen has tried many methods in the past for managing food waste more efficiently; however, each was ultimately untenable.

Incentives To Change

The VAMC places a high emphasis on sustainability. The VAMC has won numerous awards for its sustainable practices, and there is an aim to continue this trend. As a healthcare facility, protecting public, patient, and employee health is part of the VAMC's mission statement. To protect human health, environmental health must be protected as well.

SOLUTIONS

Install Ozone Laundry

Washing laundry with ozone can sanitize fabrics without the use of additional chemicals. This eliminates the need for rinse cycles, saving water. Ozone performs most effectively in cold water, so there are also energy savings. Installing ozone laundry could save up to 1,600,000 gallons of water, 28,000 therms, 42,000 lbs of detergent, and \$85,000 annually.

"Through examining water use from multiple angles, Sarah was able to identify problems and inefficiencies that our facility engineering team were unaware of. Some... had been recognized before but never communicated to the people who could fix it, others were because of people's tendency to focus on how an issue affects their own work but not the downstream effects."

*~ Dalton Albers, Environmental Engineer
VA Medical Center - Minneapolis*

Solutions

Update Faucets to Low Flow

An audit found that 29% of the faucets in public bathrooms have not been converted to low flow. Updating these faucets to a flow rate of 0.5 GPM could save 1,600,000 gallons of water and \$19,000 annually.

Repair Cooling Tower Automatic Blowdown

The cooling tower is currently constantly blowing down because of a broken valve on the automatic blowdown system. This results in additional water used for make-up. Repairing the blowdown system would save 730,000 gallons of water and \$8,700 annually.

Optimize Irrigation

The grass at the facility is being watered three times more than recommended. It is suggested that the VAMC reduce the watering rate to 1 in/week by reducing sprinkler cycle times and tracking weekly water usage. Additionally, the irrigation season can be reduced from 24 weeks to 17 weeks. Lastly, the moisture sensors on site are not working and can be replaced. These three actions will cumulatively save up to 8,330,000 gallons of water and \$1,030 per year.

Replace Moisture Sensors

The VAMC has three moisture sensors over the irrigated areas. However, these moisture sensors have not been functioning. The moisture sensors should be replaced to avoid overwatering when there is precipitation. This would save 1,300,000 gallons of water and \$170 alone; however, if the irrigation season is also reduced, it will save 760,000 gallons of water and \$100 annually.

Eliminate Excess Food and Divert Food Waste

To reduce excess food waste, it is recommended to implement just-in-time prep (JITP). This would involve producing meals to a live patient count and increasing production if there is additional demand. This would use less inventory and limit the production of excess food by 130,000 lb. per year.

The organics from the post-patient plate waste can be diverted through donation to a local farm. The farm will pick up the organics, heat treat them, and use them as feed for pigs. This recommendation would divert 160,000 lb. of organics from the trash.

Recommendation	Annual Reduction	Annual Savings	Status
Install Ozone Laundry	1,600,000 gal water 28,000 therms 42,000 lbs chemicals	\$85,000	Recommended
Update Faucets to Low Flow	1,600,000 gal water	\$19,000	Recommended
Repair Cooling Tower Automatic Blowdown	730,000 gal water	\$8,700	Recommended
Optimize Irrigation	8,330,000 gal water	\$1,030	Recommended
Eliminate Excess Food Production	130,000 lbs food	\$270,000	Recommended
Divert Food Waste	160,000 lbs organics	TBD	Recommended
Donate Excess Food (if applicable)	110,000 lbs food	TBD	Recommended

MnTAP Advisors: Gabrielle Martin, Associate Engineer and Jon Schroeder, Sustainable Materials Management Specialist