Hennepin County Medical Center

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Company Background

Hennepin County Medical Center (HCMC) is a major employer and economic engine in downtown Minneapolis, employing over 6,000 full-time-equivalent employees. HCMC is Minnesota's premier Level 1 Adult Trauma Center and Level 1 Pediatric Trauma Center with many nationally recognized programs and specialties. It is an essential teaching hospital for doctors who go on to practice throughout the state, and is also a safety-net hospital, providing care for low-income, uninsured and vulnerable populations. The hospital's six campus buildings encompass three million square feet.

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"Working with Hennepin County Medical Center has taught me so much about resource use and conservation in a healthcare setting. I have gained invaluable experience through working out solutions to meet complex water and energy saving goals. It was inspiring to see a large urban hospital work so hard to improve environmental impact with such a high level of concern for community health." ~RK

Project Background

To focus on the issue of water conservation within its facilities, HCMC sought out a water conservation intern from MnTAP to provide a dedicated resource to analyze water use and look at current practices with new eyes from outside the healthcare field. The goals of the project were to document current water use, develop measures to reduce current and future use, and foster an atmosphere of environmental stewardship. In cataloguing current use, the intern discovered that HCMC used 46 million gallons of water in 2015.

Incentives To Change

HCMC is committed to sustainable ideals. It strives to be a leader in water and energy savings, with a goal of reducing water use by 10%. The state of the environment strongly affects the health of community members and, therefore, the health of HCMC's patients. Thus, HCMC is committed to saving resources and reducing their impact on the environment. In pursuit of this goal, HCMC hired a sustainability coordinator and established a sustainability team, which has worked to implement many sustainablity goals that benefit not only the community but also the health of HCMC's employees.

SOLUTIONS

Update Domestic Fixtures

Updating domestic fixtures to low flow options is a cost effective way to save water. Adding aerators to the sinks can reduce their flow from 2.2 to 1.0 gallons per minute (gpm). New low flow shower heads use 1.5 gpm compared to 2.5 gpm for older models. Low flush toilets can reduce water use from 3.5 gallons per flush (gpf) to 1.6 gpf, and dual flush models use even less water, at 1.0 gpf for approximately 50% of flushes.

Replace Equipment

Replacing water intensive equipment such as washers, sterilizers, dishwashers, and washing machines with more efficient models can save a vast amount of water. If the water saved is heated, there is an energy savings as well. Historically, HCMC replaces equipment as it reaches end of life. Resource savings could justify earlier replacement. For example, the washing machines in the psych department are still functional; however the payback to replace them is only five months. Rebates may also be available for upgrading to new equipment that is more energy efficient, including reductions in heated water.

Eliminate Use of Cold Water to Cool Discharge

Cold water used to be necessary to cool discharge water from the washers in order to meet regulations that stated the discharge water temperature cannot exceed 140°F. This regulation has since been updated to allow up to 180°F discharge. Therefore, after testing the discharge water temperatures, the use of cold water to cool discharge was proven no longer necessary, saving 1.5 million gallons of water annually.

Reuse Reverse Osmosis (RO) Reject Water

Every year, 520,000 gallons of reject water from RO systems goes to drain. This water is high quality clean water, suitable for reuse. Floor cleaning uses 5,000 gallons of water per month. The room where the floor machines are filled is relatively close to a new RO treatment system being installed, which will produce approximately 4,500 gallons of reject water per month. Irrigation uses approximately 50,000 gallons of water monthly throughout the summer months. A nearby RO system that could feasibly be rerouted for irrigation produces 27,000 gallons of reject water monthly year-round. In addition to these two systems, another system produces 70,300 gallons of reject water plus 72,800 gallons from system flushing that could be suitable for future reuse projects.

"Rachel was a wonderful asset to HCMC's facilities team. She worked independently, found savings opportunities that HCMC had overlooked, and provided concrete recommendations for implementing her proposals. The anticipated savings are significant, both in water reduction and financially."

~Ann Eilbracht-Thompson,
Senior Director of Support Services, HCMC

Recommendation	Annual Reduction	Annual Savings	Status
Update domestic fixtures	5,190,000 gallons 15,200 therms	$57,400	Ongoing
Replace equipment: Washers	2,100,000 gallons 6,000 therms	$32,000	Implemented
Replace equipment: Sterilizers	2,800,000 gallons 20,000 therms	$54,000	Planned
Replace equipment: Dishwashers	720,000 gallons 4,000 therms	$16,600	Recommended at end of unit life
Replace Equipment: Washing machines	530,000 gallons 3,000 therms	$7,000	Recommended
Eliminate use of cold water to cool discharge	1,500,000 gallons	$14,000	Implemented
Reuse reverse osmosis reject water	180,000 gallons	$1,700	Recommended