

Water and Energy Efficiency at Hospital Facilities

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Driven to DiscoverSM

Company Background



North Memorial Health

- **Founded in 1954**
- **Hospitals and clinics throughout northwestern Twin Cities**
- **North Memorial Health Hospital has 3500 employees and 350 beds**
- **Maple Grove Hospital has 350 employees and 130 beds**
- **Maple Grove Hospital founded as partnership between North Memorial Health and Fairview in 2009**

Project Overview

- **North Memorial Health Hospital:**

- 38 million gallons of water in 2017
- 1 million Therms of natural gas
- 17 million kWh

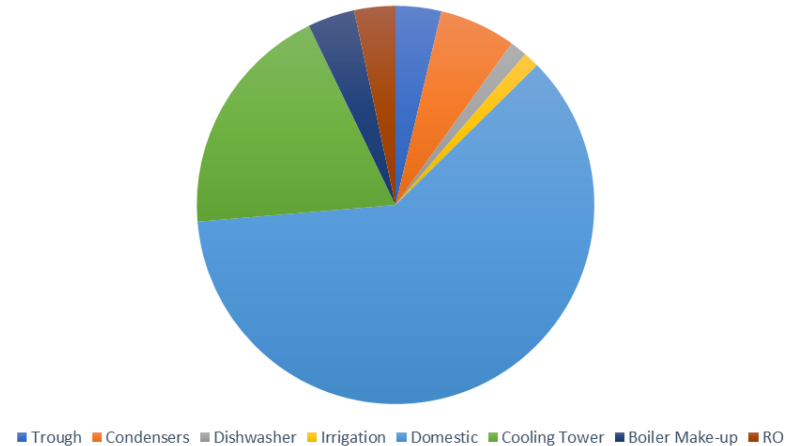
- **Maple Grove Hospital:**

- 19 million gallons of water in 2017
- 50,000 Therms of natural gas
- 8 million kWh

- **Find ways to reduce water and energy consumption**

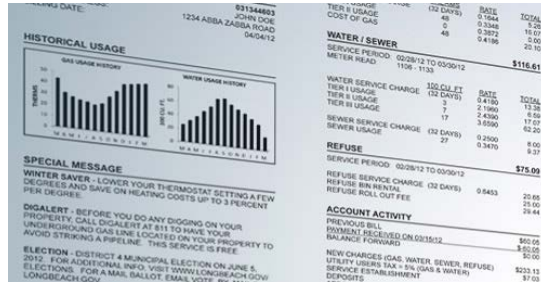
- **Reduce operating costs and impact on environment**

Water Consumption at North Memorial Health Hospital



Approach

- Talked with maintenance staff about possible ideas
- Reviewed utility bills and reports



- Talked with manufacturers to find how systems should operate
- Researched possibility of replacing systems at end of useful life

Primary Recommendation

Solenoid Valve and Timer for Soup Kettle Trough

- Used over 1.5 million gallons each year of 127 degree water
- Valve could be turned on, but be forgotten to be turned off
- Installed NC solenoid valve with timer



Primary Recommendation

- Will save over 1.3 million gallons and 7000 Therms
- \$500 to implement
- \$13,000 in savings each year

Before



After



Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
Solenoid Valve and Timer	1.3 mil gal water 7,000 Therms	\$500	\$12,500 \$600	2 weeks	Implemented
Condensers Loop	2.6 mil gal water	\$25,000	\$24,000	1.1 years	Recommended
New Reverse Osmosis System	764,000 gal water	\$25,000	\$7,000	3 years	Recommended
Linkage-less Control on Boilers					Further Investigation Needed

Solutions

Recommendation	Annual reduction	Total cost	Annual savings	Payback period	Status
New Dishwasher at Maple Grove Hospital	176,000 gal water 166,000 kWh	\$57,000	\$650 \$12,000 \$4,500	3.3 years	Recommended at end of life
New Dishwasher at North Memorial Health Hospital	170,000 gal water 150,000 kWh	\$155,000	\$1,600 \$10,100 \$7,500	8.1 years	Recommended at end of life
Weather Sensors at North Memorial Health Hospital	162,000 gal water	\$4,000	\$1,500	2.7 years	Recommended
Weather Sensors at Maple Grove Hospital	360,000 gal water	\$250	\$1,350	2 months	Recommended

Personal Benefits

- Learned a lot about different types of mechanical systems
- Saw how hospitals operates behind the scenes
- Learned how to connect with vendors and be diligent in gathering information

