

Charting a Course to Energy Independence

Providence, RI
August 9-12, 2009





Water Efficiency Projects - Medical

- Beth Israel Deaconess Medical Center (BIDMC)
- Why Water & Sewer?
- Assessment
- Water Balance
- Report & Scope of Work
- Conservation Measures
- Particular Measure
- Results



Water Efficiency Projects-Medical

- BIDMC

- ☒ 25 buildings, 2.6M sf

- ☒ In 2006 the medical center used 86.8 M gallons of water

- ☒ In 2006 cost was \$885K

- water 4.6 \$/kg, sewer 6.41\$/kg

- ☒ Roughly 0.34 \$/sf



Why Water & Sewer?

- Hospital needed to cut costs
- President & CFO understand financial benefit of conservation projects
- Rates increasing 9.25% in 2007
- Rates increasing 5 to 7 % in years after 2007
- Cuts pollution

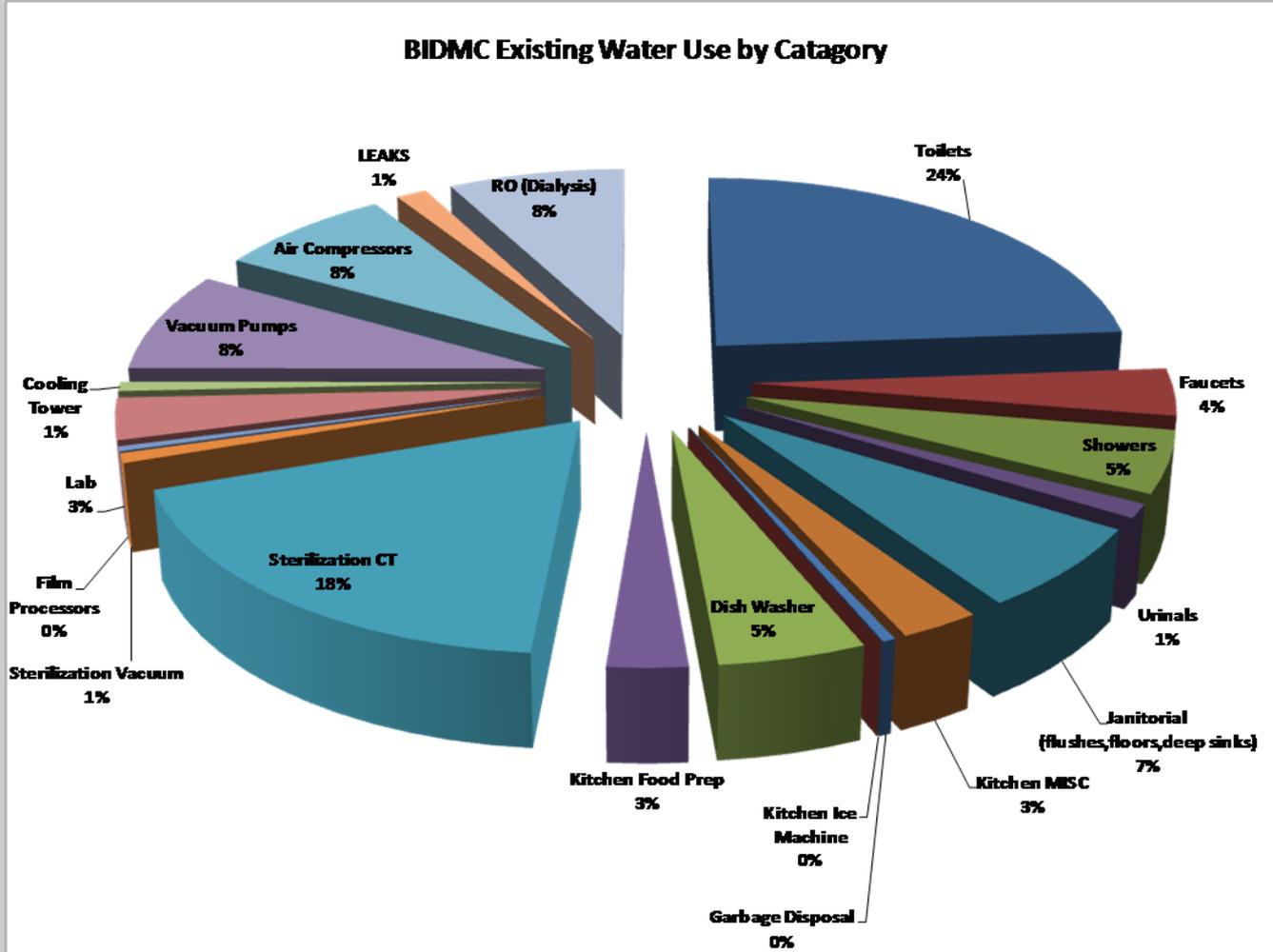


Assessment

- Utility information
- Demographics
- Interview Maintenance & Staff
- Walkthrough



Water Balance – not typical





Report & Scope of Work

- Findings presented
- Scope of Work
 - ☐ Conservation measure
 - ☐ Water & sewer savings
 - ☐ Cost savings
 - ☐ Simple payback



Conservation Measures

- **Domestic**

- ☐ Replace toilets and urinals with low flow units
- ☐ Sinks – replace 1,500 faucet ends with 1.0 gpm flow rates
- ☐ Showers – replace 100 shower heads with 2.0 gpm flow rates

- **Non-Domestic**

- ☐ Cooling tower abatement
- ☐ Sterilizers – condensate tempering
- ☐ Cafeteria hand held sprayers
- ☐ Cafeteria tray wash garbage disposal
- ☐ Dish machine – reduce excess hot water in final rinse



Problem: Sterilizers Drain Tempering

- Condensate tempering of sterilizers
 - ☐ Steam used to sterilize and dry equipment
 - ☐ Condensate goes to drain, but cannot be > 140 F
 - ☐ 0.5 to 3 gpm of “bleed” water
 - ☐ Even when the sterilizer is not operating



Solution: Sterilizer Drain Tempering

- ☐ Temperature sensor, controller and valve installed to maintain drain < 120 F on 22 units
- ☐ The sterilizer steam condensate discharge water passes through a mixing chamber in which temperature is monitored. The temperature monitor is connected to a solenoid valve on a new cold water supply line
- ☐ Saved 90% of water & sewer (8 Mgal/yr)
- ☐ \$70K per year saved
- ☐ Less than 1 year payback



Savings on Projects

- Implemented measures that were estimated to save about 10% of consumption
- Achieved about 10% consumption savings
- Achieved about 10% cost savings less rate increases