Water Conservation Tools and Strategies

Cambridge Compact for a Sustainable Future Workshop

December 6, 2017

CDM Smith

What is Water Conservation?

Using less water

Using water more efficiently

Conservation Savings Occur From…

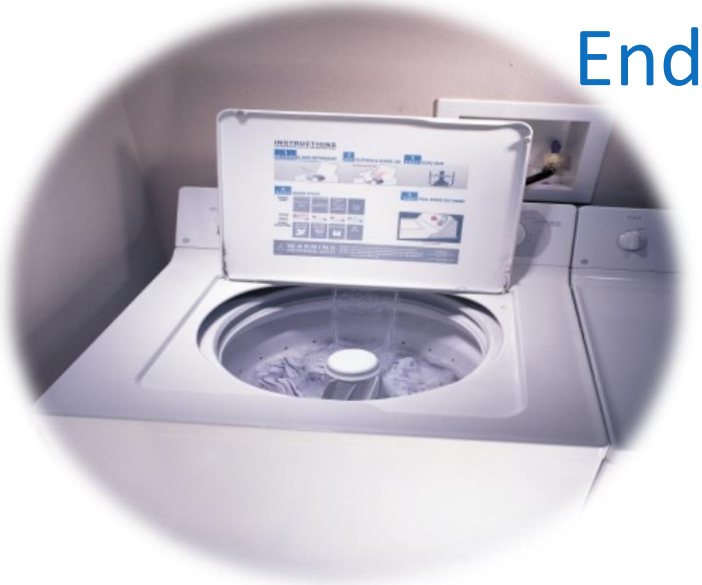
Shifts in levels of efficiency

- Technological change
- Longer lasting effect depending upon the technology
  - Low-flow showerhead
  - High efficiency dishwashers

Shifts in intensity of use

- Behavioral change
- Short-term effect with tendency to revert to prior behavior
  - Shorter shower time
  - Less frequent irrigation time

Water Conservation Occurs at the End-Use Level

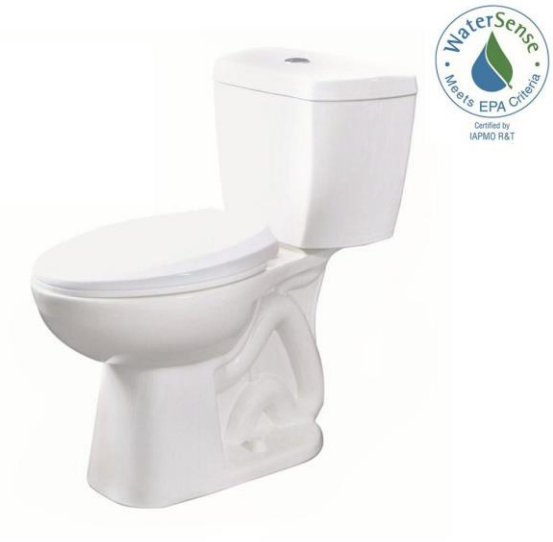


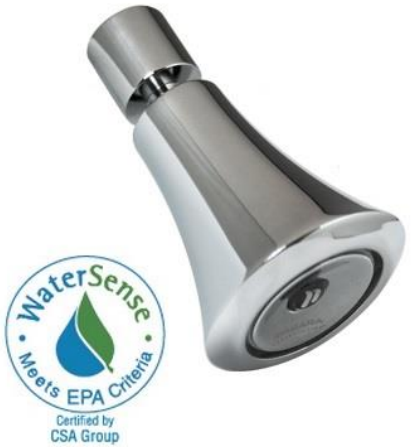
What Makes Cambridge Unique?

- Not single-family suburbia with large lawns
- High proportion of multifamily housing
- Universities and research facilities
- Public parks and green spaces are important

Residential Water Conservation

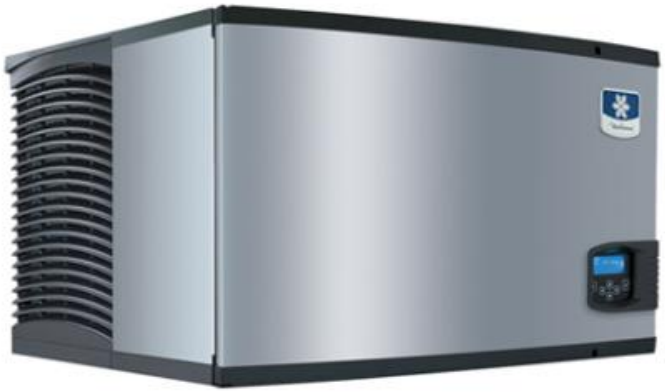
- High Efficiency Toilet Replacement
  - Conventional 1.28 gallons per flush or premium 0.8 gallons per flush models
  - Reduced water consumption by up to 40 percent
  - Reduced maintenance from inoperable toilets and fewer leaking toilets
- High Efficiency Clothes Washer Replacement
  - Water savings of up to 14 percent
  - Reduced gallons per capita water use by approximately 5 gallons per day
- Low Flow Showerhead Replacement
  - Rebate to residents or property owners
  - Save 0.5 gallons per minute





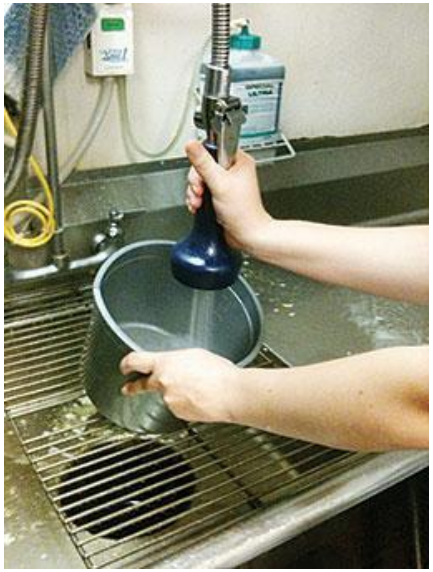
Commercial Water Conservation

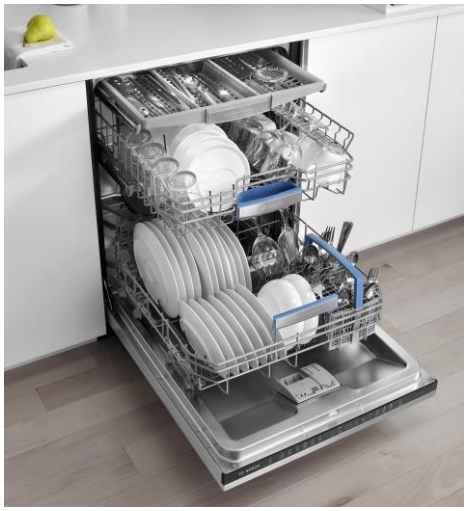
- High Efficiency Toilet and Urinal Replacement
  - Estimated payback period for commercial properties is less than 3 years
  - Could reduce building water use by up to 40 percent
- High Efficiency Showerhead Replacement
  - Could reduce dormitory or hotel water usage by up to 30 percent
- Ice Machine and Chiller Replacement
  - Replace with air cooled units
  - Could reduce restaurant water consumption by up to 30 percent



Commercial Kitchen Water Conservation

- High efficiency faucet aerators
  - Reduce water usage by 54%
- Replace pre-rinse spray valves
  - Reduce water usage by 18%
- Utilize water efficient steamers and warming ovens
  - Estimated savings of 10%
- Use recycled water for food waste disposal troughs
  - Change from 2 – 15 gpm continuous flow to 1 gpm as needed flow
- High efficiency dishwashers
  - Reduce water usage from 352 gallons/cycle to 98 gallons/cycle
  - Reduce energy usage by 25 percent





Outdoor Water Conservation Practices

- Smart irrigation
  - Irrigation times determined by sensors that determine watering needs
    - Soil Moisture
    - Temperature
    - Evapotranspiration
    - Weather forecast
  - Average water savings is approximately 40%, dependent on how efficient current watering practices are
- Conventional irrigation
  - Ensure irrigation headers are not pointing towards pavement
  - Water early in the morning

Advantages of Water Conservation for You

- Increased environmental stewardship
- Water conservation increases energy efficiency and reduces energy costs
- Reduced water use will help mitigate the need for the City to purchase water from the MWRA

City of Cambridge Water Conservation Plan

- We need your input – fill out a questionnaire!
  - What are water users already doing to conserve water?
  - What can we do to improve efficiency?
- Various technologies to help conserve water
- Potential for educational or incentive programs

We appreciate your input!

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