

Attachment:

Water Conservation Program Elements

Element 1: Awareness

- Set goals for water reduction.
- Periodically evaluate whether goals are being met.
- Ensure that building operations personnel are aware of center water usage on an ongoing basis.
- Note any large or unexplained changes in water bills or water usage, being mindful that they may be caused by a large leak.
- Investigate unexplained increases in water usage, and fix them.
- Be aware of increases in water usage during irrigation season (warm-weather months).
- Use the *Energy Watchdog* system to compare the current month's usage with previous months', and to identify any unusual patterns. (*Energy Watchdog* may be accessed via the Web, <http://pro.energywatchdog.com>.)

Element 2: Student Action

Encourage students to be aware of and reduce water usage, and to:

- take shorter showers;
- practice efficient clothes washing (machines should be full when run, and shorter cycles should be used whenever practical);
- turn dormitory faucets and showers all the way off when not in use;
- appoint a water-conservation steward to check for leaking faucets, running toilets, and other sources of water usage that are wasteful; and
- hold contests between dorms for lowest water usage (for dormitories with dedicated water meters).

Element 3: Waste Prevention

- Investigate and fix pipe leaks. Many pipe leaks cannot be seen because the pipe is buried or otherwise inaccessible. Check water meter when all fixtures and water-using equipment is turned off (as in the middle of the night); check at 10-minute intervals to observe any change. Outdoor water leaks may lead to unexplained patches of green grass, wet areas, or frozen soil.
- Fix dripping showers, faucets, and water closets. These can waste thousands of gallons of water per year.
- Check outdoor hose bibs and hoses for leaks.

- Use low- or no-water cleaning methods. Sweep or use a leaf blower rather than a hose to clean pavement or concrete whenever possible.
- Ensure that personnel performing janitorial services are a part of the center's water conservation program and are incorporating conservation measures.

Element 4: Irrigation Improvement

- Centers should irrigate grass on playing fields, meeting areas, or other specifically designated areas. Avoid irrigating large areas not used for regular functions.
- Landscape to reduce or eliminate irrigation. Plant drought-resistant shrubs or small trees surrounded with mulch or stones. Many xeriscaping techniques accomplish this goal, and numerous websites are available with specific methods and information, including <http://xeriscape.sustainable-sources.com/>.
- In most climates, grass requires about 1 inch of water per week during growing season to stay lush and green. Use a rain gauge to determine whether irrigation is needed, keeping in mind that 1 acre of grass needs 800,000 gallons of water irrigation to be maintained.
- Water grass in morning or late evening to prevent evaporation. Avoid irrigating on windy days. Irrigate deeply to saturate ground down to root level of grass. Irrigating every day or every two days is poor practice. Install water-efficient methods if possible, such as buried drip lines rather than broadcast sprayers. If sprayers are used, point at low angles with larger droplets to reduce evaporation.
- Allow grass to grow slightly higher than normal, and mow it less frequently. Higher grass retains more moisture, and requires less irrigation.
- Prioritize areas to be irrigated. Irrigate less-important areas only as required to save from drought. Most grasses will survive turning brown as long as roots are still vibrant. Following drought, grass will recover if roots are alive.

Element 5: Fixture and Equipment Efficiency

Cost can be a factor with the below measures. However, they should be considered when replacing old equipment.

- Install low-flow plumbing fixtures. A \$20 to \$35 low-flow (1.6 gpm¹ or less) shower head will reduce water and energy use enough to pay for itself in less than one year. A \$30 low-flow aerator for a faucet will pay for itself in a few years. Low-flow water closets (1.3 gpf²) and waterless urinals will also significantly reduce water usage.
- Install efficient washing machines. A front-loading, Energy Star, washing machine uses less than one-half of the water of a top-loader.

¹ gallons per minute

² gallons per flush

- Install efficient kitchen equipment. New dishwashers use significantly less water than models a few years old. Run fully loaded dish racks through the dishwasher. A low-cost option is to install high-efficiency (1.6 gpm), pre-rinse spray valves on spray washers.
- Use storm water for irrigation. Some planning is needed to install a cistern and connect to downspouts or other draining systems. The cistern may be hooked to a sprinkler system through a small pump. Water from storm water ponds can be used to irrigate.
- Point-of-use water heaters and pipe insulation reduce water wasted when waiting for hot water.