



Partners in Water

Institutional

Industrial

Commercial

How Much Water Does Business and Industry Use in Greensboro?

In the City of Greensboro, non-residential water use constitutes only 10% or 8,200 of the city's 84,000 water accounts. However, this translates to a consumption of 19 million gallons per day - approximately 55% of the city's total water demand. In fact, a 10% reduction in annual non-residential consumption would supply more than 8,000 families of four with water for a year.

Why Should We Conserve Water?

Water can no longer be thought of as an abundant resource. Cities across the United States are facing water shortages, and Greensboro is no exception. We do not have a river, so we must depend on small creeks, but predominantly rainfall, to fill our reservoirs. To ensure future growth, our community must reevaluate the way we use water. Costs of water, wastewater treatment and the energy used to heat water are rising. A successful water efficiency program can demonstrate to the public our willingness to become an active partner in environmental responsibility.

How Do We Develop A Successful Water Efficiency Program?

A successful program depends on four factors:

1. Commitment of senior management to initiate and support the program.
2. Evaluation of your current water system.
3. Development of a comprehensive water efficiency plan.
4. Employee awareness and participation.

The following steps and checklists will guide you in development of a successful water conservation policy for your facility.

STEP 1: COMMITMENT OF SENIOR MANAGEMENT

It is crucial that top management support the water conservation plan both ideologically and financially. There are four major reasons why companies should support the program.

- ◆ Large corporations are frequently seen as environmentally wasteful and not held accountable for their use of natural resources. Starting a water efficiency program and making water conservation a decision factor for policies and investments can change public views.
- ◆ A competitive advantage can be gained. An aggressive water efficiency plan will reduce treatment, water, sewage, and energy costs.
- ◆ A unified water efficiency effort will reduce the likelihood of drought affecting Greensboro business and industry.
- ◆ A water and energy efficiency program will prepare business and industry for tightening environmental restrictions from federal and state offices. Community relations may improve as a result.

Develop a company policy statement to reflect the intentions of management. Here is one example:

" Our company is committed to developing and maintaining a comprehensive water efficiency program. With the support of our employees, saving water will help us to cut costs and ensure our continued ability to grow. Identify areas that you feel have potential for improvement. Water conservation is encouraged at work as well as at home."

An effective plan cannot be achieved without support from management. The genuine desire to conserve water must be demonstrated by top management and passed on to all employees.

STEP 2: UNDERSTANDING YOUR WATER SYSTEM

Performing a water audit will help you to determine where, how, and what quantity of water that your business uses.

- ◆ Locate all areas of the facility that contain hot or cold water supplies.
- ◆ Measure the amount of water being used at each point.
- ◆ Determine annual costs supplying water to each area.
- ◆ Begin thinking of ways that each area could eliminate leaks and use water more efficiently.

Use the water data sheet (Appendix A) to quantify water usage in your facility.

STEP 3: DEVELOPMENT OF A COMPREHENSIVE PLAN

To be successful, it is critical that your conservation plan be committed to paper. Each plan will be specific to your facility. However, there are some basic ingredients that should be included to assure its successful implementation.

- ◆ A Company Policy Statement that reflects the commitment of top management (See Step 1)
- ◆ Goals - set reduction goals that are specific, measurable, and achievable. State the goal measurement gallons, percentage, etc., when this goal will be achieved, in what area of your facility, by what time, and by what means.
- ◆ Action plan - outline each specific task and support each action with a cost/benefit analysis where applicable.
- ◆ State immediate actions that are no-cost or low-cost actions that require capital expenditure and actions that require water-use habit modification. Make sure that you use current or proposed rates when determining cost/ benefit.
- ◆ Start an Employee Awareness Program (See Step 4).
- ◆ Who will be responsible for plan implementation? Establish a water efficiency committee with a responsible committee leader, or, in smaller facilities, one employee who will develop and implement the plan.

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- ◆ The plan must contain procedures for implementation, evaluation and revision. A viable plan is one that is flexible and evolving. It should be systematically reviewed and revised with the appropriate actions that need to be taken. The original plan should state at what intervals and how the plan will be revised.

Use Appendix B for ideas about where water can be used more efficiently. This checklist can help you to organize your effort.

STEP 4: EMPLOYEE PARTICIPATION AND PUBLIC AWARENESS

The importance of employee awareness and cooperation cannot be overstated. The first three steps of plan development will be unattainable without the willing participation of each and every employee. There are a number of ways in which a company can communicate its water conservation plan:

- ◆ Start off your awareness program with a letter to all employees from the head of the company-CEO, president, owner, etc. -showing full support of the plan.
- ◆ Utilize bulletins, newsletters and paycheck stuffers to communicate policies, programs, ideas, announcements, progress reports and special achievements.
- ◆ Hold staff meetings to communicate your company's water conservation plan, and progress in water savings.
- ◆ Promote a suggestion and incentive system and recognize people who

have water saving ideas. A suggestion program that rewards employees with a percentage of the first year's direct savings has proven to be a very successful motivational vehicle.

- ◆ Distribute water conservation booklets.
- ◆ Promote slogan and poster contests.
- ◆ Publicize international, national, and local water and environmental issues that highlight the sensitivity of our precious resources.
- ◆ Two or three times a year, have a water conservation display set up in the employee cafeteria highlighting different aspects of efficient water use; landscaping, water-saving plumbing fixtures, water-use habits, etc.
- ◆ Offer home water-saving devices to employees free or at cost. Sponsor demonstrations of these devices by suppliers of this type of hardware.
- ◆ Display posters and other material that may be available from the Water Conservation Office.
- ◆ Post water conservation stickers, and signs in bathrooms, kitchens, and cafeterias.

PARTNERS IN WATER EFFICIENCY

- ◆ Take advantage of audio-visual programs and use outside speakers for employee meetings.
- ◆ Send members of your water conservation team to community conservation seminars.

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- ◆ Circulate information about what others in your industry are doing to conserve water.
 - ◆ State savings in relevant terms such as dollars, earnings per share, or annual consumption per household.
 - ◆ Establish a system for employees to notify the proper parties about leaks, drippy faucets, broken sprinklers or other occurrences of water waste.
 - ◆ Place signs on your drought tolerant landscape identifying the various types of plants used.
 - ◆ Develop displays to place in public reception areas outlining your company's water conservation policy.
 - ◆ Dedicate a percentage of your corporate sponsorship budget to water conservation projects such as a public Water Wise Demonstration Garden.
 - ◆ Once your plan has shown significant water savings, develop a full flight public relations program. Interview with local radio, TV stations and newspapers about your water conservation efforts.

These are some suggestions to help you decrease water consumption in your facility. Each facility is different, however, so you must customize a plan that will work for your particular situation. The City of Greensboro Water Conservation Office is ready to assist you with any additional questions that you may have. Call the Operation WaterWise Hotline – 373-7610.

Water Survey Data Sheet

This data collection sheet is designed to assist auditors during assessments. Some items may not be applicable for all assessment situations.

Assessment Information

Company name _____ Date of assessment _____
Address _____
Phone _____ Fax _____ Audit coordinator _____
Assessment team members _____
Assessment objectives (special concerns) _____

Background Information About Water Use

Average water use _____ Bill amount _____
Average sewer use _____ Bill amount _____
Size and location of meter(s) _____
Primary water source _____
Secondary water source _____
Number of employees _____ Shifts per day _____
Operating days per week _____ Size of plant (square feet) _____
Type of facility (manufacturing, college, health care, office, etc.) _____
If manufacturing, list products and annual production rate. _____

If service or institutional sector, list clients, occupancy rates, and meals served per year, etc.

Other pertinent facility data _____

Current and past water efficiency program measures (policies, training, and goals) _____

System Parameters

Number, types, and sizes of buildings at complex (approximate square feet) _____

Grounds (approximate area in acres) _____

On-site water treatment description, rate, and costs _____

Wastewater treatment description, rates, and operating costs _____

Water Use in Manufacturing Processes

Volume used directly in the product per year _____

Description of water uses in processing _____

Volume used in production processes (i.e., plating) _____

Comments _____

Washing and Sanitation

Volume used for cleaning, washing, and sanitation _____

Description of washing and sanitation practices _____

Cooling and Heating

Description of cooling tower/evaporative coolers (rated tonnage, types, and uses) _____

Water rate used in cooling towers and equipment _____

Description of once-through cooling requirements _____

Volume used in once-through cooling (air compressors, air conditioners, vacuum pumps, rectifiers, hydraulic equipment, degreasers, etc.) _____

Domestic

Toilets (number, type and tank volumes) _____

Urinals (number and volumes) _____

Lavatory sinks (number and estimated flow) _____

Showers (number and estimated flow) _____

Other _____

Landscaping/Outdoor Use

Landscape irrigation (estimated gallons per unit of time) _____

Acreage/square footage landscaped and description _____

Watering/irrigation system, techniques, and schedule _____

Others/Comments _____

Kitchen/Cafeteria

Dishwasher(s) description and use _____

Volume used for dishwashing _____

Kitchen faucet/pre-rinse sprayers, number and flow rate (gpm) _____

Ice makers, air or water cooled, and water usage _____

Garbage disposals in use? _____

Comments _____

Other Uses, Leaks, and Unaccounted for Water

List any quantifiable leaks and estimated rates _____

Other uses of water (air washers, wet scrubbers, ornamental ponds, dust control, etc.) _____

INSTITUTIONAL, COMMERCIAL, AND INDUSTRIAL WATER EFFICIENCY CHECKLIST

WATER EFFICIENCY MEASURE	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Building Operations				
◆ Read water meters on a regular basis.				
◆ Make water use figures known to employees.				
◆ Shut off water to unused areas.				
◆ Install pressure-reducing valves if pressure is high.				
◆ Regularly check buildings for leaks and water waste.				
◆ To the extent possible quantify water use by each operation by using a bucket and stopwatch or isolating each use and checking the water meter.				
◆ Where feasible, install gray water systems (Check local health regulations).				
◆ Install water fountains that are self-closing and use air cooling for chilled water.				

Restrooms				
◆ Repair leaks and plumbing problems immediately.				
◆ Use water-conserving plumbing fixtures.				
◆ Adjust plumbing to use the minimum amount of water that is functional.				
◆ Replace old, water-wasting fixtures.				
◆ Remind users to conserve.				

Cleaning and Sanitation				
◆ Sweep when you don't have to mop.				
◆ Sweep drives and sidewalks instead of using a hose.				
◆ When using a hose, use a high-pressure nozzle with a shut off valve.				
◆ Clean windows only when needed – not on a set schedule.				

WATER EFFICIENCY MEASURE	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Laundries				
◆ Consider water use when purchasing equipment.				
◆ Use continuous-batch or tunnel washers where volume of laundry justifies it.				
◆ Use hot water reuse systems and other water conserving technology where feasible.				
◆ Evaluate wash cycles for maximum efficiency.				

◆ Avoid excess filter and softener backflush.				
◆ Wash only full loads.				
◆ Explore systems that recycle laundry water.				

Kitchens/Cafeterias				
◆ Install separate water meter for large operations.				
◆ Thaw food in a microwave or refrigerator instead of using running water.				
◆ Don't use running water to melt ice.				
◆ Dish Washing				
◆ Operate equipment only when needed.				
◆ Wash only full loads.				
◆ Use final rinse water for pre-washes or garbage disposals.				
◆ Hand scrape dishes.				
◆ Install an automatic shutoff so water does not run when garbage disposal is off.				
◆ Ice-making Machines				
◆ Control bleed-off from clear ice machines.				
◆ Use ice flake machines, which usually use less water than ice cube machines do.				
◆ Use air-cooled machines or ones cooled by recycling water where possible to eliminate once-through cooling.				
◆ Use bleed-off water for condenser cooling.				

Pools and Spas				
◆ Do not use fill and draw pools and spas.				
◆ Use filter backwash water for lawn watering.				

WATER EFFICIENCY MEASURE	We are doing this	We should do this	We need to evaluate this measure	Not applicable
◆ Cover pools and spas when not in use.				
◆ Adjust pool levels to minimize water splash out.				

Landscape Irrigation				
◆ Plan landscapes that require less water by using adapted, drought tolerant plants.				
◆ Audit your system to determine what the real water needs are.				
◆ Make sure that the automatic irrigation system is operating properly.				
◆ Inspect the system regularly to insure that there are no leaks and that heads are not broken or improperly aligned.				
◆ Adjust pressures to the specifications for the equipment used.				
◆ Water only when needed.				
◆ Determine water needs based on soil moisture.				

◆ Water infrequently but deeply, not every day for a few minutes. (Lawns only need about an inch of rain a week.)				
◆ Override the system timer if it has rained or install a rain sensor.				
◆ Use drip irrigation wherever possible				
◆ Limit irrigated landscape areas.				
◆ Be sure that hoses have shut off nozzles				

Cooling and Heating

◆ Cooling systems and cooling towers				
◆ Meter and record water use.				
◆ Never use once through cooling if possible.				
◆ Use dry cooling where possible.				
◆ Maximize cycles of concentration for cooling towers by providing water treatment.				
◆ Establish performance based specifications if you contract with a cooling tower vendor-operator.				
◆ Investigate side stream treatment.				

WATER EFFICIENCY MEASURE

We are doing this We should do this We need to evaluate this measure Not applicable

◆ Reuse cooling tower effluent for landscape irrigation if possible.				
◆ Investigate wet-dry cooling towers				
◆ Reuse treated wastewater or other sources of water for cooling tower makeup.				
◆ Boilers and Heating				
◆ Establish performance based specifications if you contract with a boiler vendor-operator.				
◆ Check steam traps regularly.				
◆ Reuse steam condensate water and boiler blow-down water where feasible.				
◆ Record water use.				
◆ Check for leaks.				

Car Washes

◆ Keep records of water use per car washed.				
◆ Install equipment that recycles water.				
◆ Adjust solenoids, valves, nozzles and equipment to minimize water use.				
◆ Inspect and replace worn jets and parts.				
◆ Reduce "show foam" to reduce need for rinse water.				
◆ Use high-pressure rinses instead of flood arches.				
◆ Use chemically compatible washing solutions and waxes so that wash and rinse water can be recycled together.				
◆ If the car wash is for your facility's own use, wash vehicles only when needed.				

Other Water-using Equipment and Operations

◆ Use automatic shut off valves.				
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◆ Consider water use when purchasing equipment.				
◆ Use mechanical seals instead of packing glands on pumps where possible.				
◆ Regenerate softeners only when needed.				
◆ Capture reject water from reverse osmosis units where feasible for lawn watering use.				



For more information, please contact the
Operation WaterWise Hotline
373-7610