



## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
P.O. BOX 402  
401 EAST STATE STREET  
TRENTON, NJ 08625-0402

CHRIS CHRISTIE  
*Governor*

BOB MARTIN  
*Commissioner*

KIM GUADAGNO  
*Lt. Governor*

### ADMINISTRATIVE ORDER NO. 2016-10

WHEREAS, the State of New Jersey has experienced particularly dry weather conditions over the past several months; and

WHEREAS, during the past six-month period, measured precipitation across northern and central portions of the State ranges from 25 to 50 percent below normal; and

WHEREAS, sources of water supply, both surface and ground, are significantly depleted in these areas; and

WHEREAS, watercourses throughout the northern portions of the State have sustained stream flows as low as ten percent of the long term mean flow; and

WHEREAS, combined reservoir storage in the State's northeastern, central and coastal north regions is below normal (i.e., between 13 – 25 percent below normal), and certain regional reservoirs continue to be depleted more rapidly than others; and

WHEREAS, under the Water Supply Management Act, N.J.S.A. 58:1A-1 *et seq.*, and the Water Supply Allocation Permits rules at N.J.A.C. 7:19, adopted pursuant thereto, the Department is responsible for managing the water resources of the State as public assets held in trust for all citizens and is authorized to manage the water supply and to plan for and respond to water supply emergencies; and

WHEREAS, in accordance with its authority under the Water Supply Management Act and implementing regulations, due to degraded water supply conditions, the New Jersey Department of Environmental Protection (Department) issued a drought watch for the counties of Bergen, Essex, Hunterdon, Hudson, Mercer, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren on July 25, 2016; and

WHEREAS, on October 5, 2016, the drought watch was expanded to include the counties of Burlington, Camden, Gloucester, Monmouth, Ocean, and Salem; and

WHEREAS, the Department has determined that a threat to water supplies and the potential of a developing water shortage exists in portions of the State, and

WHEREAS, without appropriate action and intervention to reduce the possibility of a water emergency, a worsening of the current situation could jeopardize the public health, safety, and welfare of the residents of the State; and

WHEREAS, the full cooperation of every person throughout the State, including every resident, visitor, business, institution, State agency, and political subdivision, is urged in order to avoid a water emergency and the need for more restrictive measures on water usage; and

WHEREAS, pursuant to N.J.A.C. 7:19-13.1(d), the Department may call for action to be taken under its authority to reduce the possibility or lessen the impact of an impending water shortage; and

WHEREAS, due to the foregoing conditions, and in preparation for the possible designation of a Drought Warning condition in affected areas and after public notice, the Department held a public hearing on October 20, 2016 at the Millburn Free Public Library in the Township of Millburn, Essex County, pursuant to N.J.A.C. 7:19-13.1(d).

NOW, THEREFORE, I HEREBY DECLARE, AUTHORIZE, DESIGNATE and DIRECT the following actions to be taken, in accordance with the Water Supply Allocation Permit rules, N.J.A.C. 7:19, and in coordination with affected parties:

1. Drought Warning Designation: The following counties within the State of New Jersey are designated to be in a "Drought Warning" condition: Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren. All residents, businesses, and institutions in the counties covered by the drought warning are urged to use water sparingly. (More information on the Drought Warning and affected areas is available at [www.njdrought.org](http://www.njdrought.org)).
2. Modifications of regulated stream passing flow requirements and reservoir releases\*

Modified passing flow requirements and reservoir releases are designed to increase and preserve storage in affected reservoir systems. These steps are deemed necessary to extend the water supply sources of the State in order to meet existing and future demands for potable water, and to reduce the possibility of a water supply emergency in the future. Modified passing flow requirements and reservoir releases are as follows:

Regulated Reservoir Releases – Reducing required reservoir releases has the effect of preserving water stored in reservoirs

Location	Current Permitted Passing Flow (MGD/CFS)	Modified (MGD/CFS)	Water Allocation Permit Reference
Wanaque River @ Wanaque	10/15.5	7.8/12	#5329
Boonton (@ Rockaway R.)†	7.9/12.2	5.2/8	#5268
Oradell (Hackensack R @ New Milford)	8.3/12.9	3.3/5.1	#5082X
Spruce Run Reservoir	5/7.7	1.7/2.6	#4007PS

Regulated Stream/River Passing Flows/Pumped-Storage Reservoirs – Reduced passing flows allow more water to be withdrawn from streams for reservoir storage and drinking water purposes

Location	Current Permitted Passing Flow (MGD/CFS)	Modified (MGD/CFS)	Water Allocation Permit Reference
Ramapo River @ Pompton Lakes	40/61.9	10/15.5	# 5274

Pompton River @ Pompton Plains	88/126	68/105	#5099X
Passaic River @ Chatham†	75/116	55/85.1	#5008X
Passaic River @ Two Bridges	92.6/143.3	80/124	#5094X
Passaic River @ Little Falls	17.6/27.2	13.6/21.1	#5099X
Saddle River @ Upper Saddle River	1.5/2.32	0.8/1.2	5082X
Saddle River @ Ho-Ho-Kus Brook	9/13.9	6.5/10	#5082X
Rahway River @ Rahway	5.1/7.9	2.6/4	#5339
Raritan River @ Stanton	40/62	21.5/33.3	#4007PS #4008PS
Raritan River @ Manville	70/108.3	50/77.5	
Raritan River @ Bound Brook	90/139.5	70/108.3	
Manasquan River @ WSA Intake	7.8/12.1	6/9.3	#4034PSX
Shark River @ Neptune City	1.2/1.9	0.8/1.2	#5018X
Jumping Brook @ Neptune City	0.8/1.2	0.5/0.8	
NB Metedeconk River near Lakewood	9/14	7/10.8	#5172

MGD = million gallons per day

CFS = cubic feet per second

\*These reductions to reservoir releases and passing flows and any further modification thereto are subject to evaluation of downstream conditions, and maintenance of associated passing flows and water quality.

†Noted passing flow modifications shall be coordinated with both the North Jersey District Water Supply Commission and Passaic Valley Water Commission, and shall, based upon the threat of downstream water volume or quality impairments caused thereby, immediately be discontinued upon notification by either of the aforementioned agencies.

### 3. Water System Transfers and Service Substitutions:

The following actions are intended to ameliorate existing depletion in reservoirs owned and operated by the North Jersey District Water Supply Commission (NJDWSC) and SUEZ-New Jersey Water. Accordingly, water purveyors in the affected counties shall utilize, to the fullest extent practicable, alternate sources of supply (including their own), to the extent not in conflict with applicable permit conditions and/or as modified by this or any future drought-related order or directive:

- (a) The following water transfers and service substitutions, if not already underway, shall be commenced as soon as practicable and upon the completion of the assessment noted at (c) below:

Sending Water System	Receiving Water System	Volume (MGD)	Source Presented
New Jersey American-Central	City of Newark	10-15	North Jersey District Reservoirs
City of Newark	Bloomfield	7.5	North Jersey District Reservoirs
Passaic Valley Water Commission	SUEZ Water-New Jersey	10	North Jersey District and

			Suez Water Reservoirs
Jersey City MUA/SUEZ-JC	City of Bayonne	10	North Jersey District Reservoirs
Jersey City MUA/SUEZ-JC	Kearney	4-5	North Jersey District Reservoirs

- (b) Suez-NJ Water's draft from the North Jersey District Water Supply Commission shall not exceed 42 MGD in any 24-hour period.
- (c) The City of Newark's provision of service to Bloomfield shall result in a net reduction of Newark's average daily draft from NJDWSC by 7.5 MGD.
- (d) Prior to the commencement of any ordered water transfers or service transfers, including those listed at (a) above, the Director of the Division of Water Supply & Geoscience (Director) shall coordinate with relevant Department programs, other State, county, and local agencies, and affected water purveyors, as appropriate, to assess the potential for water quality issues associated with any transfers of water ordered hereby.

I HEREBY AUTHORIZE the Assistant Commissioner for Water Resources Management to take such actions as are necessary, in accordance with the Water Supply Allocation Permit rules (N.J.A.C. 7:19-1), to have water purveyors implement their leak detection and repair programs to the fullest extent possible.

I HEREBY DESIGNATE the Assistant Commissioner for Water Resources Management to act on my behalf in the implementation and modification of drought warning requirements, as provided under N.J.A.C. 7:19, during the pendency of the drought warning in the designated areas.

I ALSO DIRECT water purveyors in the affected counties to immediately identify, exercise and, if necessary, repair critical water supply interconnections to ensure their proper functioning in order to facilitate ordered water transfers.

This order shall take effect immediately.

10/21/2016  
Date

  
\_\_\_\_\_  
Bob Martin, Commissioner

# 6 SIMPLE STEPS TO SAVE WATER...BECAUSE REMEMBER, EVERY DROP COUNTS

Due to much lower than normal rainfall, New Jersey's water supply is dwindling. You can do your part to help avoid a drought emergency by taking these six simple steps to save water.



Don't let faucets run when brushing your teeth, shaving, or washing the dishes. Just turning off the water while you brush can save 200 gallons a month.

**1**



Run washing machines and dishwashers only when they are full, or select the properly sized wash cycle for the current laundry load.

**2**



Install water-saving showerheads and faucet aerators in the bathroom and kitchen (available at most home improvement stores and some supermarkets.)

**3**



Fix any leaking faucets – one drop every 2 seconds from a leaky faucet wastes 2 gallons of water every day – that's water – and money – down the drain.

**4**



Don't wash your car at home – a car wash uses much less water and recycles it, too.

**5**



With the end of the growing season, be sure to turn off automatic lawn and garden sprinkler systems.

**6**



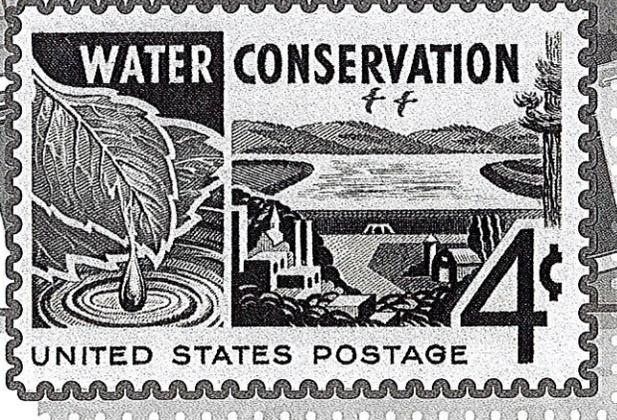
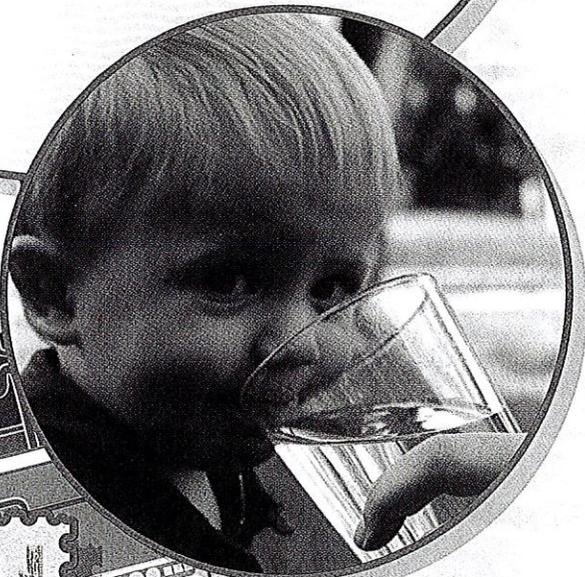
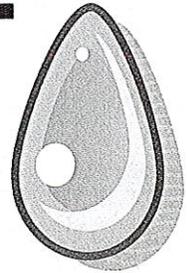
EVERY  
**DROP**  
COUNTS

For more detailed information on how you can conserve water in and outside your home, visit [njdrought.org](http://njdrought.org).

**Remember...every drop counts.**

# **B** LUE GUIDE for WATER CONSERVATION

Reduce your water use at  
home, work and play.



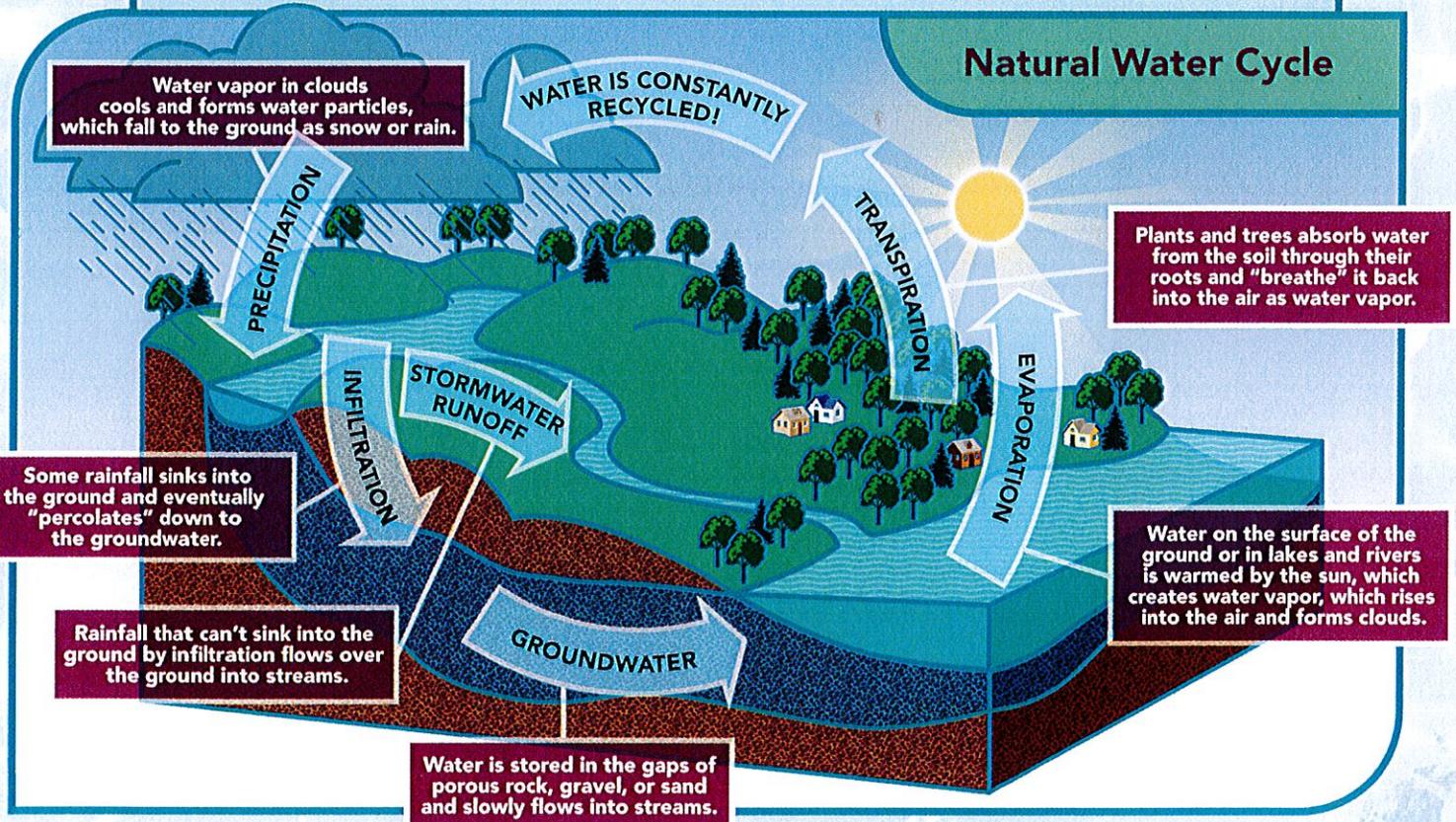
# B LUE GUIDE FOR WATER CONSERVATION

When water is cheap and reliable, it is easy to take it for granted. But what would it be like to have a limited quantity of water? How would it change the way we run our businesses and grow our food, and how would it impact our cost and quality of living? A lack of water is something most of us have never had to worry about. But changing weather patterns, increased demand, and stormwater management structures that send freshwater quickly downstream make water conservation vital to sustaining our quality of life.

The water from our taps comes from surface waters like rivers and reservoirs, or from underground pools called aquifers. The quality and quantity of the water they provide depends heavily on how we manage our daily life activities, and how we manage rainwater on the land. Everything we do on land has an impact on local waterways every time it rains. Small streams and wetlands are connected to the larger rivers and aquifers that supply our drinking water. In coastal areas, when too much water is drawn from an aquifer (or if not enough water is soaking into the natural system), salt water can "intrude" and make the water supply unusable for drinking and crop irrigation.

To maintain plentiful, healthy water for today and tomorrow, citizens from all community sectors must work together at home, at work, and even at play. Indoors, the goal is to reduce the amount of water that goes down the drain. Outside, we can reduce the amount of water that evaporates or runs off our properties. This Guide provides actions everyone can take to conserve and protect our precious freshwater resources.

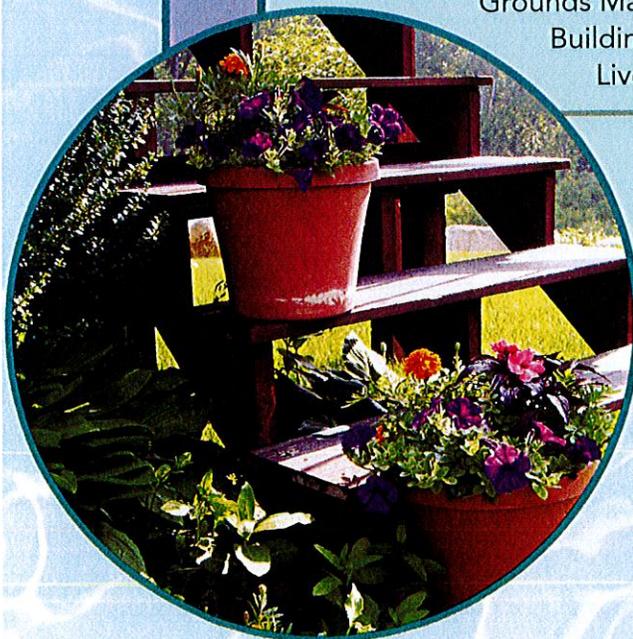
**con·ser·va·tion:**  
(noun)  
The keeping or protecting of something from change, loss, or damage.



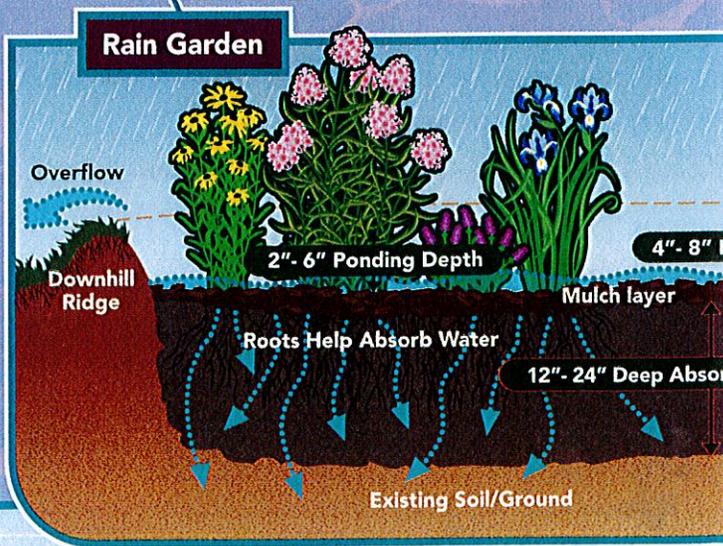
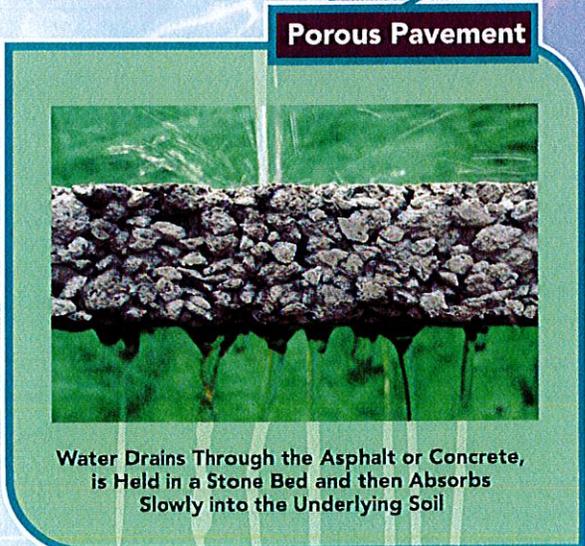
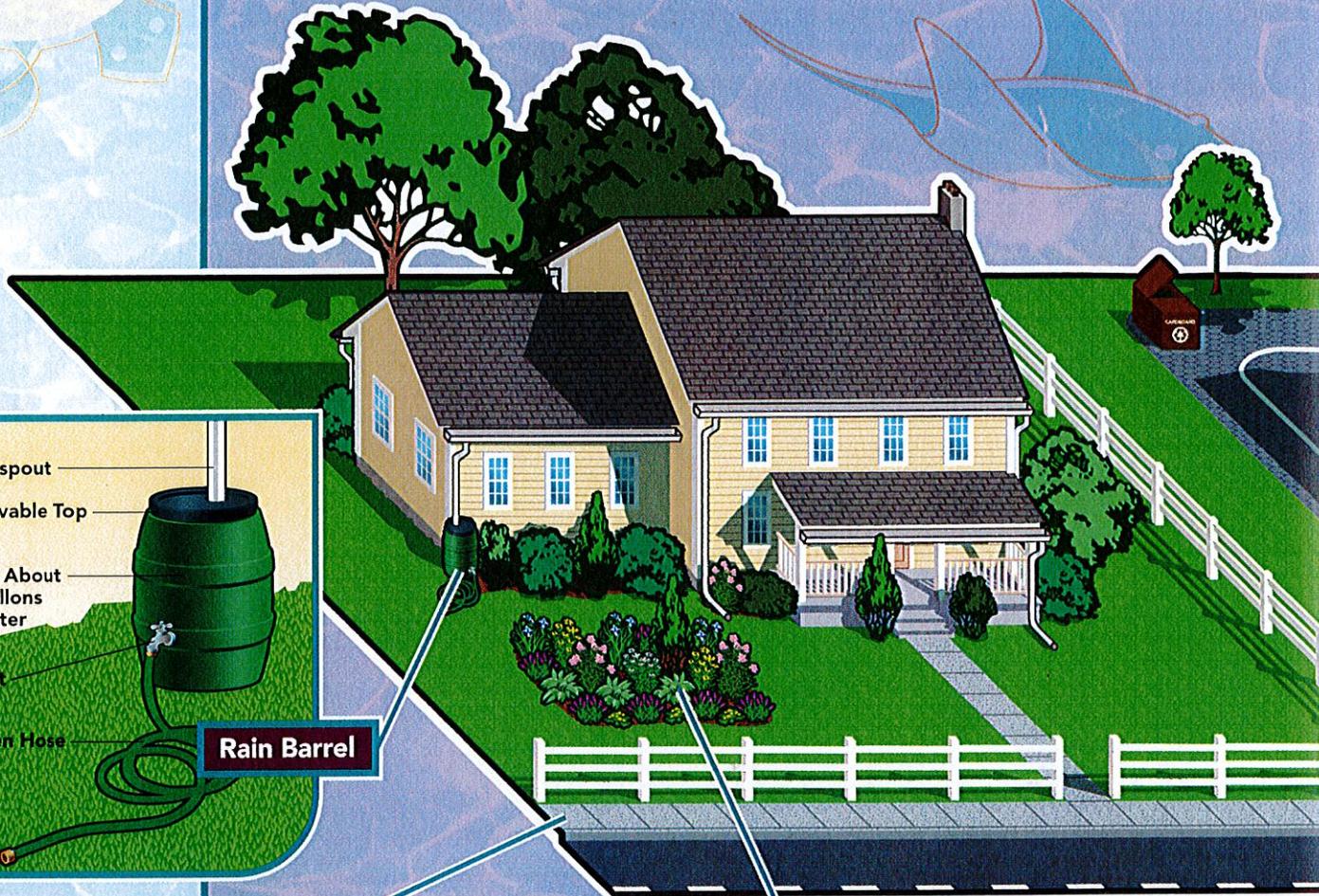
# TABLE OF CONTENTS

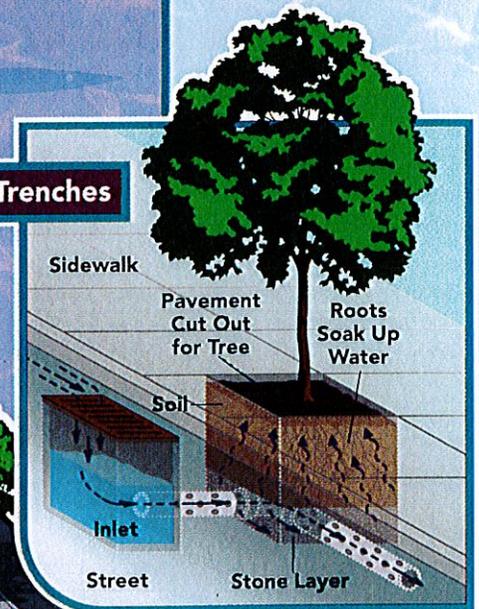
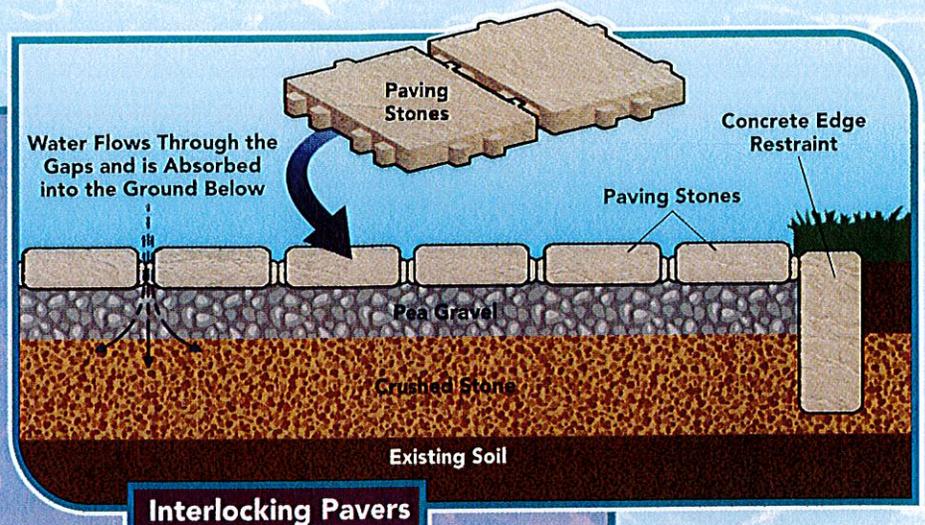
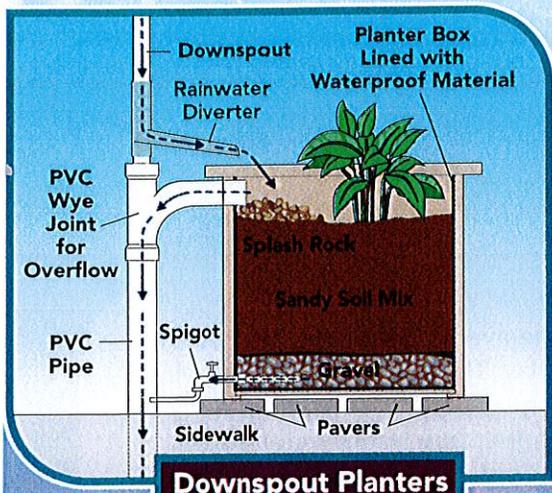


<b>Soak It In! Greener Stormwater Management</b>	2-3
<b>Water Conservation at Home</b>	4
Inside the Home	5
Outside the Home	6
<b>Water Conservation in Business and Industry</b>	7
Inside the Business	7
Outside the Business	8
<b>Water Conservation at School</b>	9
Inside the School	9
Outside the School	10
<b>Water Conservation at Hotels</b>	11
Inside the Hotel	11
Outside the Hotel	12
<b>Water Conservation at Golf Courses &amp; Other Large Recreational Land Areas</b>	13
Water-wise Irrigation	13
Grounds Management	14
<b>Water Conservation on the Farm</b>	15
Water-wise Irrigation	15
Grounds Management	16
Building and Systems Maintenance	16
Livestock Management	16
<b>Delaware River Basin (Map)</b>	17

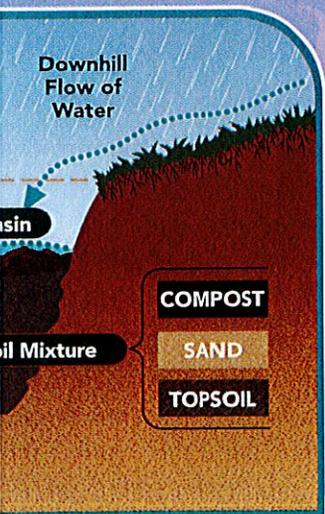
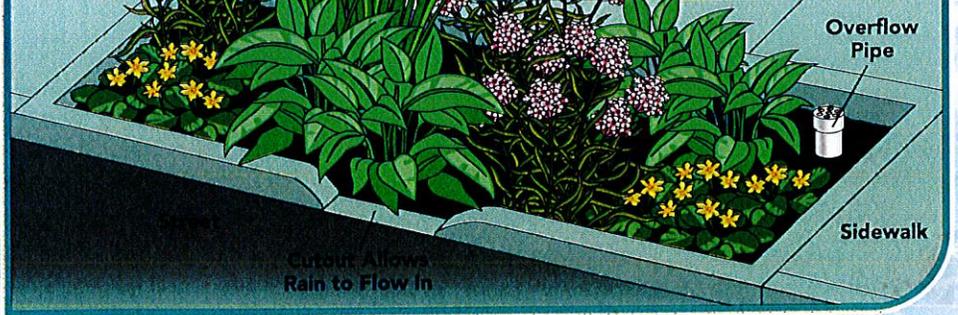
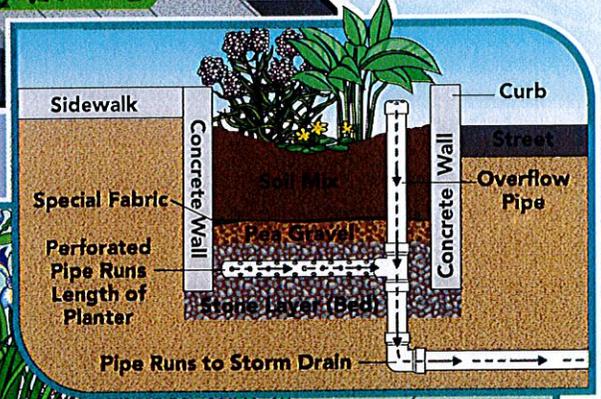


**S OAK IT IN!** Rain is natural, but stormwater is manmade. Unable to soak and filter into the ground, stormwater runs off of hard manmade surfaces like buildings and pavement. This runoff can cause flooding and carry pollutants to local waterways. Rain is fresh water — a valuable natural resource that is wasted when it becomes stormwater runoff. Here are some examples of green stormwater management that can replenish groundwater and reduce flooding.





**Sidewalk Stormwater Planters**

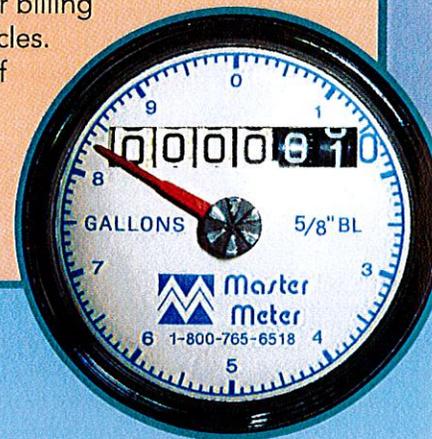


# WATER CONSERVATION AT HOME

**Domestic water use consumes an estimated 14% of all freshwater used in the U.S. ([www.worldbank.org](http://www.worldbank.org))**

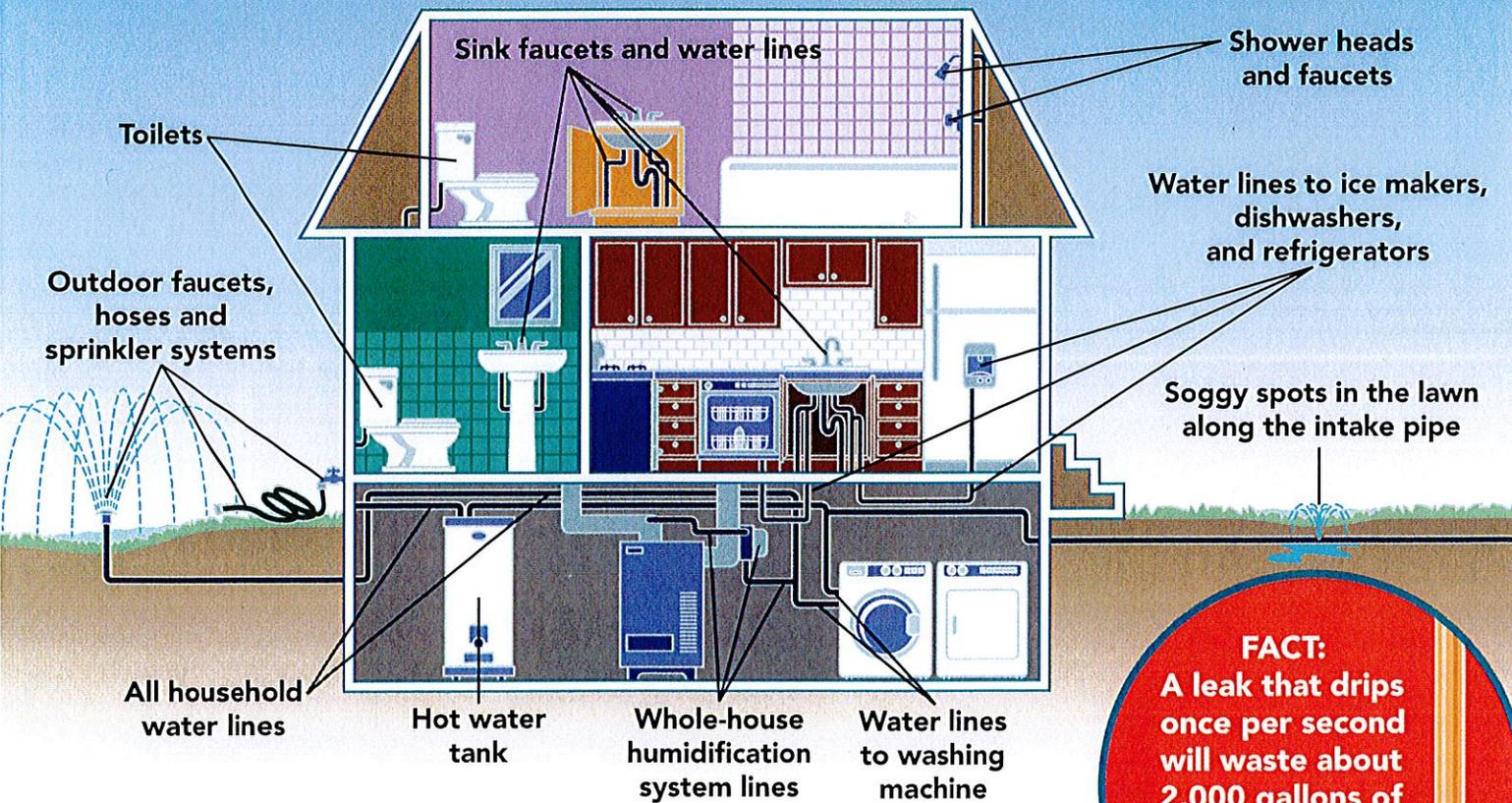


How much water are you really using? The average family of four uses approximately 400 gallons of water per day. The best way to start saving water is to understand how much you are using. If you are on a public water supply, many water providers conduct free home water audits or can provide you with kits to conduct your own. Your water bill will tell you how many gallons of water you use per billing cycle, and show comparisons to previous bill cycles. An increase can mean you have leaks in need of repair. Do you have your own well? Consider installing a flow meter to fully understand how much water you are using. **Now you are ready to start saving water!**



**Look for those leaks and schedule needed repairs.**

## COMMON PROBLEM AREAS INSIDE AND OUT:



**FACT:**  
A leak that drips once per second will waste about 2,000 gallons of water per year.

## 1 Inside the Home – Bathroom

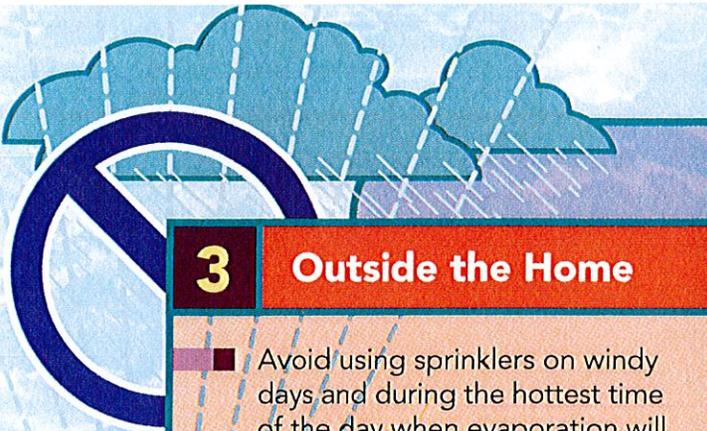
- Use water-wise, low flow fixtures and showerheads and save approximately 7,600 (or more) gallons per year in an average household!
- Reduce shower time to 5 minutes and save 12,000 gallons of water per year !
- Consider a toilet upgrade – those installed prior to 1992 can use 3.5 or more gallons of water per flush. A **WaterSense** labeled toilet uses a maximum of only 1.3 gallons and saves nearly 11,000 gallons of water per year.
- Turn water off as you brush your teeth or shave, and your family will save over 11,000 gallons of water each year.



## 2 Inside the Home – Kitchen & Laundry

- Consider upgrading appliances that use water. **Energy Star** labeled dishwashers and washing machines can save a combined 30,000 gallons of water per year (as well as energy). Always run these appliances with full loads or at an appropriate load size setting.
- Don't let water run as you hand wash your dishes. Updated or aerated faucets can save over 15,000 gallons of water per year!
- Reuse water when you can. For example, you can use a tub of rinse water to water plants. Same goes for collected dehumidifier or air conditioning system condensation.
- Keep a pitcher of cold water in the fridge so you won't waste all those gallons at the faucet to get one cold glass of water.
- Compost vegetable waste instead of running the disposal in your sink.





### 3 Outside the Home

■ Avoid using sprinklers on windy days and during the hottest time of the day when evaporation will occur. NEVER allow sprinklers to run in the rain! A rain sensor will help to avoid this on automated sprinkler systems.



■ Only water as needed — lawns only need about 1 inch of water per week, and a heavy rainfall can sustain your yard up to 2 weeks. If you see puddles when the sprinkler is on, you are over-watering!

■ Raise your mower blade to at least 3 inches. Slightly longer grass creates shade for healthier root systems that soak up and retain more water.

■ Use drought and heat tolerant grass for your lawn, and convert some mown areas to more natural spaces with trees, tall grasses and native plants that will absorb more water and create less runoff.

■ Select native, drought tolerant plants for your landscaping and use mulch to retain moisture in the soil. Plants that are native to your climate require less water when established and are generally more tolerant of local pests and soil conditions.

■ Try soaker hoses and other drip methods instead of sprinklers to save 30-50% of landscape irrigation water use.



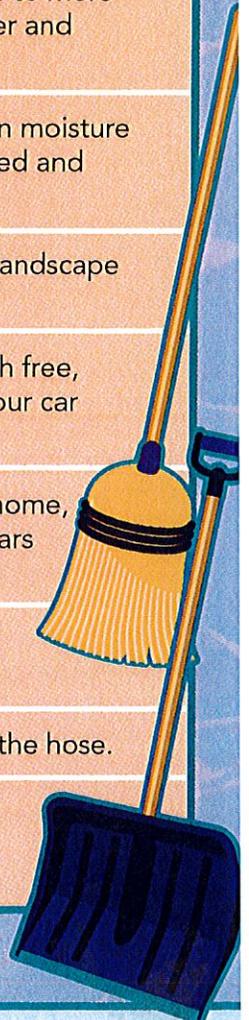
■ Retain the Rain — Using rain barrels or cisterns can provide you with free, fresh water to use on your lawn, in the garden, and even to wash your car and other outdoor items.

■ Speaking of car washing, commercial car washes recycle water. At home, use only a hose with a nozzle that shuts off while you scrub. Wash cars on the grass so some water can be absorbed back into the ground.

■ Use a floating pool cover and keep your pool and hot tub covered to reduce evaporation.

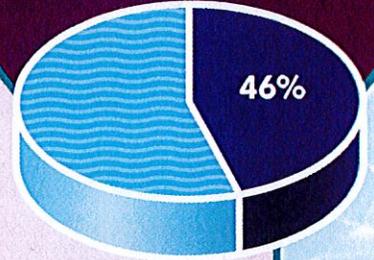
■ Use a broom to clean up walkways, steps and driveways instead of the hose.

■ Shovel snow and ice as a first response to slippery conditions and consider using only salt-free de-icing alternatives when necessary.



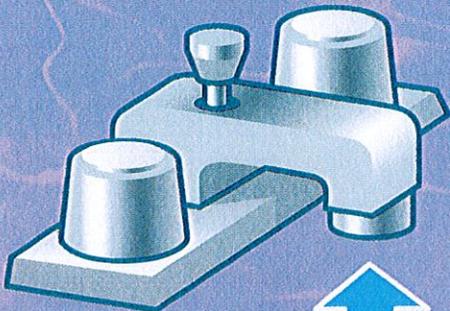
# WATER CONSERVATION IN BUSINESS AND INDUSTRY

Industry and institutions account for an estimated 46% of all freshwater used in the U.S. ([www.worldbank.org](http://www.worldbank.org))



Where would our economy be without plentiful, clean water supplies? While most machinery may run on electric and fossil fuels, clean water supports all functions of a healthy economy and our quality of life.

Water demands on the job vary by products involved. But all businesses can take a look at common water usages and make easy changes to save water and reduce utility costs.



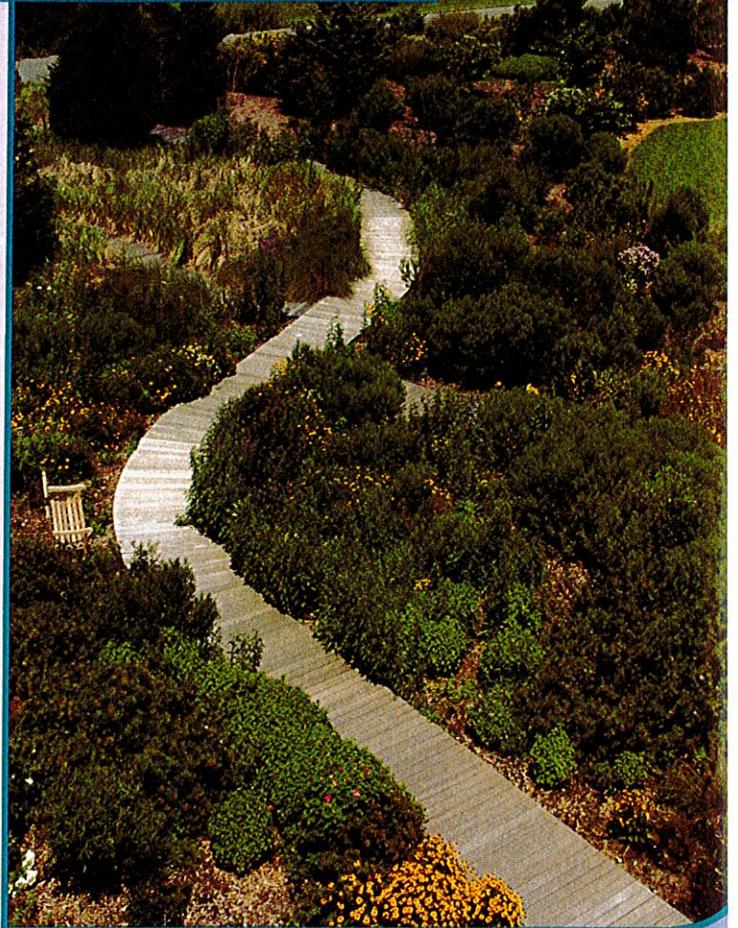
## 1 Inside the Business

- Install aerators and low flow or motion sensing faucets in bathroom and kitchen areas as well as **WaterSense** labeled toilets and urinals.
- Conduct a company water use audit to fully understand where water demand can be reduced.
- When possible, consider using reclaimed wastewater or captured rainwater for industrial processes.
- Designate a contact person or department for employees to report plumbing leaks and make it a maintenance priority to repair them.
- Wash company vehicles at a carwash that recycles water only when they need it — not on a routine schedule.
- Update and maintain cooling and heating systems to save energy and minimize water needs.

## 2

### Outside the Business – Grounds and Landscaping

- Replace expensive, high maintenance turf grass with absorbent meadows, native plant gardens, trees, and rain gardens. Save money on mowing and improve employee morale with inviting and relaxing outdoor spaces.
- Make sure sprinkler systems do not water paved areas.
- Only water as needed and use moisture-sensing irrigation controllers. Avoid watering on windy or very hot days to reduce water lost to evaporation. Never allow sprinklers to run during rain.
- Use brooms to sweep outdoor walkways instead of hosing them down.
- Retain the Rain - Using rain barrels or cisterns can provide you with water to use on lawns, in landscaped areas, and even to wash vehicles and outdoor equipment. Collected water can also be used for “gray water” purposes like flushing toilets in specialized systems.

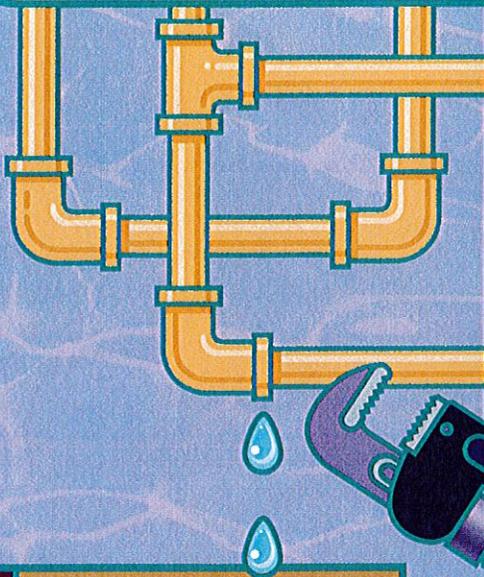


- Keep snow piles at least 100' away from streams and floodplains.
- Dump snow in areas that will allow melting snow to soak into the ground.
- Store de-icing material on pads and under cover away from stormwater flow paths and storm drains.
- Schedule street sweeping to remove residual salts from parking areas each spring.



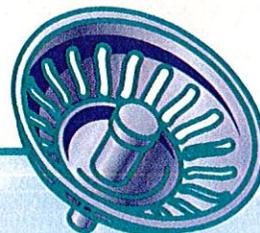
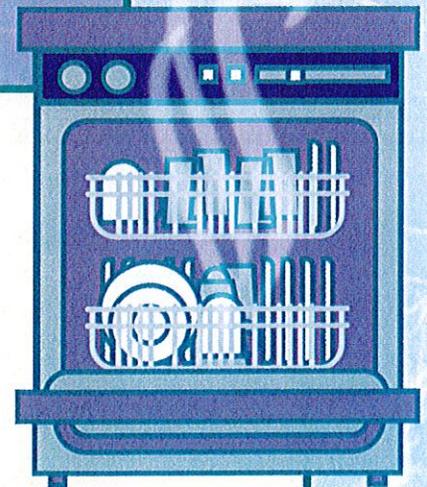
# WATER CONSERVATION AT SCHOOL

You may not think of schools as large water consumers. However, water is used in heating and cooling systems, in fire prevention systems, for janitorial and maintenance needs, and in the cafeteria for food prep and clean up. There are also showers in the gyms, drinking fountains, bathroom facilities, swimming pools, and classroom sinks. Outside, there are massive sports fields, mown lawn areas, and landscaping. All of these areas offer opportunities to conserve water.



## 1 Inside the School

- Make leaks in pipes, sinks and toilets a priority on maintenance repair to-do lists.
- Install aerators and low flow or motion sensing faucets in bathroom and kitchen areas as well as **WaterSense** labeled toilets and urinals. Install water-saving toilet dams in older toilets.
- When updating older facility systems and kitchen equipment, choose water efficient and energy saving models as well as ice making and cooking appliances that reuse captured steam or melted ice.
- Train staff on water-saving techniques, i.e. never leave taps running and only run full loads of dishware in washers.
- Use strainers instead of garbage disposals in kitchen sinks.

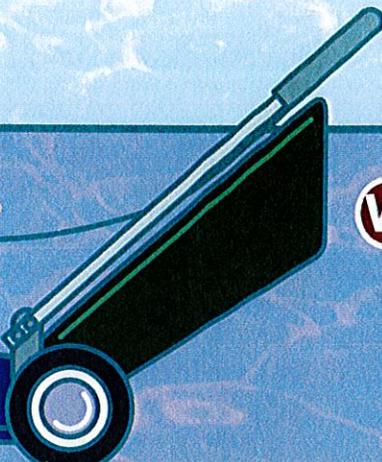


## 2

## Outside the Hotel – Grounds and Landscaping

- Use native, drought tolerant plants in landscaped areas and use mulch to retain moisture in the soil. Plants that are native to your climate require less water when established and are generally tolerant of local pests and soil conditions.
- Only water as needed and use moisture-sensing irrigation controllers. Avoid watering on windy or very hot days to reduce water lost to evaporation. Never allow sprinklers to run during rain.
- Make sure sprinkler systems do not water paved areas.
- Raise mower blades to at least 3 inches. Slightly longer grass creates shade for healthier root systems that soak up and retain more water.
- Try soaker hoses and other drip methods as an alternative to sprinklers to save 30-50% of landscape irrigation water use.
- Retain the Rain — Using rain barrels or cisterns can provide you with water to use on lawns, in landscaped areas, and even to wash vehicles and outdoor equipment. Collected water can also be used for “gray water” purposes like flushing toilets in specialized systems.
- Use brooms to sweep outdoor walkways instead of hosing them down.
- When treating icy parking lots and walkways, keep use of salt to a minimum and consider using salt-free de-icers.
- Store de-icing material on pads and under cover away from stormwater flow paths and storm drains.
- Keep snow piles at least 100' away from streams and floodplains.
- Dump snow in areas that will allow melting snow to soak into the ground.
- Schedule street sweeping to remove residual salts from parking areas each spring.





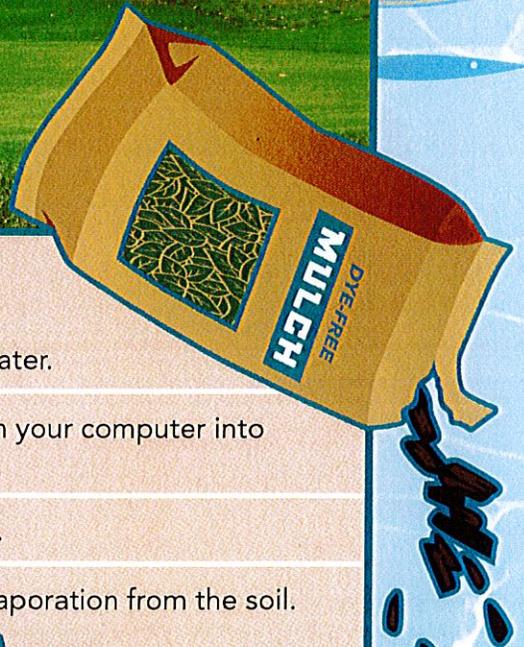
# WATER CONSERVATION AT GOLF COURSES & OTHER LARGE RECREATIONAL LAND AREAS

We love lush and green outdoor spaces. But what is the true cost of all that man-made greenery? Water conservation depends upon water-wise land management, and using nature to soak water back into the ground. We can have our fun, and conserve water too!



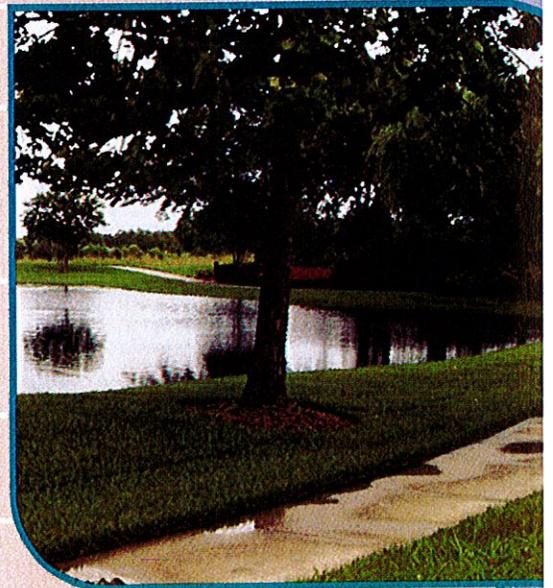
## 1 Water-wise Irrigation

- Consider upgrading to state-of-the-art irrigation systems that will out-perform aging equipment and save thousands of gallons of water.
- Use weather related software and ground moisture sensors to turn your computer into an efficient irrigation management station.
- Never allow sprinklers to operate in the rain or water paved areas.
- Use mulch in flower beds and landscaped areas to avoid water evaporation from the soil.



## 2 Grounds Management

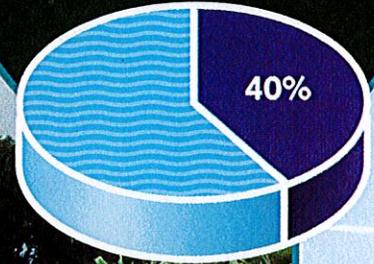
- Define vehicle, cart, and pedestrian traffic to specific pathways to avoid overall compaction of soil. Hardened ground cannot absorb water and increases soil erosion and stormwater runoff.
- Where turf grass is needed, use cultivated grasses that are drought and pest resistant.
- Employ aeration and other soil cultivation techniques to improve water infiltration and reduce runoff.
- Consider use of treated municipal wastewater for irrigation purposes.
- Create onsite water storage ponds in low lying areas for irrigation use in dry weather.
- Where turf grass is not needed, allow growth of longer rooted grasses, shrubs and trees to create naturalized meadow areas that soak up water and reduce wasteful runoff.
- Where grass is needed, set mower blades high to allow longer grass to shade its own roots and prevent moisture evaporation from the soil.
- Adopt policies to minimize water usage and train your staff to conserve water.
- When treating icy parking lots and walkways, keep use of salt to a minimum and consider using salt-free de-icers.
- Keep snow piles at least 100' away from streams and floodplains.
- Store de-icing material on pads and under cover away from stormwater flow paths and storm drains.
- Dump snow in areas that will allow melting snow to soak into the ground.
- Schedule street sweeping to remove residual salts from parking areas each spring.



# WATER CONSERVATION ON THE FARM

Successful farming depends on the availability of fresh, clean water. Perhaps no other industry has more at stake than the farms that provide us with healthy and abundant food. Because of agriculture's huge water demand, there are many opportunities to conserve and protect water resources on the farm.

**Agriculture utilizes approximately 40% of all freshwater used in the United States.**  
([www.worldbank.org](http://www.worldbank.org))



## 1 Water-wise Irrigation

- Install water flow meters to understand and monitor your water usage.
- Consider using low-spray (close to the ground) or drip irrigation systems that can substantially reduce water lost to evaporation and runoff.
- On pivot irrigation systems, use hose drops that keep spray close to the ground instead of shooting it high into the air. Use holding ponds as water supply for this purpose.
- Use local weather data and computer software programs/apps to determine effective irrigation times. Soil sensors can report moisture data directly to your computer.
- Level and contour-plow fields where possible to reduce runoff of irrigation and rain water.
- Capture water that runs off your fields (tailwater) for reuse.
- Consider creating berms between rows to reduce runoff.

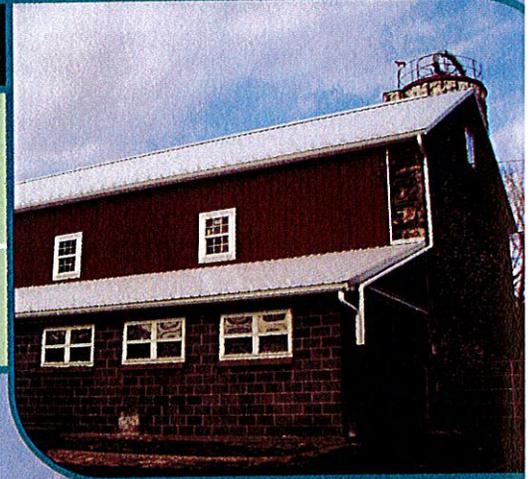


## 2 Grounds Management

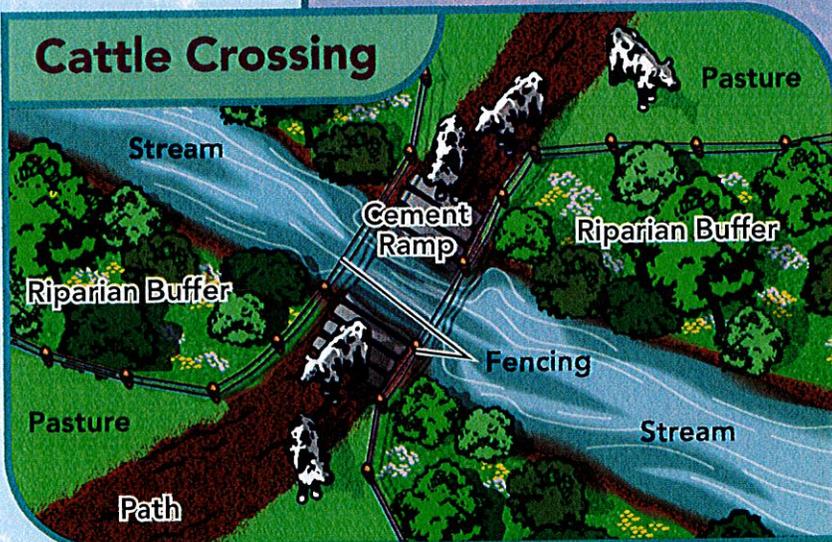
- Where appropriate for the crop, use black plastic film or reusable landscape cloth to prevent moisture evaporation and reduce watering needs.
- Use cover crops to reduce water evaporation from the soil.
- Avoid compacting soil with heavy machinery and manage/improve soils to maximize water infiltration and retention.
- Plant trees to provide windbreaks to reduce water evaporation on the fields.

## 3 Building and Systems Maintenance

- Install gutters to capture the rain that runs off buildings, barns, and even hoop houses in barrels and cisterns to use for irrigation and cleanup.
- Be on the lookout for leaks and make repairs as quickly as possible.



## Cattle Crossing



## 4 Livestock Management

- Install livestock fencing and cattle crossings to keep livestock waste out of creeks and groundwater spring areas.
- Graze livestock rotationally to avoid overgrazing and loss of groundcover.
- Divert rainwater runoff away from heavy livestock traffic and manure areas.
- Manage manure and runoff from livestock areas in both wet and dry storage facilities with 6 months of storage capability to time with field spreading. Securely tarp uncovered manure piles. Manure storage should be kept at least 100' from streams and floodplains.

# DELAWARE RIVER BASIN

The rivers and streams of the Delaware River Basin provide drinking water to over **15,000,000** people in New Jersey, Pennsylvania, Delaware, and New York. The aquifers that lie under the ground provide drinking water to millions more. These surface and underground water resources also fuel agriculture and industry in our region. **Thank you** for taking action to sustain them for current and future generations.



**KEY**

- State Borders
- Delaware River Basin Borders
- Delaware Estuary Borders

