

WATER CONSERVATION OVERVIEW

Georgia's Regional Water Planning Councils

Section 1: Water Conservation as a Management Practice Relevant to all water users in Georgia

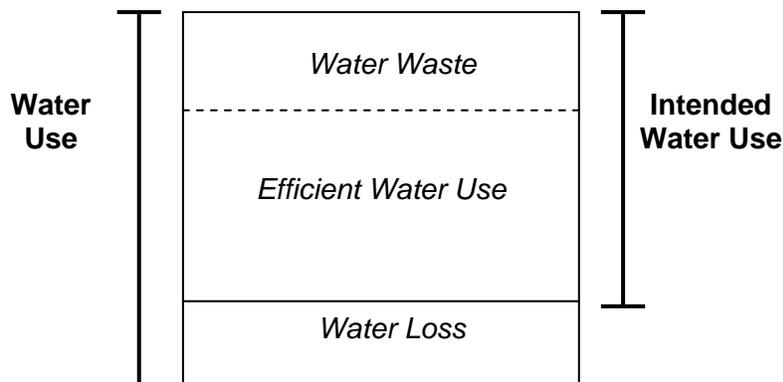
Water conservation is the reduction of water use, water waste and water loss (Statewide Water Management Plan (SWP), Sec 2 – Definition 40). Water conservation, as a demand management practice, is one of several water quantity management practices that can be used to manage the consumptive use of Georgia's regional water resources. The SWP identifies other water quantity management practices as those to manage water supplies and water returns.

The ultimate goal of water conservation is to maximize water use efficiency and maximize the benefit from each gallon used (Georgia's Water Conservation Implementation Plan (WCIP), page 15).

Water use efficiency is considered the minimal amount of water that is technically and economically feasible to achieve an intended water use function (SWP Sec. 2, Definition 47). Water use efficiency can be maximized by implementing efforts to:

- 1) reduce water waste, which is water that meets an intended use, but may not be considered efficient,
- 2) reduce water loss, which is water that does not make it to a point of intended use, usually due to leaks or faulty equipment, and
- 3) reduce total water use, which when necessary, can be accomplished through the use of new or high-efficiency technology or changing water-using behavior.

More information and examples of water use efficiency can be found in the Water Conservation Implementation Plan (WCIP), beginning on page 18.



Section 2: Tiers of Water Conservation Practices Relevant to Regional Water Planning Councils

Because, the GA State-wide Water Management Plan (SWP) identifies water conservation as a priority water management practice (SWP Sec. 7, Policy 3), each regional water planning council is expected to include demand management practices in their water development and conservation plans (WDCPs). While water conservation is not expected to fully meet water needs, it is an effective and efficient practice for all water users (SWP Sec. 8, Policy 1).

In accordance with the GA Water Stewardship Act (WSA) and Section 8 of the SWP, the GA DNR Board shall amend rules for water conservation requirements for water withdrawal permittees (those withdrawing over 100,000 gallons a day) and drinking water permittees. In anticipation of these upcoming amended rules, and in an effort to guide the selection of region-specific water management practices, each Council should consider water conservation activities categorized into four tiers described in general below, and in more detail in the Sections 3 and 4 of this guidance:

Tier ONE: Basic water conservation activities and practices that are currently required or general mandates that will certainly be included in upcoming amended rules.

Tier TWO: Conservation activities and practices that will be addressed in upcoming amended rules, but for which detailed requirements are uncertain.

Tier THREE: Basic water conservation practices for all water users that may not be addressed in current or upcoming amended rules.

Tier FOUR: Additional water conservation practices that can be considered if a gap exists between current or future water supplies and the demands for the region.

Section 3: Tiers ONE and TWO - Water Conservation in Rules Relevant to water withdrawal permittees and permit applicants; drinking water providers; and local governments

Tier ONE: Water Conservation Required through GA Rules and Regulations, SWP and WSA

Tier ONE(a): Existing rules

Since the early 1990's EPD has required water conservation-related activities of most water withdrawal permittees and applicants for non-farm water uses (GA R&Regs Chapters 391-3-6-.07 and 391-3-2-.04(11)). Current rules and regulations, require that all non-farm water withdrawal permit applications for a new or an increase in water withdrawals submit a water conservation plan with their application. In general, plans include information regarding:

- *Non-revenue water*, efforts to reduce unaccounted-for-water through meter installation, replacement and calibration; leak detection; and theft prevention.
- *Water conservation programs*, programs to improve the efficiency of the water system; description of water service billing based on metered use; documentation of plumbing code provisions; description of public education programs; and recycling and inter-connections.
- *Long range planning*, long term water demand projections that reflect any estimated reductions based on the implementation of water conservation measures as outlined in the submitted plan.

For farm water users in the Flint River Basin, after March 2006, any permittee issued a permit for irrigation systems withdrawing from the Floridan aquifer, or any surface water in the basin, must implement conservation practices identified in the Flint River Basin Regional Water Development and Conservation Plan (GA R&Regs Chapter 391-3-28). The conservation practices include:

- a. End-gun shut off switches to prevent irrigation of non-cropped areas by center pivot systems,
- b. Leak prevention and repair plans,
- c. Pump-safety shutdown systems installed on center pivots,
- d. Rain-gauge shut-off switches on travelers, solid set, or drip systems (these devices are not yet available as "off the shelf" items for agricultural irrigation purposes),
- e. Low-flow protection requirements for streams with sensitive aquatic species (including a complete cessation of irrigation when surface flow falls below 25% average annual discharge in Ichawaynochaway and Spring Creek sub-basins or below 7Q10 in streams in the rest of the basin.)

The counties and cities participating in the Metropolitan North GA Water Planning District must comply with plan provisions in order to modify or obtain new water withdrawal permits, discharge permits or loans for water and wastewater projects or stormwater permits (O.C.G.A. §12-5-572). The recently updated 2009 plan includes 12 water conservation requirements.

The WSA (newly enacted 12-5-7) restricts the use of water outdoors for purposes of planting, growing, managing or maintaining ground cover, trees, shrubs, or other plants to the hours of 4:00 PM and 10:00 AM, exemptions apply. (WSA, Section 4).

The schedule for non-irrigation outdoor water uses, such as power washing, car washing is established by the State's Rules for Outdoor Water Use, Chapter 391-3-30. During periods when EPD has declared that drought conditions do not exist, non-irrigation use is allowed by even-numbered addresses on Mondays, Wednesdays, and Saturdays; odd-numbered addresses may water outdoors for non-irrigation purposes on Tuesdays, Thursdays, and Sundays. Non-irrigation water uses are allowed at any time during the day or night. Restrictions increase with the level of drought declared by the state. Chapter 391-3-30 currently addresses outdoor water use for irrigation of landscapes and plants, however, the WSA establishes new water use restrictions for the irrigation of plants.

Water conservation for Georgia's public car wash facilities is addressed in GA R&Reg Chapter 391-31. This rule establishes best management practices and a certification program for permanent car wash facilities. Those facilities that EPD certifies as meeting the best management practices are not considered to be outdoor water uses subject to outdoor water use restrictions.

Tier ONE(b): Upcoming Amended Rules

In addition to existing rules, Tier ONE also includes a variety general water conservation related amendments to be considered by the DNR board in accordance with the SWP and WSA. The upcoming amended rules and codes will authorize the Director to require more information from water withdrawal permit holders, require specific information from drinking water providers, and to some degree, apply to local governments.

- 1) Applicants for non-farm water withdrawal permits or permit modifications must demonstrate progress toward water conservation goals or water efficiency standards (SWP, Section 8, implementation action 2(a)):
 - a) If the applicant does not have an existing service area, they must develop a water conservation plan including a schedule of implementing water conservation practices.
 - b) If the applicant already holds a water withdrawal permit, they must either:
 - i) demonstrate progress toward water efficiency or conservation goals, or
 - ii) demonstrate implementation of water conservation practices.
- 2) Water withdrawal permittees and drinking water providers must submit annual reports on non-farm water use that shall include data and information regarding

- 3) Drinking water providers must meet minimum standards and best practices for monitoring and improving the efficiency of public water systems, using a method developed by the International Water Association. Providers serving over 10,000 individuals shall meet the standards by March 2012, and those serving greater than 3,300 individuals shall meet the standards by March 2013 (WSA, Section 3).

Specifically, drinking water providers must:

- Establish an infrastructure leakage index;
- Conduct standardized annual water loss audits and submit them to EPD; and
- Implement a water loss detection program.

- 4) Local building codes must be amended to require (WSA, Sections 7, 8, 9):
- a) all multi-tenant buildings (residential, commercial and industrial) constructed after July 1, 2012, to enable sub-metering by each tenant. This new requirement does not apply to renovations or rebuilding. The owners of the buildings shall charge for water and waste-water use by tenants and may charge for common area water and waste-water use.
 - b) installation of high efficiency plumbing fixtures in all new construction permitted on or after July 1, 2012. The minimum water flow and performance standards include:
 - Water closets or toilets may not exceed 1.28 gallon per flush;
 - Urinals (and associated flush valves) must use no more than .5 gallons per flush;
 - Lavatory faucets (and aerators) may not exceed 1.5 gallons per minute; and
 - Kitchen faucets (and aerators) may not exceed 2.0 gallons per minute
 - c) installation of high-efficiency cooling towers in all new construction permitted on or after July 1, 2012.

- 5) DNR must amend rules and regulations related to farm water use from surface and ground-water sources to establish three categories of farm use permits. The rules shall establish active, inactive and unused permits, and the rules must describe the process by which the EPD Director will communicate with the farm permit holders. While this process is not expected to result in greater water use efficiency, it is an important step in building our understanding of how water is used on Georgia farms (WSA, Sections 5 and 6).

Tier TWO: Activities and practices that will be presented as options for permittees in the upcoming amended rules

Tier TWO includes the water conservation options for applicants for non-farm water withdrawal permits and permit modifications that will be described in upcoming amended rules and regulations.

The SWP calls for the DNR to amend rules and regulations to:

“...authorize the director of EPD to require applicants for water withdrawal permits or permit modifications for non-farm uses to demonstrate progress toward water conservation goals or water efficiency standards initially identified in the water conservation implementation plan and further refined in regional water development and conservation plans.” (SWP, Section 8, impl action 2(a)). *(emphasis added)*

If the Council determines that all or some of the water conservation goals identified in the WCIP or the practices outlined in the SWP are appropriate for the region, the Council can incorporate them in the WDCP (SWP, Section 8, impl action (3)).

1) Twenty-five water conservation goals are identified in the Water Conservation Implementation Plan (WCIP March 2010). The goals are sector-specific and detailed throughout the WCIP, and a summary chart of the goals is provided on page 155 of the WCIP and in the Synopsis. The Council can approve and/or refine these to include in the WDCP.

2) The SWP lists several conservation practices appropriate for municipal water providers to use when demonstrating the implementation of conservation (SWP, Section 8, implementation action 2(a)iii(1)). Some or all of these practices may be included in the WDCP :

1) Conduct regular water system audits and adopt a water loss control program
2) Implement conservation-oriented rate structures
3) Adopt a water loss control program
4) Meter all water uses
5) Adopt a meter calibration, repair and replacement program
6) Adopt a program to collect information on water use by the largest customers
7) Enforce current outdoor water use schedule
8) Meter water reuse and report reuse on a regular basis
9) Conduct reuse feasibility studies
10) Consider the use of grey water
11) Consider programs to replace or retrofit inefficient plumbing fixtures
12) Update water conservation plans on a regular basis

3) The SWP lists several conservation practices appropriate for industrial water users with water withdrawal permits to use when demonstrating the implementation

of conservation (SWP, Section 8, impl action 2(a)iii(2)). Some or all of these practices may be included in the WDCP :

a) Conduct facility-specific audits every three years or when processes change
b) Measure all water withdrawals
c) Measure or estimate water reuse and report reuse
d) Adopt maintenance and repair programs for pipelines, intakes and discharge structures
e) Install rain or moisture sensor shut-off devices for irrigation systems
f) Irrigate landscapes in compliance with outdoor water use schedule
g) Conduct reuse feasibility studies
h) Consider the use of grey water
i) Update water conservation plans on a regular basis

4) Non-farm water withdrawal permittees and drinking water providers shall provide data and information regarding implementation of water conservation plans and progress toward goals, including measurable outcomes, in terms of reduced or maintained water production or usage. Information may also include the impact conservation efforts may have on consumptive use of water for this region or a schedule for implementing water conservation practices or achieving goals (SWP, Section 8, implementation action 2(c)(i-v)).

Section 4: Tiers THREE and FOUR: Water Conservation Options Relevant to All Water Users in the Region

Tier THREE: Basic conservation practices not addressed in existing or upcoming amended rules

Georgia’s water planning regions have a diverse mix of water users and the suite of basic water conservation practices should not be limited to only entities subject to DNR rules and regulations. The SWP states that WDCPs may include, “... enhanced water conservation provisions as appropriate for the specific mix of water users in the region and the consumptive use assessments for the region’s water sources.” (SWP, Section 8, impl action (3)).

The Water Conservation Implementation Plan (WCIP) can be a helpful resource to identify other basic water conservation practices that, to some extent, may already be in practice in the region, but may not be employed on a wide scale. The planning contractors (PCs) will work with the Council to identify a list of Tier THREE practices specific to this region for consideration by the Council. The practices included in Tier THREE will be compiled based on Council discussions regarding existing water use and any known conservation efforts currently employed in the region.

Below are examples of the types of Tier THREE practices that may be appropriate for this region. (The chart also provides WCIP references where more information on the topic can be found):

Water Conservation Practice	WCIP reference	WCIP page #
Municipal Water Providers		
Categorize customers by class such as single family residential, multi-family residential, commercial, institutional, and industrial)	Ch 7, BP 6	Pgs 130
Calculate average utility – specific per capita residential indoor water use (utilizing consistent methods)	Ch 7, BP 7; (App. G)	Pgs 130-131 (Pg 199)
Educate and empower customers to be more efficient with personal use of water	Ch 7, BP 9 & 10	Pgs 133 - 134
Industrial and Commercial Water Users		
Conduct facility-specific water audits	Ch 5, BP 1	Pg 88
Measure and record water use at individual facilities	Ch 5, BP 2	Pgs 88-89
Develop water management plans for IC facilities	Ch 5, BP 11	Pgs 94-95

Agricultural Water Users		
Collect data and information on cropping and water conservation practices on farms	Ch 2, BP 3	Pgs 46-47
Conduct irrigation audits	Ch 2, BP 5	Pgs 47-48
Landscape Water Users		
Landscape and irrigation professionals and water providers can educate customers	Ch 6, BPs 1 & 3	Pgs 105 & 106
Energy Users		
Integrate water conservation into educational material and programs	Ch 3, BP 4	Pg 64
Estimate impacts of water conservation by large customers on overall energy demands	Ch 3, BP 1	Pg 63
Golf Courses		
Develop and implement Best Management Practices Plan	Ch 4, BP 5	Pg 74
Keep water use logs and maintain water use database	Ch 4, BP 6 & 7	Pgs 75 - 76

Tier FOUR: “Closing the Gap” or “Beyond Basic” Conservation Practices

Tier FOUR water conservation practices are those considered to generate greater efficiency than the basic practices identified in Tiers ONE, TWO and THREE. This tier will be especially important for those planning regions experiencing a gap between resource availability and current or forecasted water demands.

Tier FOUR, like Tier THREE is supported by the SWP that states that WDCPs may include, “... enhanced water conservation provisions as appropriate for the specific mix of water users in the region and the consumptive use assessments for the region’s water sources.” (SWP, Section 8, impl action (3)).

If a gap exists between current or forecasted demand and resource availability, PCs and Council members are expected to evaluate the impact additional water conservation practices can have on the region’s demand for water. The region-specific evaluation should inform the Council of a mix of water conservation practices that can most effectively manage the region’s demands and therefore be incorporated into the WDCP.

PCs will work with Councils to identify the need for assessing practices in Tier FOUR. If the need exists, PCs will work through a process, instructed by EPD guidance, that will help the council members determine the most effective and efficient practices to include in the WDCP.