

## **ADVISORY DOCUMENT: WATER CONSERVATION**

### **18 REASONS WHY A PUBLIC WATER SUPPLIER MIGHT WANT TO PURSUE WATER CONSERVATION**

#### ***INTRODUCTION***

*When the well's dry, you know the worth of water- Ben Franklin*

Water suppliers usually have no reservations implementing water use restrictions and other conservation measures in response to a crisis, such as a chemical spill, water main break, severe drought or other condition where the capacity of the supplier to meet the demands of its service population are significantly reduced. The water use restrictions are typically lifted once the immediate crisis is over.

There are, however, many good reasons for a supplier to pursue conservation outside of an emergency situation, and make it a standard, ongoing operating practice. Because it can be difficult to enlist the needed cooperation of the service population in conservation measures outside of an emergency situation, it is very important for a water supplier to articulate why water conservation is important to gain the support of water users, elected officials and others to effectively implement conservation measures the supplier has selected. Water suppliers should clearly explain the reasons why in order to create a favorable climate for the successful adoption of conservation measures.

Articulating why conservation measures are important and beneficial to the community can create “buy-in” from customers and from those who have oversight of water supply operations (Boards of Directors, Selectmen, City Council, etc.). If you can educate those parties so that they understand and support the rationale for conservation (e.g. customers accept the fact that changes in their behavior may be necessary to achieve significant conservation results), any conservation initiatives you implement are much more likely to lead to successful outcomes.

Conservation may seem counterintuitive to some water suppliers who perceive themselves to be in the business of selling water. To them, selling less water means generating less revenue, which makes adopting conservation measures outside of an emergency situation less appealing. But not all conservation measures affect the volume of water sold, and a well-crafted conservation rate structure can result in a reduction in the volume sold without an adverse impact on revenue.

The following is an extensive list of reasons supporting water conservation. A supplier should select the reasons most applicable to its situation, including those reasons that may be more likely to win over the support of municipal officials and the various classes of water users.

#### **18 Reasons Why a Public Water Supplier Might Want to Pursue Water Conservation**

##### **Category I: Operational Benefits, Cost Savings and Revenue Enhancements**

1. Enhance water supply system reliability and sustainability
2. Reduce current and/or future constraints on water supply system capacity
3. Avoid or delay the need for and cost of developing a new water supply source
4. Avoid, delay or eliminate the need for building or expanding water supply infrastructure

5. Reduce the need for, cost of and dependency on purchasing water from other water suppliers
6. Reduce water and/or wastewater treatment and other system costs
7. Conservation and efficiency measures can result in an increased revenue stream to the water supplier
8. Increase your eligibility for and/or likelihood of receiving government grants

**Category II: Public Relations, Partnering and Community Benefits**

9. Help establish or strengthen a favorable view of the water supplier in the community or communities in which is operates (i.e., generate good “PR”)
10. Set a good example for others to follow
11. Provide good customer service
12. Opportunities to partner with other municipal departments, businesses and other stakeholders
13. Reduce the public water supplier and/or its customers’ carbon footprint

**Category III: Water Quality, Environmental and Regulatory Benefits**

14. Water conservation can help protect source water from contamination
15. Improve water quality via improving the performance and effectiveness of wastewater treatment facilities
16. Help safeguard the benefits to people of retaining water in natural waterways for recreation, pollutant dilution, etc.
17. Reduce the adverse environmental impact of public water supply withdrawals and diversions
18. Remain in good standing with regulatory authorities



***Further details and information by Category***

**Category I: Operational Benefits, Cost Savings and Revenue Enhancements**

1. **Enhance water supply system reliability and sustainability**
  - Conservation can enhance system reliability because the resultant drop in demand creates the opportunity for the supplier to resolve system capacity problems and other issues. The larger the gap between system capacity and demand, the better situated a system is to cope with events that reduce system capacity (water main break, a chemical spill forcing the closure of a well, etc.).

- Reduced demand on the system can allow a water supplier to shut down a well or other component of its water infrastructure to manage water quality issues, conduct routine maintenance, etc.
- Water conservation can buy time and free up resources enabling a community to take a “big picture” look at its overall water balance. A community can, for example, reevaluate the way it handles stormwater, employing BMPs that convert runoff into mechanisms for infiltrating clean water into the ground, where it can replenish streamflow and aquifers. This is especially beneficial in areas of land contributing flow to public water supply withdrawal points (wellhead protection areas, for example).
- Adopting good conservation and efficiency policies and programs enables a water supply system to be more resilient during times of drought, reducing the need for mandatory interventions.
- Water conservation can help ensure the hydrological and ecological sustainability of a water supply system. The system is able to meet the needs of its service population while allowing for the retention of sufficient water in the natural environment to sustain healthy aquatic and other water-dependent organisms and ecosystems.
- If a water supplier has more than an adequate fund balance in its reserve account, allocating at least a portion of those funds to conservation measures or programs that help resolve system capacity and/or reliability issues can be a sensible investment in a secure future for the water supply and its current and future customers.

## **2. Reduce current and/or future constraints on water supply system capacity**

- Many water suppliers are having trouble maintaining sufficient supplies to meet demands placed on their system. Such systems would benefit from encouraging or requiring conservation, in order to manage water demand so that existing supplies are adequate to meet the needs of the service population.
- Conservation efforts that specifically target lawn watering and other non-essential uses can help ensure that sufficient potable-quality water is available for essential water uses as well as provide sufficient water pressure for fighting fires.
- Water conservation helps to increase the likelihood that a water system will have sufficient reserve capacity to respond to the altered precipitation patterns (wetter wet weather and drier dry weather) expected to result from climate change.
- For communities who are seeing (or hope to see) growth in residential and/or business development, the water supplier would benefit from fostering conservation to ensure that sufficient water is available to meet the needs of existing and future users. If existing customers are more efficient, water will be available when new tax-paying, job-creating businesses show interest in relocating to the community.

## **3. Avoid or delay the need for and cost of developing a new water supply source**

- Water conservation is often a cheaper, easier and more immediate means of eliminating a current or potential supply-demand gap than bringing a new well or reservoir on line,

conducting expensive treatment of poor quality source water, or purchasing additional supply from another supplier.

- For some communities, there may be no economically feasible new source or other supply-side option available, so conservation **is** the best available option for keeping system demand in line with available supply. Water conservation may be viewed as an additional source of supply, as any water conserved by existing customers may be made available for other beneficial uses.
- New source development can cause new adverse environmental impacts, whereas water conservation is likely to reduce existing adverse effects of existing sources. In addition, the often expensive and time-consuming environmental permitting typically required for new source development can be largely if not completely avoided by implementing demand-side management and other conservation measures. (That said, there are situations where the development of a new source can enable a reduction in the overall environmental impact of a water supply system.)

#### **4. Avoid, delay or eliminate the need for building or expanding water supply infrastructure**

- Water conservation, efficiency and reuse programs help systems avoid, downsize, and/or postpone expensive infrastructure projects, such as building new treatment capacity, storage, or expanding pumping and delivery infrastructure. When unneeded investments are avoided, systems have more resources for other critical needs.

#### **5. Reduce the need for, cost of and dependency on purchasing water from other water suppliers**

- Some water suppliers currently buy water from another supplier to meet the demands of their service population. These suppliers may find that implementing water conservation measures and other demand management techniques will bring usage down to the extent that they will no longer have to depend on (and pay for) that supplemental source of water. For example, suppliers implementing seasonal surcharges for outdoor water use might see demand drop sufficiently to reduce or eliminate the need to buy supplemental water.

#### **6. Reduce water and/or wastewater treatment and other system costs**

- The lower the volume of water needed to supply customers, the lower the costs for chemicals needed to maintain the quality of that water. For some suppliers, this may be an especially relevant issue in the warmer months, when **poorer raw water quality** requires a higher level of treatment. Adopting conservation measures during that period could prove especially cost-effective.
- Processing lower water volumes extends the useful life of pumps and other water treatment equipment, and lowers the capital costs required to maintain and replace that equipment.
- Water conservation can also reduce costs because less energy is needed to pump and treat a smaller volume of raw water, and to distribute the treated water to customers. (While the actual money/energy savings resulting from conservation may be relatively modest, in comparison to fixed costs, this reason to conserve may nevertheless resonate well with elected officials and the public.)
- For many communities, the cost of treating wastewater is higher on a per unit basis than the cost of providing water to the service population. Even where the water supplier and the

wastewater treatment provider aren't the same entity (e.g., a water and sewer department), a water supplier's effort to promote conservation that results in lower wastewater treatment costs and energy use, and lower wastewater treatment costs passed along to their customers, resulting in lower sewer bills, is likely to be viewed favorably.

**7. Conservation & efficiency measures can result in increased revenue stream to the water supplier.**

- Some techniques for reducing the volumes of raw water into the system do not adversely impact the volume of water sold, or the revenue resulting from water sales. Leak detection/repair, and meter upgrades and replacements, can actually result in no adverse impact to (if not an increase in) the revenue to the water supplier, as less water is lost and water used is more accurately accounted for. Such programs often have a significant "up-front" cost, but their payback period is usually short enough to justify the expenditure.
- The adoption of well-crafted conservation rate structure may not reduce overall revenue to the supplier (despite a drop in the overall volume of water sold) and might in fact result in increased revenue. For example, imposing a seasonal surcharge on outdoor water use might achieve the dual result of reducing peak usage while boosting revenue.

**8. Increase your eligibility for and/or likelihood of receiving government grants**

- Some government grant programs, State Revolving Funds and Water Loss Prevention Grants, for example, award "points" to applicants that have already instituted good conservation policies and programs, thus enhancing their chances of receiving funding. Some grant programs (the Green Communities Act in Massachusetts, e.g.) require certain actions consistent with the purposes of the funding be undertaken before a municipality is even eligible to receive funding.

**Category II: Public Relations, Partnering and Community Benefits**

**9. Help establish or strengthen a favorable view of the water supplier in the community or communities in which it operates (i.e., generate good "PR")**

- High-profile conservation events can attract favorable media attention to your utility. Sometimes it seems that the media only covers bad news about public water supplies: "boil" orders, water main breaks, etc. Staging a high-profile conservation event helps put out a good news story about the utility. The City of Seattle's Saving Water Partnership did this when they organized an event for plumbers and the media where ping pong balls and potatoes were flushed down a variety of low-flow toilets to compare their performance (see news story at [http://www.seattlepi.com/local/342867\\_toilets10.html](http://www.seattlepi.com/local/342867_toilets10.html)). This resulted in raising plumbers' and their customers' awareness of the superior performance of the newer models of low-flow toilets.
- A water supplier choice to implement water conservation measures that create "green job" opportunities can also enhance a favorable perception of the water supplier in the community. Just as there's a current effort to create green jobs to promote energy efficiency (by weather-stripping and insulating homes, e.g.), a water supplier could promote an analogous green jobs initiative by hiring (or partnering with other programs that train and hire) people to install low-flow toilets and other water-efficient appliances, detect and fix leaks, meter replacement, education and outreach to customers, etc. A new "green plumber" niche job market could be established for the home retrofit work. (Note, however,

that many if not most water suppliers are prohibited from steering its customers to specific private businesses.)

- Utility leadership in dealing with the impacts of climate change can also be a PR plus.
- Teaming up conservation efforts with a global water component can be an effective way to inspire conservation action. The Town of Concord, MA partnered with its Sister City to bring clean drinking water to the village of El Uval (see [http://www.concordma.gov/Pages/ConcordMA\\_Water/challenge](http://www.concordma.gov/Pages/ConcordMA_Water/challenge)).
- Sometimes, a water supplier may be asked or directed to adopt conservation measures by Selectmen, City Council, its governing board or other decision-making entity having power over the water supplier's budget, rates, etc. Alternatively (or additionally), a water supplier may be requested to consider adopting or assisting with conservation or efficiency measures via newspaper editorials, environmental organizations, ratepayers or other stakeholders. These requests may be motivated by various means, e.g., an effort to help reduce costs for a valued tax-paying and job-producing employer to keep it in town, a campaign to save a wild trout stream adversely affected by a public water supply well, to adopt conservation as part of a community's desire to reduce its carbon footprint, etc. Acting as a "team player", to the benefit of the community, should generate positive PR for the water supplier.

#### **10. Set a good example for others to follow**

- Setting a good example means both (a) demonstrating conservation on municipal properties, and (b) responsibly managing a precious and finite resource
- Implementing conservation at municipally-owned facilities (town halls, schools, athletic fields, parks, etc.) sets a good example. It's harder to get your service population to "buy in" to the necessity for them to conserve when they don't see the Town setting a good example (such as the sprinkler system watering the pavement in the middle of the day at Town Hall).

#### **11. Provide good customer service**

- Customers are always looking for opportunities to save money. During an economic recession, they might be particularly receptive to a call to conserve water, especially if that results in a lower water (or sewer or energy) bill. Water suppliers that proactively offer to help customers conserve water and reduce their water bills may find that such action helps defuse adverse reactions to rate increases.
- Maintaining good relationships with its customer base also enables water suppliers to more effectively engage the public and have them take responsibility to do their part to help maintain a reliable and sustainable local water supply for the good of the community.

#### **12. Opportunities to partner with other municipal departments, businesses and other stakeholders**

- The probability of conservation measures resulting in a successful outcome is often significantly enhanced when water suppliers partner with others in the effort than if the suppliers pursue them on their own.
- Once water suppliers have forged productive working partnerships with others on water conservation efforts, those partnerships can be applied to other water supplier issues as well (source water protection, for example).

- Enlisting the support of other municipal departments can help send a consistent message to the community of the importance of water conservation. Other town departments' and employees' actions to reduce unnecessary water use saves scarce municipal funds and reinforces the message that the public sector is fully "on board" with water conservation and helps foster a "culture of sustainability" among your service population.
- A water supplier can collaborate with an energy utility (a municipal light plant, private company, etc.), many of which already have strong conservation programs already in place, on programs that result in water as well as energy savings (rebates on front-loading washing machines, e.g.). Water conservation measures that result in less hot water consumption are especially helpful in reducing energy use.
- Water suppliers can partner with local businesses that sell or install water-conserving products (low-flow toilets, front-loading washing machines, etc.) or services (ecological landscapers, native plant nurseries, etc.) on rebate programs, product discounts, etc.
- Water suppliers could host trade shows where low-flow toilet and other water-saving appliance manufacturers or retailers can show their wares and persuade plumbers to encourage their customers to want to use them, and the water supplier and/or retail business could provide rebates to customers purchasing and installing the low-flow fixtures.
- Plumbers could partner with water utilities on installing low-flow equipment and promoting retrofits to low-flow toilets to their customers. Sometimes, people listen more to their plumbers than to the water utilities, so this partnership may be a more effective way of reaching the service population than utility outreach alone.
- Water suppliers can partner with watershed associations and other environmental groups, garden clubs and others that support reduced water consumption. These groups see the value of conservation in enabling the retention of more water in the natural environment to support healthy aquatic ecosystems. These groups could (and should) lend their support to a water supplier's efforts to conserve water via implementing a conservation rate structure, outdoor watering restrictions, establishing demonstration "xeriscape" gardens, and other means.
- Maintaining good relations with watershed associations, garden clubs, etc. enables a water supplier to ask these groups for help as it seeks to adopt conservation measures such as conservation rate structures, outdoor watering restrictions and others that may not (at least initially) have the support of the service population and/or elected officials or others that have control or influence over the supplier's rate structure, budget, etc. The watershed, environmental and garden groups can help create a favorable political climate for the adoption of these potentially unpopular measures.

### **13. Reduce the public water supplier and/or its customers' carbon footprint**

- As there is increasing interest and effort on the part of citizens, businesses and communities to reduce their carbon footprint, it is good for water suppliers to demonstrate that they are doing their part as well, especially as climate change is expected to result in altered precipitation patterns. These and other changes may adversely affect source water volume and/or quality, and/or customer usage patterns.
- Water conservation and efficiency measures reduce energy consumption and related greenhouse gas emissions, whether done at the utility level (less energy needed to pump,

treat and distribute a smaller volume of water, e.g.) or customer level (especially where less hot water is used)

**Category III: Water Quality, Environmental and Regulatory Benefits**

**14. Water conservation can help protect source water from contamination.**

- An effective water conservation program can reduce the amount of raw water needed to be pumped from a well. The less volume a pump seeks to extract from a well, the less likely that any contaminant plumes near the well will be mobilized toward and drawn up into the well. The same principle applies to reduce the likelihood of saltwater intrusion for wells in coastal areas. Water conservation also enables water suppliers to “rest” some wells, which may help reduce the onset and severity of other raw water quality problems such as iron, manganese, etc.

**15. Improve water quality by improving the performance and effectiveness of wastewater treatment facilities**

- By reducing the volume of used water needing treatment, water conservation reduces the likelihood of overburdened sewer pipes discharging partially or un-treated wastewater to nearby waterways, or overburdening wastewater treatment plants with more flow than they are capable of treating. Water conservation also improves the performance and extends the useful life of septic systems. While such water quality improvements are welcome in any event, they are particularly meaningful to a water supplier where wastewater facilities and infrastructure are located in places where their malfunction could adversely affect the quality of the water supplier’s and/or others’ source water.

**16. Help safeguard the benefits to people of retaining water in natural waterways for recreation, pollutant dilution, etc.**

- Humans also benefit when water conservation reduces the need for water withdrawals and diversions and enables more water to be retained in natural waterways. More water volume in these waterways means a greater capacity to dilute pollutants received from wastewater treatment plant effluent, septic system leachate, stormwater runoff and so on. The lower the pollutant concentrations, the safer the water is for swimming, fishing, boating and other recreational activities.
- Not only does cleaner water enhance its recreational appeal, it also enhances the recreation dollars those activities bring to local businesses and communities. Higher water quality helps maintain high aesthetic, ecological and property values and a high quality of life that helps attract high-quality, tax-base-expanding businesses and employers. High water quality in coastal areas leads to reduced closure of shellfish beds, which results in increased license revenue to communities, job opportunities for shellfishermen and income to fish markets and restaurants.

**17. Reduce the adverse environmental impact (where it may exist) of public water supply withdrawals and diversions**

- Many water suppliers feel (with ample justification) that they espouse a strong environmental stewardship ethic. Nevertheless, implementing conservation measures for the purpose of enabling water to be retained in the natural environment sufficient to sustain healthy aquatic



and other water-dependent organisms and ecosystems presents a great opportunity for suppliers to demonstrate this stewardship ethic.

- Conservation can ease the potential conflict between human consumptive uses of water and the values to human and natural communities of retaining water in the natural environment. Just as “jobs vs. environment” is a false choice, so is “fish vs. people”.
- Water conservation makes it easier for a utility to meet fish and wildlife agency recommendations for maintaining flows in stream reaches below water supply reservoirs, and adjacent to water supply wells, which are determined to be sufficient for the protection of fish and other aquatic life.
- Water conservation enables a water supplier to shift withdrawals and diversions away from those that contribute to streamflow depletion. This is an especially important action to consider during hot, dry weather periods, when water levels in streams, wetlands, and other water-dependent habitats are low. During these periods, fish and other water-dependent organisms are already under stress, and are especially vulnerable to harm from any further drop in water levels caused by water supply withdrawals.
- Water conservation reduces the likelihood of conflicts with other water users sharing the same water sources, including other public or private water users withdrawing from the same watershed or aquifer as the water supplier.

#### **18. Remain in good standing with regulatory authorities**

- Water conservation helps a supplier keep its raw water withdrawal volumes in compliance with any permit or other limits it may be subject to as part of a state regulatory, contractual or other process. Maintaining compliance with withdrawal limits and other permit conditions, and state water policies and standards, helps to avoid costly lawsuits, fines and other regulatory enforcement actions.



Other reasons why a water supplier might want to pursue conservation, as well as examples of water suppliers’ and others’ web pages that explain why water conservation is important, may be found in the web links below:

- **“Why Conserve Water?” from Water Conservation Programs – A Planning Manual (M52), American Water Works Association:**  
[http://www.ofallon.org/public\\_documents/OFallonIL\\_PublicWorks/Water\\_Division\\_info/Whyconservewaterarticle.pdf](http://www.ofallon.org/public_documents/OFallonIL_PublicWorks/Water_Division_info/Whyconservewaterarticle.pdf)
- **Environmental Services Department, Seminole County, Florida, Water Conservation web page:** <http://www.seminolecountyfl.gov/envsrvs/watercon/important.asp>
- **“Why Conserve Water?” from Alabama Cooperative Extension:**  
<http://www.aces.edu/pubs/docs/A/ANR-0790/WQ1.3.1.pdf>
- **“Why Water Conservation is Important”, article by Amy Vickers in On Tap Magazine, Fall 2005:** [http://www.nesc.wvu.edu/pdf/DW/conserves/conservation\\_otf05.pdf](http://www.nesc.wvu.edu/pdf/DW/conserves/conservation_otf05.pdf)
- **Funding Water Efficiency through the State Revolving Fund Programs, U.S. EPA, August, 2003:**

<http://www.rivernetwork.org/sites/default/files/Funding%20Water%20Efficiency%20Through%20the%20State%20Revolving%20Fund%20Programs.pdf>

- **Greenstrides.com weblog (Joyce Benson)** <http://www.greenstrides.com/2009/02/19/why- conserve-water>
- **“Why Conserve?” fact sheet from the Saving Water Partnership (Seattle and King County, WA):** <http://www.savingwater.org/docs/whyconserve.pdf>
- **“Why Conserve Water” fact sheet by Puget Sound Energy:** <http://www.issaquahhighlands.com/ideahome/PDF/Conserve%20Water.pdf>
- **“Why Conserve Water?” article by Cathy Wilson in Get Out! Outdoor Adventure in the Ohio River Region:** <http://getoutzine.com/node/774>
- **The Saving Water Partnership: EPA Promotional Partner of the Year: Seattle** <http://www.waterefficiency.net/march-april-2009/saving-water-partnership-2.aspx>
- **Water Conservation Toolbox: Benefits and Costs, by the Minneapolis/St. Paul Metropolitan Council:** [http://www.metrocouncil.org/environment/Watersupply/conservationtoolbox\\_benefits.htm](http://www.metrocouncil.org/environment/Watersupply/conservationtoolbox_benefits.htm)