

Appendix A

City of Rockville Water Conservation Plan



February 2010

Rockville Water Conservation Plan

Background

This document constitutes the water conservation plan for Rockville, Maryland. Rockville is the second largest city in the State of Maryland and has a resident population of approximately 62,500. In addition, our daytime population is substantially larger since we have more jobs located in Rockville than we have residents. Rockville is served by two separate public drinking water systems. One is owned and operated by the City. This system serves approximately 46,500 residents (74% of our population) and is the subject of this conservation plan. The remaining 16,000 residents (26% of our population) are served by the Washington Suburban Sanitary Commission (WSSC).

The source water for the Rockville-owned drinking water system is the Potomac River. Each year, Rockville withdraws nearly 2 billion gallons of water from the River. Our current peak (summer) daily demand withdraw frequently rises to 8 million gallons. This amount is well within our authorized allocation of up to 12.1 million gallons a day. While we do anticipate upgrades and expansion of our treatment plant and potential finished water storage projects, we believe our river allocation is sufficient to meet the demands of our growing population well into the future. For more detail, please see the attachment (Worksheet 4-4) that was prepared to calculate a basic water demand forecast.

In addition to increasing our plant's production capabilities, Rockville has long embarked on a successful initiative to make our water system as efficient as possible. This plan briefly describes the major features of this plan as well as conservation improvements already being considered for near-term implementation. Rockville's water conservation plan is characterized as a combination of educational and regulatory approaches supplemented by incentive programs to encourage water conservation in our system and by our customers. This document describes those approaches in place as well as those planned for the near future.

Program Goals and Objectives

Water is a valuable commodity and Rockville wants its customers and residents to understand and appreciate their drinking water system and the importance of keeping our source water pure and clean. Rockville's water conservation goals and objectives include:

- Actions to decrease the volume of lost water in the distribution system, and
- Actions aimed at reducing our customer's demand for water, particularly during peak times.

These actions are intended to help prevent significant disruptions during cyclical lowriver flow periods and periodic regional droughts. It will also position Rockville to address any short-term consequences of global climate change and its likely effects (i.e., more severely reduced future river flows).

In addition to conserving the volume of water, Rockville is working to ensure the ongoing quality of the Potomac River as well as in the three sub-watersheds located in the City.

Rockville's Ten Approaches to Conserving Water

Rockville has historically taken a proactive approach to water conservation through annual water accounting, consumer education, accurate metering and tiered pricing incentives.

1. Water Distribution System Audit

Rockville has already conducted a water-loss audit of our drinking water distribution system. As shown in the attached spreadsheet, the net lost/unmeasured water for calendar year 2007 was 73.01 million gallons. This equates to 3.9% of the total water produced. The Maryland Department of Environment (MDE) guidelines indicate that well operated systems should not loose more than 10% of the total water. Even though Rockville's distribution system losses are minimal, we continue to further reduce the amount of lost water in the system. For example, in fiscal year 2009, we are initiating a major capital campaign to replace much of our aging water line infrastructure that has reached the end of its useful life. This will help to minimize water loss due to water main breaks.

2. Water Metering

Rockville has already embarked on a program to replace all of our service meters, both residential and commercial, including installing meters in city-owned facilities and buildings where no meters had historically been located. We are using *Sensus* meters. These meters have *remote radio read* capability that will allow the City to maintain more efficient and accurate records of water usage across the system.

The meter replacement program has occurred in three phases: Replacement Meters, Commercial Meters and Residential Meters. Since 2005, the City has replaced all broken meters with the new radio read models. In 2006 and 2007, the City replaced about 600 commercial meters, including meters for the city connections. In 2008 and 2009, we replaced nearly 12,000 meters for our residential customers. All meters were replaced by August 18, 2009.

These new meters allow us to efficiently and accurately collect and analyze losses and water usage and determine cost effective methods for reducing water demands across the system.

3. Water Line Maintenance

Rockville has approximately 180 miles of water distribution lines. Nearly 115 miles (64%) of these pipes were installed before 1970 and are typically made of cast iron.

Substantial parts of these older water lines have or will shortly reach their useful life. The City has embarked upon a 20-year capital campaign to replace the worst 34 miles of aging water lines. These actions will prevent or significantly reduce future water loss due to leaks and breaks. In addition, Rockville has spent a considerable effort performing maintenance on some 4,177 valves and three storage tanks totally 12 million gallons.

4. Drought and Spill Controls

Contamination of the City Water Treatment Plant and distribution system by spilled material would require Rockville to discard finished water and spend time and resources cleaning up the system. Rockville has taken several steps to prevent this situation from arising. Rockville's water source will only be adversely affected by extreme drought conditions. 2009 was a very dry year that resulted in some area jurisdictions declaring mandatory water restrictions. At the lowest flow during this dry period, the top of the screens protecting Rockville's drinking water intake was still 2 feet below the surface of the Potomac River.

In the event that a spill threatens the Potomac in the vicinity of the City's water supply, Rockville has the ability to immediately and remotely close the intake and allow a spill to pass by, without harming the system. The system will continue to operate and provide approximately six hours of short-term water demands. If the spill will be passing the intake for a longer period of time, the intake will remain closed and the nine emergency (backup) WSSC connections can be opened to provide additional water needs. Further, for surface spills, our Water Treatment Plant is fully equipped to prevent the spill from gaining access into our treatment system, using a series of booms and other devices to prevent this material from contaminating the system.

5. Local Drinking Water Partnerships

Rockville is an active partner in the *Wise Use* water program coordinated by the Metropolitan Council of Governments and the Interstate Commission on the Potomac River Basin. This program monitors the quality and quantity of the Potomac River and alerts the membership to low-flow conditions and the presence and travel time of upstream spills. The partnership has also agreed in advance to regional voluntary and mandatory conservation measures in the event the river flow drops beyond certain points. The program additionally has a public education component to warn residents of the drought conditions.

Rockville is also a signatory on an emergency management, mutual aid agreement between all of the political jurisdictions in the D.C. area. This agreement allows Rockville to call upon other non-impacted jurisdictions to assist us in an emergency situation, including a significant drought. Similarly, Rockville has agreed to assist our neighboring jurisdictions to the extent we can. We are currently considering signing a similar agreement that would extend this mutual aid arrangement to the area water utilities.

In addition, Rockville is a member of a regional partnership sponsored by the U.S. Environmental Protection Agency. The purpose of the partnership is to provide coordination and technical assistance to ensure the continued viability of the drinking water systems in the area.

6. Water Use Regulations

Rockville is currently developing comprehensive green building standards for new and renovated residential and commercial development that will, over time, require water conservation features in all buildings and structures in the City. These City ordinances will also address exterior landscaping practices and stormwater controls to protect the source water in area streams. The City expects to have these new requirements in place and effective by April 1, 2010.

7. Actions to Encourage Landscape Water Efficiency

Through Rockville's property development review process and newly revised zoning laws, functional landscapes are encouraged. These include the use of native vegetation and the integration of on-site stormwater management components.

Rockville has also started a *Save Our Streams* volunteer monitoring program for residents, so they can become more involved and concerned with their local streams and creeks. The program trains residents to monitor stream conditions and stream-side habitat and sponsors periodic monitoring events in the three sub-watersheds.

In addition, we have initiated a *Rainscapes* program that will bring rain barrel, rain garden and other low-impact development (LID) approaches to our residents and businesses and will encourage them to turn to on-site stormwater controls and rain harvesting techniques, rather than relying on potable water for lawn and garden watering. The City currently offers a significant rebate program for residents that install rain barrels or plant conservation landscaping on their property.

8. Incentive Pricing

The City of Rockville uses a 3-tiered water rate structure. The more water used by the customer, the higher the rate. The rates for fiscal year 2010 are as follows:

- 0-12,000 gallons: Rate charge \$2.78/1,000 gallons
- 12,001 – 24,000 gallons: Rate charge \$4.00/1,000 gallons
- Over 24,000 gallons: Rate charge \$4.30/1,000 gallons

These tiered rates make our customers think about the amount of water they are using and provide an incentive for them to reduce water that may be considered non-essential.

In addition to the tiered rate structure, Rockville imposes an additional *Ready-to-Serve* charge (\$4.77 for FY 2010) that is designed to provide money to maintain and repair the system.

This charge is based on meter size. The charge is a flat fee and does not vary with usage. Our commercial customers often take this fee into account before upgrading to a larger water service line when constructing or renovating a building.

9. Other Rockville Actions to Protect Source Water

Local Stormwater Laws

Rockville already has some of the largest stream buffer laws in the State (125-175 feet on either side of the stream) as well as effective local laws addressing stormwater discharges. The City is currently in the process of comprehensively revising our existing stormwater controls, including updates to our state-of-the-art stormwater utility fee based on impervious surfaces. These revisions will prescribe mandatory environmental site design practices as well as structural controls to ensure that runoff from private property is not contaminated by sediments, nutrients and bacteria. Adoption is expected by May 2010. Similarly, we plan to revise our soil and erosion (stormwater construction management) ordinance in the spring of 2011.

Inspections of Public and Private Stormwater Facilities

The City is in the process of inspecting over 400 privately owned stormwater management facilities and is working with the owners of these systems to repair and maintain them in the future. Similarly, the City has undertaken a review of all 108 publicly-owned stormwater facilities to ensure they are all functioning properly.

Stormwater Facility Retrofits

The City has recently completed a major stormwater facility retrofit in the College Gardens neighborhood. This publicly-owned facility collects and treats runoff from approximately 70 acres of residential and light commercial neighborhood that previously discharged directly into a tributary of Watts Branch.

Fats, Oils and Grease Management Program

The City has a very aggressive fats, oils and grease (FOG) program aimed at keeping these materials out of sewers, thereby preventing sanitary overflows from entering the City storm drains and City waterways. Over the next several years, Rockville will complete first round inspections of all 400 food service establishments in the City.

Watershed Assessment

Every ten years, Rockville conducts a comprehensive assessment of our sub-watersheds to determine the health and condition of our three sub-watersheds. Stream areas suffering adverse impacts from stormwater are identified. Chemical testing is performed and stream condition is documented. We are currently working on the Cabin John Creek assessment and anticipate beginning the Rock Creek assessment in 2011. These detailed evaluations are supplemented by the *Save-Our-Streams* volunteer monitoring effort described above and a stream walk examination to identify any immediate threats, including illicit discharges.

10. Rockville Information and Education Programs

Information and education of consumers is a critical component of a successful water conservation plan. We want to put our water consumers in a position to make informed water-use choices and change poor water-use habits. Although difficult to quantify, these savings play an important role in the demand-side management of the water system. There are several components to the City of Rockville's Information and Education Program:

An Understandable and Informative Water Bill. Customers must first be aware of their own water usage and costs, before they can begin to consider investing in methods designed to reduce their water usage and therefore their costs. Rockville's water bill contains information on the amount of water used in the current usage period, and for comparison, the last usage period, last year's usage period and the same usage period from two years ago. However, currently, our bill only indicates usage in units of 1,000 gallons. We know we can make conservation decisions easier for our customers if we provide them with their actual usage and information on their average daily consumption over the billing period. We intend to make these changes in our future invoices.

Newsletters, Television and the Web. Rockville currently uses a multi-media approach to informing consumers about water conservation. Conservation tips are put in *Rockville Reports*, the City's monthly newsletter sent to all residences and available to all businesses; tips are aired on *The Rockville Channel*, the City's cable TV station; the City has an educational pamphlet on water conservation that is handed out at community events or by request.

The City's website provides a more detailed description of the charges appearing on the water bill, the full rate schedule, and contact information for additional questions or water emergencies (water line breakage, drinking water quality issue, etc.). There are also descriptions of conservation practices and actions our residents can take to reduce the volume of water they use. Since the City relies on these other methods, we have stopped the practice of including conservation tips in water bill inserts.

Near-Term Implementation Strategy

As noted above, the City is already implementing a comprehensive approach to water conservation. We continuously improve these approaches and techniques, by:

- **Following through on our campaign to replace 34 miles of water lines over the next 20 years**
- **Continuing to decrease the water losses from our existing drinking water infrastructure**
- **Improving the content of our water bills, including providing customers with water conservation tips and household consumption data**
- **Adopting water-use requirements as part of the *Green Building* program, and the updated, enhanced stormwater controls**
- **Continuing meaningful public education activities.**

Conclusion

Rockville has done much in recent years to reduce its water consumption and obtain more accurate usage information. We have taken advantage of mass outreach vehicles including print, television and the web. We are working with our neighboring jurisdictions and utilities to leverage resources and standardize key public message points. We have taken major steps to safeguard the source waters within our borders.

Rockville will continue to look for innovative and creative methods to make significant strides in water conservation.