

# Rhode Island Water Resources Board

Annual Report 2010





## State of Rhode Island and Providence Plantations Water Resources Board



Foundry Office Building, Room 394  
235 Promenade Street  
Providence, RI 02908  
(401) 222-1450 FAX: (401) 222-1454

Dear Governor Chafee, Members of the General Assembly, and fellow Rhode Islanders:

The Rhode Island Water Resources Board and Board Corporate (WRB) and WRB staff are pleased to submit our 2010 Annual Report. This report highlights our accomplishments throughout the past year and previews our programs and projects for the upcoming year.

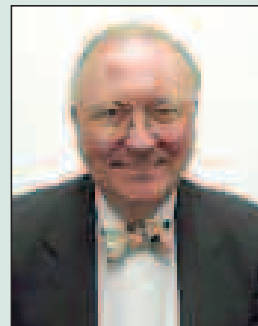
The WRB is responsible for strategic planning and the fair and equitable use of the State's water resources. We achieve this by developing and managing policies and programs ranging from the acquisition and management of new water supplies, continuous monitoring of climate, surface water and groundwater resources, management of the Water Supply Systems Management Plans and the Emergency Interconnection Program, and other related activities. Our commitment to excellence to develop scientifically and legally defensible water resource programs binds the diverse membership of our Board to the stewardship of the water resources of our great State.

Despite recent budget cuts, the WRB remains committed to the Governor and the General Assembly to assist in the State's financial recovery. With your continued support and involvement, the WRB's unique composure of water resources professionals will continue to protect the water resources of the State for future generations.

Sincerely,



**Kenneth J. Burke, P.E.**  
*General Manager*



**William J. Penn**  
*Chairman*

# Introduction

The primary responsibilities of the WRB are the strategic planning and management of the withdrawal and use of the water resources of our State. The WRB meets these responsibilities through the strategic planning initiatives, development of policy and guidelines, promulgation of rules and regulations, and a wide variety of capital projects that benefit all Rhode Islanders. Our 2010 Annual Report is organized to provide a brief overview of the WRB accomplishments over the past year using reduced resources.

The WRB allows diverse stakeholders to develop water resource policy in an open forum. This ensures public participation in our policy development that builds bonds and mutual respect between alternate and competing points of view. The oversight of the Board's policies is governed monthly through our Board meetings and daily through the WRB staff.

Along with the diverse representation from the public are other State Agencies that share water resource responsibilities: the State Departments of Environmental Management, Health, Administration's Division of Statewide Planning, and Economic Development. The careful and deliberate mix of these members assists the WRB in the strategic alignment of all the State's water resource programs.

As our State emerges from one of the nation's deepest economic crises, the Water Resources Board has assisted by reducing our annual expenditures and prioritizing our statutory obligations. The WRB continues to add value to our State government through the development and management of water resource programs that are built from fiscally and environmentally responsible practices despite these voluntary budget reductions.



*Staff photo*

# Policy Development



Last year the WRB staff worked with our stakeholders to develop a draft rule for Water Use and Efficiency for major water suppliers. The draft rule will be presented to the public during the first quarter of 2011. After the adoption of this rule the WRB staff will work closely with each of the State's major water suppliers to develop their individual Demand Management Strategies to ensure the efficient use of water in a logical and fiscally responsible manner.

The WRB staff also worked closely with the Rhode Island Nursery and Landscape Association and the University of Rhode Island Turfgrass Program to draft the State's first Lawn Watering Policy. This policy was presented to the Board at our December 2010 Board meeting with the goal of implementation for the summer of 2011. The WRB's Lawn Watering Policy will present guidance and good management practices for homeowners and professionals, resulting in more efficient use of water and other resources. The WRB staff will coordinate the marketing of this program with our major water suppliers as they prepare their strategies for water efficiency.

The Division of Statewide Planning has begun the consolidation of State Guide Plans related to water resources. The WRB staff is working with staff from the Division of Statewide Planning to review and rewrite these outdated Guide Plans. WRB staff will ensure

*Photo courtesy of Benjamin Earwicker at [www.garrisonphoto.org/sxc](http://www.garrisonphoto.org/sxc)*

that WRB's strategic planning objectives are integrated into the new State Guide Plan elements for water resources, avoiding perpetuating silos of water resource policies that currently exist. The WRB will ensure that proper consideration is given to new source development, storage for water supply and flood control, redundant supplies, efficient use of water, and water demand projections for future generations.

In July of 2009, the General Assembly also passed a budget article regarding Water Resources Board Corporate (WRBC); the financial instrument of the WRB. This budget article attempted to create efficiencies by shifting financial control of the WRBC to the Clean Water Finance Agency. Instead, the budget article fragmented a successful financing mechanism for the State's water suppliers and has threatened some of the basic management functions of the WRB. The WRB has subsequently discussed this issue in consultation with the water supply community and recently voted to restore the functionality of the WRBC. The WRB is coordinating the repeal of this budget article with the new Administration and the General Assembly to restore this historically efficient and useful tool.

## Big River Management Area

The Big River Management Area (BRMA) was identified as a future water reservoir site for the State as early as the 1920's due to its unique hydrologic and geologic features. After several studies and the passage of several statewide bond referenda, the State acquired 8,400 acres during the 1960's and 1970's and charged the WRB with the development of the Big River Reservoir. After the State abandoned plans to construct the Big River Reservoir in 1990, the State was left without a strategic backup water source for the Scituate Reservoir and for our groundwater dependant water systems in South County.

The WRB subsequently focused efforts to interconnect the water suppliers throughout the State, develop and protect water resource sites throughout South County, BRMA and Massachusetts, and to develop a Water Efficiency program for major water suppliers (to encourage the efficient use of water). Last year the WRB installed groundwater wells in the BRMA and performed pump tests to determine the availability of water in the northern part of the area. The WRB is now securing permits to produce up to 4.2 million gallons of water per day through these wells. For the first time in almost 40 years, the production of groundwater from the BRMA will begin to validate the State's original investment in the BRMA as a water resource for the State.

The development of the BRMA groundwater source is just one step in the Board's strategic charge to provide safe and reliable sources of water for the entire State. Since our groundwater systems are hydraulically connected to rivers and streams and are susceptible to droughts, the WRB will continue to analyze the "safe yield" of water available from these groundwater sources. This coordination is intended to quantify predictable amounts of water available from existing and future groundwater resources. As important as the development and protection of these groundwater sources is, the WRB must continue to identify and develop alternate water resources (e.g. desalinization) and storage opportunities (e.g. surface water systems, including reservoirs) to meet our current and future needs. The systematic development and protection of all of the State's water resources is encompassed in the WRB's mission for strategic planning.



Photo courtesy of RINEMBA

## Land Use and Management

The daily management of the BRMA also includes coordination of the recreational uses that benefit the residents of our State. Activities such as hiking, hunting, mountain biking, National Guard training, capital repair and maintenance of buildings and the roads and bridges, and various other events occur in the BRMA every day. Last year, the General Assembly passed legislation compelling the WRB to update our Land Use Plan for the BRMA in order to safely manage these activities. The WRB staff has begun identifying and analyzing these activities with the stakeholders that use the BRMA and we anticipate a draft Land Use Plan to be prepared by the summer of 2011. This draft plan will include activities that are compatible with the mission of the WRB and support the use of this area as water resource.



# South County Well Development Program

South County's unique glacial features produced several isolated water resources (aquifers) that supply water to local rivers and streams, major water suppliers, agriculture, individual homes, and local businesses. The WRB is currently investigating new sources of groundwater supply to meet both existing and future water demands, to provide redundancy to existing water supply systems, and to help preserve our local rivers and streams. Since the fall of 2010, the WRB staff has identified and tested six new groundwater sites in South County (including New Shoreham). We are currently appraising these sites for potential acquisition. The WRB is working closely with local water suppliers and municipal leaders to ensure that these sites produce clean water for South County while protecting isolated and increasingly diminished water resources for future generations. The WRB will continue to develop and protect these sites as part of our strategic mission for Statewide water resource management.



Staff photo

# Climate Change and the Flood of 2010

The Great Flood of 2010 wreaked havoc in Rhode Island in ways that most people never thought possible. From the inundation of I-95 to millions of dollars of damage to personal and private property, Rhode Islander's will never forget the devastation of this event.

From a water resource perspective, the WRB monitored the historical flooding through our streamgauge network and lamented over the State's inability to capture and control just a fraction of the billions of gallons of water that overflowed our rivers and streams and dumped out into the bay and ocean. Even with the images of the raging March flood waters still freshly etched in our minds, the WRB quickly refocused and monitored an extended stretch of dry weather just several months later. The extended stretch of unusually dry weather in the summer had replaced our earlier concerns of the historical flooding when many of our local rivers and streams started to display low flows. This unusually dry weather and reduced availability of water was more severe in Connecticut and Massachusetts, prompting those States to issue official Drought Advisories in August.



Flooding in West Warwick, photo: David Lafleur Photography

Last year's climate variability offers a convenient means of conveying the WRB's strategic vision for water resource management. Although Rhode Island is generally considered a State with abundant water resources, we do not always have access to water *when* and *where* we need it, nor in the *quantity* that is required. The variability of water resources in our groundwater-dependant systems are part of the reason why the WRB must develop additional water resources for the entire state, including new water storage and new source development. The complexities of water resource management are further complicated when consideration for the effects of climate change are also considered. The variability of water resources is central to the proper development of the WRB's strategic plan for water resource management. The WRB will be working with our stakeholders throughout this year to refine our strategic plan for water resources while planning for the effects of climate change.

# Water Supply System Management Plans

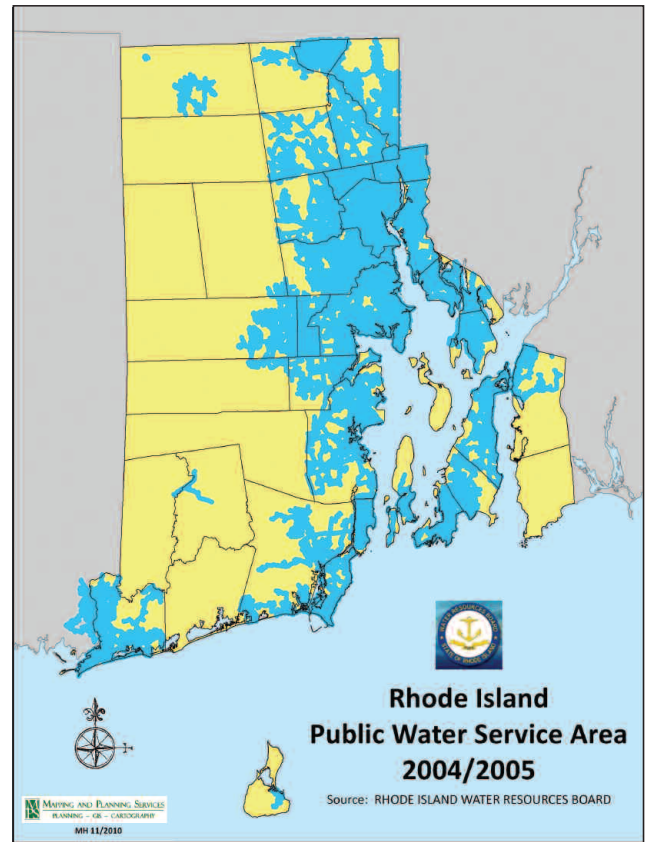
The Water Supply System Management Plan program was developed in the early 1990's to assess the supply, demand, and system management capabilities of our major water suppliers. These plans assist individual suppliers and the WRB staff in our assessment of the water resource management for the State. All twenty-eight plans have received initial approvals and are now in various stages of subsequent resubmissions and reviews.

The WRB staff coordinates with water suppliers to learn about their operations and challenges for providing water for the current and future generations. Through this constant interaction, the WRB has identified changes that need to be made to this program. In 2010, the WRB staff convened several meetings with water suppliers to define the scope of changes to be considered. The schedule for the rewriting of this program includes a series of stakeholder meetings throughout the winter and spring and a working draft presentation by the summer of 2011. The rewrite of this program will reflect the WRB's strategic planning objectives for water resources and ensure that the planning objectives of individual water suppliers are also thoughtfully integrated with the WRB's plans. For further information and updates, please check the WRB website at [www.wrb.ri.gov](http://www.wrb.ri.gov).

# Water Supply Interconnection Program



Stock photo



The above map shows the service areas of the 30 largest public water suppliers. For more detail and a link to the suppliers visit the WRB website at [www.wrb.ri.gov/watersuppliers.htm](http://www.wrb.ri.gov/watersuppliers.htm)

The WRB identified opportunities to interconnect adjacent water suppliers as a means to increase the safety and emergency response for water suppliers. The interconnection between local water suppliers is another strategic vision of the WRB that provides redundancy and backup for our water suppliers and in some instances has helped lower water rates for their customers. Over the past several years the WRB has issued over \$7.5 million dollars to water suppliers through fourteen individual interconnections.

The WRB staff are currently working with several water suppliers to continue this valuable program. The WRB staff is reviewing preliminary plans for Lincoln Water Commission, Smithfield Water Supply, Woonsocket Water Department, Portsmouth Water and Fire District, and the Warwick Water Department, and anticipates exhausting our available \$4 million in funding that remains for this program. The WRB will assess our Interconnection Program after these funds are exhausted as part of our strategic mission to ensure safe and reliable water resource management for the State.



# Bristol County Water Authority

The WRB provides financial and technical assistance for the Bristol County Water Authority (BCWA) through a series of improvements to their water sources, water treatment plant, and distribution facilities (per RIGL ch 46-15.5). The work for these upgrades is provided by \$23 million of general bond funding for four major projects: the construction of the East Bay Pipeline, the emergency interconnection with the East Providence water system, the upgrading of Child Street Water Treatment Plant, and the Shad Factory Pond pipeline. The East Bay Pipeline and the Emergency Interconnection with East Providence were completed in 1998. The Shad Factory Pond pipeline has only received emergency repairs while designs and permits are being pursued for full replacement.

Last year the WRB commissioned an engineering study of BCWA's Child Street water treatment facility and BCWA's raw water sources and interconnections. This study also analyzed BCWA's surface water sources in Massachusetts that provide 2.7 million gallons per day of raw water to BCWA. The recommended improvements to the Child Street water treatment facility will increase the reliable capacity from the existing 1 million gallons per day to 3.5 million gallons per day. These improvements will ensure BCWA's ability to withdraw water from its existing water resources while reducing its sole dependence on the Providence water supply.

Construction drawings for the replacement of the Shad Factory Pond pipeline have been previously completed, and are now being coordinated with the permitting of the treatment plant work into a master project schedule. Once again, the WRB's mission for strategic planning for water resources is apparent in our support and coordination of the BCWA projects. It is important to secure and properly manage these water resources for current and future generations while considering the rest of the State's needs for water.



*Photo courtesy of Bristol 4th of July Committee*

# Residential Water Rate Survey

The WRB performs annual reviews of the State's major water supplier's residential water rates. For 2010 the average residential household water bill ranged between \$175 to over \$1075.

In 2010, the WRB staff broadened the scope of our rate survey to gain a better understanding of each systems unique billing procedures and additional charges that underwrite the cost of providing drinking water. WRB staff compiled data and normalized the rates so that we could compare the water rates between different systems (rates are also presented in cost per thousand gallons). The survey compared the cost for a household consuming 60,000 gallons per year, which reflects a target consumption of 65 gallons per capita per day for an average household size of 2.54. These values were selected to coincide with the efficiency target that is being contemplated for major suppliers under the Water Use & Efficiency Act.

## Residential Water Rates Survey 2010

Water Supplier	Annual Water Bill for 60,000gal/yr (65gpcd)	Average Cost-per-1000gal
Block Island Water	\$1,075.02	\$17.92
North Tiverton Fire District	\$569.14	\$9.49
Jamestown Water Division	\$530.28	\$8.84
Bristol County Water Authority	\$529.70	\$8.83
Pascoag Utility District	\$528.70	\$8.81
North Smithfield Water Department	\$501.00	\$8.35
Kent County Water Authority	\$416.12	\$6.94
Kingston Water District	\$405.67	\$6.76
Newport Water Division	\$376.24	\$6.27
Pawtucket Water Supply Board	\$352.36	\$5.87
East Providence Water Department	\$324.22	\$5.40
Johnston Water Control Facility	\$322.58	\$5.38
Stone Bridge Water District	\$320.40	\$5.34
Woonsocket Water Dept.	\$314.46	\$5.24
Portsmouth Water & Fire District	\$311.60	\$5.19
Greenville Water District	\$308.50	\$5.14
Cumberland Water Department	\$306.90	\$5.12
Harrisville Fire District	\$293.60	\$4.89
Providence Water Supply Board	\$290.56	\$4.84
North Kingstown Water Department	\$276.60	\$4.61
East Smithfield Water District	\$257.20	\$4.29
South Kingstown Water Department	\$251.02	\$4.18
Lincoln Water Commission	\$230.50	\$3.84
Westerly Water Department	\$229.95	\$3.83
United Water Rhode Island	\$225.08	\$3.75
Warwick Water Department	\$224.95	\$3.75
Richmond Water Supply System	\$208.00	\$3.47
Narragansett Water Department	\$196.35	\$3.27
Smithfield Water Supply Board	\$175.20	\$2.92

The entire survey in detail can be accessed on our website at: [www.wrb.ri.gov/2010ratessurvey.pdf](http://www.wrb.ri.gov/2010ratessurvey.pdf)



## Rhode Island Public Water System Infrastructure Survey

System	Total
Bristol County Water Authority	\$23,117,714
Big River Groundwater Supply	\$12,100,000
Cumberland	\$4,745,646
East Providence	\$38,175,000
East Smithfield	\$4,216,250
Greenville	\$1,708,000
Harrisville	\$2,934,049
Jamestown	\$6,384,125
Johnston	\$300,000
Kent County Water Authority	\$103,282,440
Kingston	\$2,500,000
Lincoln	\$7,595,000
Narragansett	\$1,645,000
Newport	\$143,961,862
North Kingstown	\$6,882,000
North Tiverton	\$4,440,000
Pascoag	\$6,405,000
Pawtucket	\$63,394,542
Portsmouth	\$9,550,200
Providence	\$242,025,000
Quonset Development Corporation	\$3,598,000
Richmond	\$5,558,000
Smithfield	\$2,979,100
South Kingstown	\$7,625,000
Stone Bridge	\$1,680,624
United Water - Rhode Island	\$13,658,000
University of Rhode Island	\$188,000
Warwick	\$12,928,450
Westerly	\$11,375,000
Woonsocket	\$93,285,100
<b>Total</b>	<b>\$838,237,102</b>

Capital plan requirements for next 20 years compiled in November, 2010 by the Rhode Island Water Resources Board from Water Supplier Infrastructure Replacement Plans, needs surveys and DWSRF Project Priority list filed with Department of Health. This is a conservative estimate of the state's infrastructure needs.

## Funds Required for Water Resource Improvements

Throughout the recession, Rhode Island's water suppliers have experienced reduced water sales, partially due to the negative economic conditions (house foreclosures and lower commercial consumption) climate variability and water conservation. As suppliers experience further reduced water use and increased conservation, some water suppliers may find it difficult to comply with all of the applicable State and Federal regulations while keeping their water rates at reasonable levels.

In an effort to mitigate the negative effects of underfunded water supply programs, the recent Water Use and Efficiency Act required rate stabilization and reserves accounts to ensure continual reinvestment in water supply infrastructure. The WRB has assessed the current capital needs of the State's 28 major water suppliers that provide over 90% of the State's potable water and fire supply. The current amount of capital investment required for the State is approximately \$838 million dollars over the next 20 years. Although much of this capital work may be eligible for loan assistance through the Department of Health, not all of these projects qualify. The continuation of the WRBC's funding program is another strategic program that can help offset these future expenses for individual water suppliers. The WRB (and WRBC) legislation to ensure that these expenses are accounted for will be presented to the Administration and General Assembly for consideration in the 2011 General Assembly session.

## Rhode Island Water Resources Board

### General Revenue Expenditures and Revenues as of June 30, 2010

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Expenditures by Category	Actual	Actual	Actual	Actual	Actual	Actual
Personnel Services	1,506,349	1,454,836	981,319	1,385,309	916,739	1,051,476
Operating Supplies and Expenses	235,041	242,248	194,909	164,807	114,374	88,370
Assistance, Grants and Aid to Local Government	654,992	247,690	536,295	42,059	101,212	96,914
<b>Subtotal Operating Expenses</b>	<b>2,396,382</b>	<b>1,944,774</b>	<b>1,712,523</b>	<b>1,592,175</b>	<b>1,132,325</b>	<b>1,236,760</b>
Capital Purchases and Equipment	238,822	29,176	80,461	43,491	-	(1,380)
<b>Total Expenditures</b>	<b>2,635,204</b>	<b>1,973,950</b>	<b>1,792,984</b>	<b>1,635,666</b>	<b>1,132,325</b>	<b>1,235,380</b>
<b>Revenues</b>						
Surcharge Collections (.01664 portion)	4,981,975	5,217,312	4,783,781	5,091,185	4,782,732	4,289,538
Big River Management Area Receipts	245,130	253,310	247,981	238,895	239,116	237,222
<b>Total Revenue</b>	<b>5,227,105</b>	<b>5,470,621</b>	<b>5,031,761</b>	<b>5,330,080</b>	<b>5,021,848</b>	<b>4,526,760</b>

## Rhode Island Water Resources Board Corporate

### Balance-June 30, 2007, 2008, 2009 and 2010

	FY2007	FY2008	FY2009	FY2010
<b>Expenditures</b>				
- Supplies, Materials and Services (Note1)	\$22,697	\$35,497	\$26,695	\$30,742
- Watershed Grants (Note2)	2,382,250		-	-
- Interest Expense	485,425	415,772	298,288	232,625
- Depreciation and amortization expense	107,433	107,432	103,575	106,044
<b>Total</b>	<b>\$2,997,805</b>	<b>\$558,701</b>	<b>\$428,558</b>	<b>\$369,411</b>
<b>Revenues by Source</b>				
- Operating revenues (Note 3)	\$1,210,539	\$1,225,713	\$1,097,214	\$986,175
- Reappropriated Fund Balance (Note 4)	2,382,250			
- Reimbursed charges	5,575	3,015	2,625	2,624
- Interest Income (Note5)	193,358	135,345	69,822	53,792
<b>Total</b>	<b>\$3,791,722</b>	<b>\$1,364,073</b>	<b>\$1,169,661</b>	<b>\$1,042,591</b>
<b>Annual Net Gain/(Loss) (Note 6)</b>	<b>\$793,917</b>	<b>\$805,372</b>	<b>\$741,103</b>	<b>\$673,180</b>
<b>Outstanding Debt</b>				
- Revenue Bonds (Note 8)	\$11,260,000	\$9,530,000	\$6,755,000	\$4,930,000
<b>FTE Levels*</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

- Notes:
- Personnel services are provided by the Water Resources Board Staff. All cash expenditures are purchased financial and legal services.
  - Phase III of Watershed Protection Program (allocation of funds ended in FY2008).
  - Includes water collection surcharges.
  - Project funds remaining in supplier accounts for watershed grants.
  - Interest income and reimbursed charges as reported in the Audited Financial Statements: Statement of Revenues and Expenses and Changes in Net Assets
  - The amounts do not include balances available from the Debt Service Reserve Fund (\$1,138,500) and the Coverage Reserve Fund (5% of the Maximum Annual Debt Service totaling \$89,104.38) as required per the bond indenture.
  - Paid directly by the Providence Water Supply Board. Final payment was remitted September 2009.
  - FY 2009 and FY2010 balances are principal balances net defeased funds for the Water Quality Protection Bond.

Source: **Water Resources Board Corporate Audited Financial Statements**



# Rhode Island Water Resources Board and Staff

## Member

William Stamp, III  
Harold Ward  
Thomas B. Boving, Ph.D  
Michael P. DeFrancesco, P.E.  
William Penn (Chair)  
Jesse M. Rodrigues, Jr.  
Pamela M. Marchand, P.E. (Vice Chair)  
Susan Licardi  
Samuel H. Kitchell  
Ronald Gibson  
Jon Schock  
Janet Coit  
Keith Stokes  
Kevin Flynn  
David Gifford, Ph.D, MD

## Appointment Description

*Agriculture*  
*Conservation*  
*Geology and Hydrology*  
*Water Supply Engineer*  
*Financial Planning and Investment*  
*Land or Watershed Management*  
*Public Surface Water System*  
*Public Groundwater System*  
*Public System User*  
*General Public*  
*General Public*  
*RI Department of Environmental Management*  
*RI Economic Development Corporation*  
*RI Department of Administration - Division of Statewide Planning*  
*Rhode Island Department of Health*

## Staff List

Kenneth J. Burke, P.E. – *General Manager*  
Kathleen M. Crawley – *Staff Director*  
Romeo N. Mendes, P.E. – *Supervising Engineer*  
Peter A. Duhamel – *Principal Planner*  
William D. Rivero – *Program Services Officer*  
Emily J. Cousineau – *Implementation Aide*



## Administrative Office

235 Promenade Street, Suite 394 • Providence, Rhode Island 02908  
401-222-1450 • 401-222-1454 FAX  
[www.wrb.ri.gov](http://www.wrb.ri.gov)





*Front and Back photos of the Providence Water Supply System Courtesy of Carl Ciampanelli*