

ARMANDO PARILLO  
*Chairman*

JOEL D. LANDRY, II, ESQ.  
*Vice Chairman*

ROBERT J. KILDUFF, ESQ., P.E.  
*Secretary*

FERNANDO S. CUNHA, ESQ.  
*Legal Advisor*

ALEXANDER D. PRIGNANO  
*Ex-Officio*



VINCENT A. CIANCI, JR.  
*Mayor*

RICHARD O. RAFANOVIC, P.E., M.B.A.  
*General Mgr./Chief Engr.*

JOSEPH DE LUCA  
*City Councilman*

RITA M. WILLIAMS  
*City Councilwoman*

MARY A. NOCERA  
*Member*

JOSEPH D. CATALDI  
*Member*

January 7, 2000

Mr. Michael Clement, City Clerk  
Providence City Hall  
Dorrance Street  
Providence, RI 02903

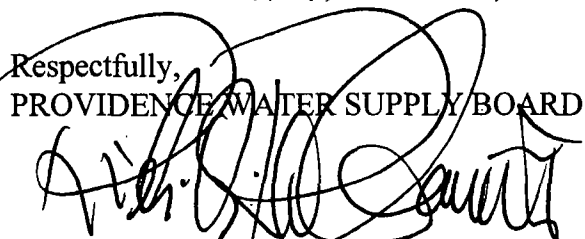
Re: Annual Report

Dear Mr. Clement:

Enclosed is a submittal (16 copies) of our Annual Report as required by the City Charter. Please make it part of the City Council record.

If you need additional copies, please contact Patricia McVicker, Esq., Manager of Inter-Governmental Relations, at 521-6300, extension 7125.

Respectfully,  
PROVIDENCE WATER SUPPLY BOARD

  
Richard O. Rafanovic, P.E.  
General Manager and Chief Engineer

2980  
Enclosures

IN CITY COUNCIL

FEB 3 2000

READ  
WHEREUPON IT IS ORDERED THAT  
THE SAME BE RECEIVED.

  
CLERK

[WWW.PROVWATER.COM](http://WWW.PROVWATER.COM)

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January 7, 2000

City Council President John J. Lombardi  
and Members of the Providence City Council  
Providence City Hall  
25 Dorrance Street  
Providence, Rhode Island 02903

Re: Annual Report

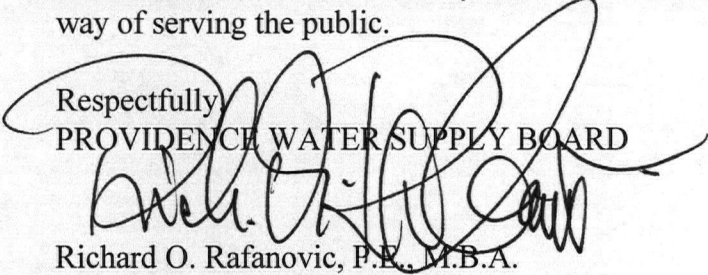
Dear City Council President and Members:

Annually, consistent with the Providence, Rhode Island, Home Rule Charter 1980, Article XI, Section 101(b), the Chief Engineer is required to prepare and submit an Annual Report for presentation to the Board, Mayor, and City Council containing a general description of the water system and a detailed statement of expenditures and income.

The attached document represents a summary of our activities for the fiscal year ending June 30, 1999 and reflects the Board's vision for the future. This document will be also distributed to various public officials, governmental agencies, regulators, public libraries, and others affected and interested in the activities of the water utility.

Our engineers, managers, and workforce continue to work in a professional and dedicated manner as reflected in the accomplishments we have been able to complete under the guidance of the Board since the 1990's, when this utility undertook a turn towards a more business-oriented and pro-active way of serving the public.

Respectfully,  
PROVIDENCE WATER SUPPLY BOARD

  
Richard O. Rafanovic, P.E., M.B.A.  
General Manager and Chief Engineer

2979

cc - Mayor Vincent A. Cianci, Jr.

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# PROVIDENCE WATER

## 1999 ANNUAL REPORT

# THE HISTORY OF PROVIDENCE WATER

THE FOUNDERS OF PROVIDENCE, WHO ARRIVED IN 1636, SETTLED ON THE EAST BANK OF THE PROVIDENCE RIVER IN THE AREA THAT IS NOW KNOWN AS MARKET SQUARE. THE COUNTY WEST OF THE RIVER, KNOWN AS WEYBOSSET, INCREASED IN POPULATION VERY SLOWLY DUE TO THE DIFFICULTY OF CROSSING THE RIVER, AND IT WAS NOT UNTIL 1704 THAT A BRIDGE WAS EVEN DISCUSSED. THE INHABITANTS, APPARENTLY WERE SATISFIED WITH A FJORD AT A SHALLOW POINT IN THE RIVER KNOWN AS THE CLAM BANK. IN 1711, A BRIDGE WAS CONSTRUCTED AND A NEW ROAD ORDERED LAID OUT FROM THE BRIDGE, WESTERLY TOWARD PLAINFIELD. THE OPENING OF THIS ROAD WAS DELAYED BECAUSE A CLAY BLUFF ON THE WEYBOSSET SIDE OF THE RIVER HINDERED ITS COMPLETION. THE REMOVAL OF THIS OBSTACLE BECAME POSSIBLE WHEN THOMAS STAPLES WAS PERMITTED TO REMOVE THE CLAY FOR THE PURPOSE OF MAKING BRICK, AND IN A FEW YEARS, THE BLUFF WAS LEVELED, THE SPOIL FROM HIS OPERATIONS BEING USED TO FILL IN THE MARSHES THAT EXTENDED AROUND THE FOOT OF THE BLUFF, AND EXCEPT FOR THE LACK OF AN ADEQUATE SUPPLY OF FRESH WATER, THE LAND FORMED BY THE REFUSE EARTH PROVIDED AN EXCELLENT LOCALITY FOR COMMERCE.



IN 1772, FRESH WATER WAS BROUGHT TO THIS AREA BY A SYSTEM OF UNDERGROUND PIPES OF HOLLOWED-OUT LOGS, THE SUPPLY COMING FROM CAPTAIN JOHN FIELDS FOUNTAIN LOCATED ABOUT THREE-QUARTERS OF A MILE SOUTHEAST OF THE AREA. IN 1773, THE RAWSON FOUNTAIN SOCIETY WAS FORMED TO SUPPLY OTHER AREAS AND AT A LATER DATE THREE MORE SOCIETIES WERE FORMED TO SUPPLY OTHER AREAS. THE COMMERCIAL DEVELOPMENT OF THOSE AREAS BECAME PRACTICAL BECAUSE OF THE OPERATIONS OF THESE FOUNTAIN SOCIETIES WHICH CONTINUED SUPPLYING THOSE AREAS LONG AFTER THE INTRODUCTION, NINETY-NINE YEARS LATER, OF A MUNICIPAL SUPPLY.

PROVIDENCE GREW STEADILY IN POPULATION AND BECAUSE OF THAT GROWTH, A STRAIN WAS PLACED ON THE EXISTING WELLS AND SPRINGS TO THE POINT THAT THERE WAS AN ACTUAL SHORTAGE OF WATER IN SOME OF THE MORE POPULATED SECTIONS OF THE CITY, AND THE WATER THAT WAS AVAILABLE WAS POSSIBLY POLLUTED TO SUCH AN EXTENT THAT IT WAS ESSENTIAL THAT SOMETHING BE DONE TO PROTECT THE HEALTH AND WELL-BEING OF THE CITIZENS. THE INCREASE IN THE NUMBER, SIZE AND HEIGHT OF THE BUILDINGS IN THE CITY REQUIRED GREATER PROTECTION AGAINST LOSS BY FIRE, AND THE

NEED OF A PLENTIFUL SUPPLY OF WATER RUNNING THROUGH ALL THE PRINCIPAL STREETS OF THE CITY WAS CONSIDERED TO BE VITAL.

IN 1852, A GROUP OF PUBLIC SPIRITED CITIZENS BEGAN A CAMPAIGN TO INTRODUCE A SUPPLY OF PURE WATER INTO THE CITY, AND IN MARCH OF 1853, THE CITY COUNCIL APPOINTED A COMMITTEE TO INQUIRE INTO THE PRACTICABILITY OF SECURING A PURE AND WHOLESOME WATER SUPPLY FOR THE CITY. THEY WERE AUTHORIZED TO EMPLOY THE SERVICES OF A COMPETENT ENGINEER IN THE PROSECUTION OF THEIR INQUIRIES AND TO DRAW UPON THE CITY TREASURY FOR ALL THE EXPENSES OF THE SAME, BUT NOT TO EXCEED ONE THOUSAND (\$1,000.00) DOLLARS.

ON FEBRUARY 15, 1869, THE VOTERS OF THE CITY OF PROVIDENCE APPROVED THE PROPOSITION THAT WATER BE BROUGHT INTO PROVIDENCE FROM THE PAWTUXET RIVER THEREBY SECURING AN ABUNDANT SUPPLY OF WATER FOR THE DEVELOPMENT AND PROTECTION OF THE COMMUNITY.

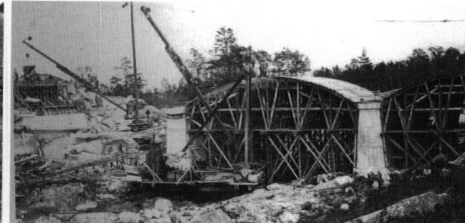
CONSTRUCTION BEGAN IN THE SPRING OF 1870 AND THE FIRST SERVICE PIPE WAS OPENED ON DECEMBER 1, 1871 AT THE PROVIDENCE OPERA HOUSE. FROM 1871 TO 1902, WATER WAS PUMPED DIRECTLY FROM THE RIVER AND DISCHARGED INTO THE SYSTEM WITHOUT ANY PURIFICATION TREATMENT.



IN 1906, THE CITY'S FIRST SLOW SAND FILTER WATER PURIFICATION SYSTEM, THE PETTACONSETT PUMPING STATION AND FILTER PLANT, WAS CONSTRUCTED. AFTER THE COMPLETION OF THE FILTERS, WATER WAS DRAWN FROM THE RIVER, FILTERED, AND PUMPED AGAIN TO AN OPEN DISTRIBUTION RESERVOIR CALLED SOCKANOSSET, WITH A CAPACITY OF 55 MILLION GALLONS. THIS RESERVOIR WAS LOCATED IN WHAT IS KNOWN TODAY AS THE GLEN WOODS DEVELOPMENT IN THE CITY OF CRANSTON. FROM THIS RESERVOIR, THE WATER FLOWED BY GRAVITY TO CONSUMERS AND TO THE HOPE RESERVOIR IN PROVIDENCE, A SECOND OPEN RESERVOIR WHICH HAD A CAPACITY OF 76 MILLION GALLONS. PUMPS LOCATED AT THIS STORAGE BASIN SUPPLIED WATER TO THE SYSTEM AND TO THE OLD FRUIT HILL RESERVOIR, WHICH HAD A CAPACITY OF 25 MILLION GALLONS. THE THREE OPEN DISTRIBUTION RESERVOIRS PROVIDED A RESERVE STORAGE OF 156 MILLION GALLONS.

THE ORIGINAL WATER WORKS, ALTHOUGH OWNED AND CONTROLLED BY THE CITY OF PROVIDENCE, ALREADY OPERATED IN THE CAPACITY OF A METROPOLITAN SYSTEM. IN ADDITION TO PROVIDENCE, IT SERVED THE MUNICIPALITIES OF CRANSTON, WARWICK, JOHNSTON AND NORTH PROVIDENCE.

AS EARLY AS 1910, ONLY 39 YEARS AFTER THE COMPLETION OF THIS

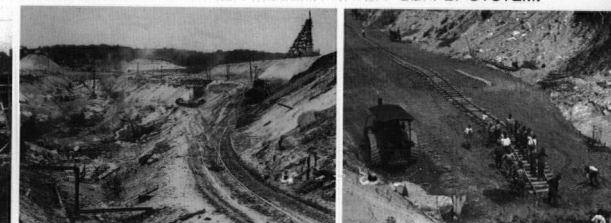


SUPPLY, IT WAS APPARENT THAT WITH THE GROWTH OF PROVIDENCE AND THE EXTENSION OF THE DISTRIBUTION SYSTEM IN NEARBY COMMUNITIES, IT WOULD NOT BE MANY YEARS BEFORE THE FLOW FROM PETTACONSETT WOULD BE INADEQUATE TO MEET THE INCREASED DEMANDS. IN FACT, FOR A NUMBER OF YEARS THE CONSUMPTION DURING EXTREMELY DRY WEATHER EXCEEDED THE NATURAL FLOW OF THE RIVER, AND THE SHORTAGE WAS MADE UP FROM WATER STORED IN SMALL RESERVOIRS OWNED BY COMPANIES OPERATING MILLS FURTHER UPSTREAM.

THE CONSTANT MENACE OF A POSSIBLE SHORTAGE OF WATER RESULTED IN THE APPOINTMENT BY THE CITY COUNCIL IN JANUARY OF 1913 OF A COMMITTEE TO INVESTIGATE THE POSSIBILITY OF DEVELOPING AN INCREASED WATER SUPPLY.

IN 1915, THE GENERAL ASSEMBLY ENACTED CHAPTER 1278 OF PUBLIC LAWS OF RHODE ISLAND WHICH AUTHORIZED THE CITY TO DEVELOP AN INCREASED SOURCE OF SUPPLY.

HEALTH ISSUES AND INCREASING DEMAND ON THE PAWTUXET RIVER PROMPTED THE PROVIDENCE CITY COUNCIL TO MOVE FORWARD WITH THE DEVELOPMENT OF A NEW MODERN WATER SUPPLY SYSTEM.



THIS CONSISTED OF THE CONSTRUCTION OF A LARGE RESERVOIR AND TREATMENT PLANT ON THE NORTH BRANCH OF THE PAWTUXET RIVER IN THE TOWN OF SCITUATE. THIS SYSTEM, WHICH TODAY STILL PROVIDES WATER TO MOST OF THE STATE OF RHODE ISLAND, CONSISTS OF THE MAIN SCITUATE RESERVOIR SUPPLY AND ITS FIVE TRIBUTARY RESERVOIRS.

THE MAIN SCITUATE RESERVOIR WAS FORMED BY THE CONSTRUCTION OF A DAM ACROSS THE PAWTUXET RIVER AT THE FORMER VILLAGE OF KENT. THE GAINER DAM, CONSTRUCTED PRINCIPALLY OF EARTH, IS ABOUT 3,200 FEET LONG AND 100 FEET HIGH. WATER BEGAN TO BE STORED IN THE RESERVOIR ON NOVEMBER 10, 1925. AN AQUEDUCT FROM GAINER DAM FEEDS THE NEARBY TREATMENT PLANT WHICH WAS PLACED IN OPERATION ON SEPTEMBER 30, 1926.

THE ORIGINAL TREATMENT PLANT WAS AMONG THE MOST TECHNOLOGICALLY ADVANCED OF ITS DAY, AND FOR MANY YEARS THE FILTRATION SYSTEM WAS THE ONLY PLANT OF ITS TYPE IN NEW ENGLAND.

TODAY, THE PLANT HAS A MAXIMUM TREATMENT CAPACITY OF 144 MILLION GALLONS OF WATER PER DAY AND STILL REMAINS THE LARGEST IN NEW ENGLAND.



**Vincent A. Cianci, Jr.**  
Mayor, City of Providence

More than half of all Rhode Island residents enjoy the highest quality drinking water from a system that the City of Providence has been proud to own and manage for more than a century. Our commitment to maintaining the highest quality in this most essential of areas is a distinction that compliments our fine and wide-ranging delivery of services to Providence residents.

Providence Water's success is due to a multitude of trained specialists with education and qualifications in their respective fields. Plant operations are managed by a microbiologist who is supported by a staff of professionals including chemists, mechanical equipment specialists, certified operators and sanitarians. The competent and committed work force, under the leadership of Providence Water's Chief Engineer, Richard O. Rafanovic, is crucial to maintaining our system in strict compliance with EPA regulations.

Like systems nationwide, Providence Water must meet the challenges posed by an aging infrastructure. Our ongoing improvements are designed to enhance the level of service provided to Providence Water customers and to ensure the continued reliability of water delivery. By implementing systemic improvements that employ the latest in technology for water safety, Providence Water will continue to set standards of excellence that benefit residents of Rhode Island well into the new century.

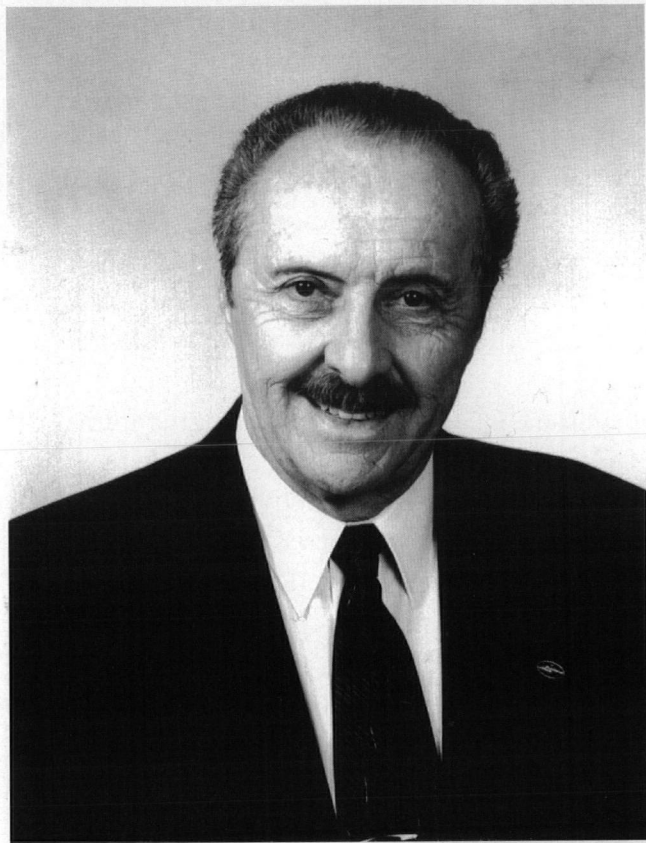
*Vincent A. Cianci (r.)*

Providence Water operates under, and is governed by, the City's Home Rule Charter which was adopted on November 4, 1980 and Chapter 1278 of the Public Laws of Rhode Island of 1915, as amended.

### ***PWSB Board of Directors***

*Standing:* Alexander D. Prignano, ex officio; Joseph D. Cataldi; Councilwoman Rita M. Williams; Councilman Joseph De Luca; *Seated:* Mary A. Nocera; Armando Parillo, Chairman; Joel D. Landry, II, Esq. Vice Chairman; *Inset:* (l) Fernando Cunha, Esq., Legal Counsel; (r) Robert J. Kilduff, Esq., Board Secretary





**Richard O. Rafanovic, P.E., M.B.A.**  
**General Manager & Chief Engineer**

Providence Water has been serving the public with drinking water and fire protection since the mid-1860's. During the last ten years, with the concurrence and support of our Board and the Mayor, we have been changing into a progressive, business-oriented utility designed to serve over two-thirds of the State's population into the next century. Much has been done, more needs to be done, and we need to continue to adapt to changing conditions as we encounter them.

Our people are our most valuable asset. We have reorganized to meet the regulatory challenges around the skills and know-how of our workforce and management. We are providing ongoing training to keep this know-how abreast of progress. We have secured the necessary funding to ensure that our facilities, the treatment plant, the aqueducts, the piping system, and all the other equipment needed to run a modern utility, are being replaced before deterioration and obsolescence set in. We have done this in an effective and efficient manner while keeping costs low. Most recently, we saw a survey published in the news showing worldwide statistics on the cost of water.

We are proud to show that Providence Water is a world-class utility at a bargain price.

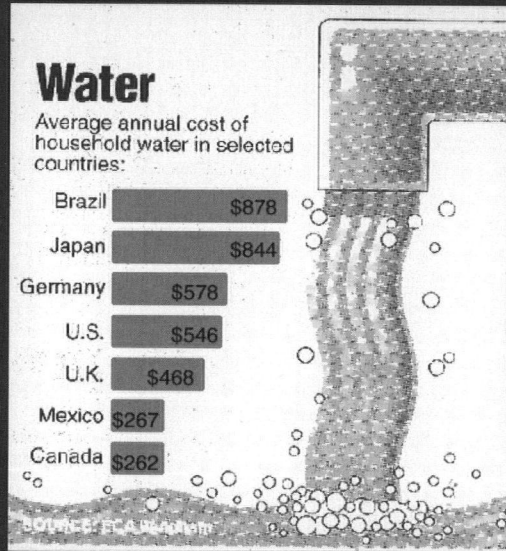
While we have adequate supplies to serve our customers for almost four hundred (400) days under normal conditions, we could be vulnerable during a natural disaster or as a result of terrorism. Should this happen, we could be out of water in less than four (4) days. Such an event would cause pain and suffering to our customers and could lead to substantial economic losses to the State. Providence Water therefore must continue to strive to develop such

supplemental supplies separately and in addition to what we now have. Our engineers and managers can do that. This, however, is an issue of Statewide importance and others need to join this effort. Our Board and our Mayor support such a joint effort. This then becomes part of our challenge for the 21<sup>st</sup> century.

Our mission continues to be the development and distribution of a safe, healthy and reliable water supply for the enjoyment of our customers and for the protection of life and property within our service area at competitive prices.

## World-class water at a bargain price

*Providence Sunday Journal, 11/14/99, Your Money, Page F-3*



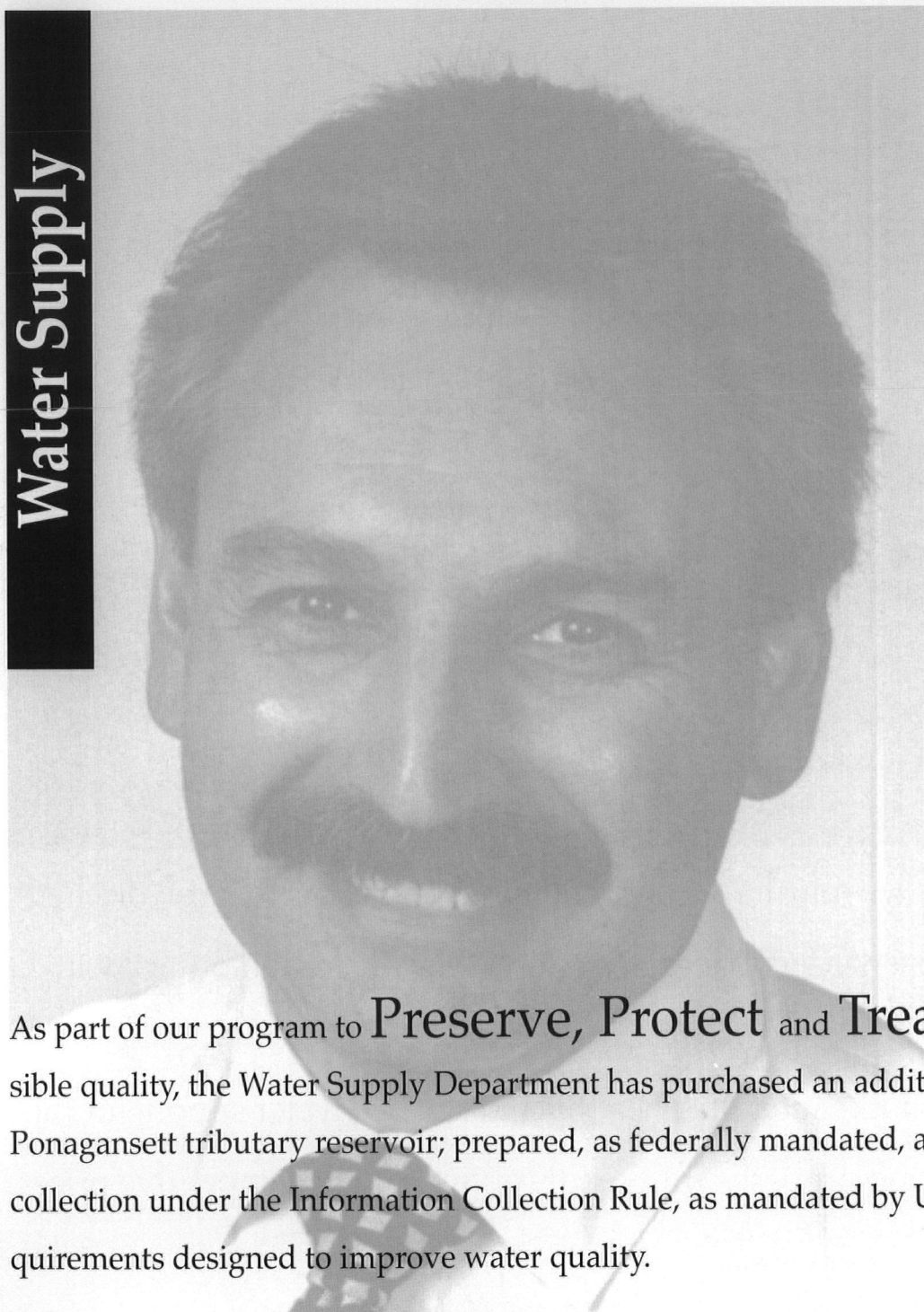
## Average annual cost of household water

\$878 / Brazil  
\$844 / Japan  
\$578 / Germany  
\$546 / United States  
\$468 / U.K.  
\$267 / Mexico  
\$262 / Canada  
\$201 / Providence Water

*Prov. Water rate as of 6/30/99*

*Rick D. Smith*





Michael Covellone, *Director*

*We're making  
sure your  
water is the  
best.*



Nature meets science

and technology and the result is clean, good tasting water. Providence Water's purification plant, built in 1926 in Scituate, Rhode Island is the largest filtration plant in New England. The plant uses conventional treatment including aeration, coagulation /



sedimentation, corrosion control, filtration, chlorination and fluoridation. The system's 18 filters operate just like nature's natural filters and have the capacity to filter up to 144 million gallons of water per day.

As part of our program to **Preserve, Protect** and **Treat** the water in order to ensure a reliable supply of the best possible quality, the Water Supply Department has purchased an additional 200 acres of land in our watershed; renovated the dam at Ponagansett tributary reservoir; prepared, as federally mandated, a comprehensive risk management plan; and participated in data collection under the Information Collection Rule, as mandated by U.S.E.P.A. regulations, which will form the basis for future requirements designed to improve water quality.

Providence Water obtains its water from a surface supply located on the north branch of the Pawtuxet River. The watershed contains 92.8 square miles of land, which is an area approximately five times the area of the City of Providence. The Water Supply Board owns approximately 25 square miles of land. The largest portion of the watershed lies in the Town of Scituate, with smaller portions in Foster, Glocester, Johnston, Smithfield and Cranston.

Water from the Scituate Reservoir is drawn into the Purification Plant through one of three separate intakes at the Gate House located at Gainer Dam. The water is conveyed by gravity through twin 60-inch aqueducts which converge into a single 94-inch aqueduct into the plant, where Ferric Sulphate is added as a coagulant. The chemically treated water then enters aerators, which oxidize the water and are designed to remove carbon dioxide, taste and odors from the water.

From the aerators, the water continues by gravity to a circular tank known as the Tangential Mixer. Just prior to entering the Mixer, Quicklime is added to adjust pH and make the

water non-corrosive.

The water then enters the Sedimentation Basin, where the floc formed by the coagulant settles to the bottom, leaving clear water at the top. The combined capacity of both the North and South basins is approximately 160 million gallons, which provides for a two to three day retention time. The water is then chlorinated for disinfection

pipes are covered by large gravel, and then by layers of successively smaller sizes of gravel, for a total depth of 18 inches. Located on top of the gravel is a layer of fine sand, approximately 30 inches in depth. Water flows through the layers of sand and gravel into the clearwell tank. The final step in the treatment process is fluoridation, which occurs as the water leaves the clearwell. Fluoride is added to

prevent tooth decay in children. Water leaves the plant through a 78-inch aqueduct and a 90-inch aqueduct and flows into our distribution system.

Providence Water has four storage reservoirs:

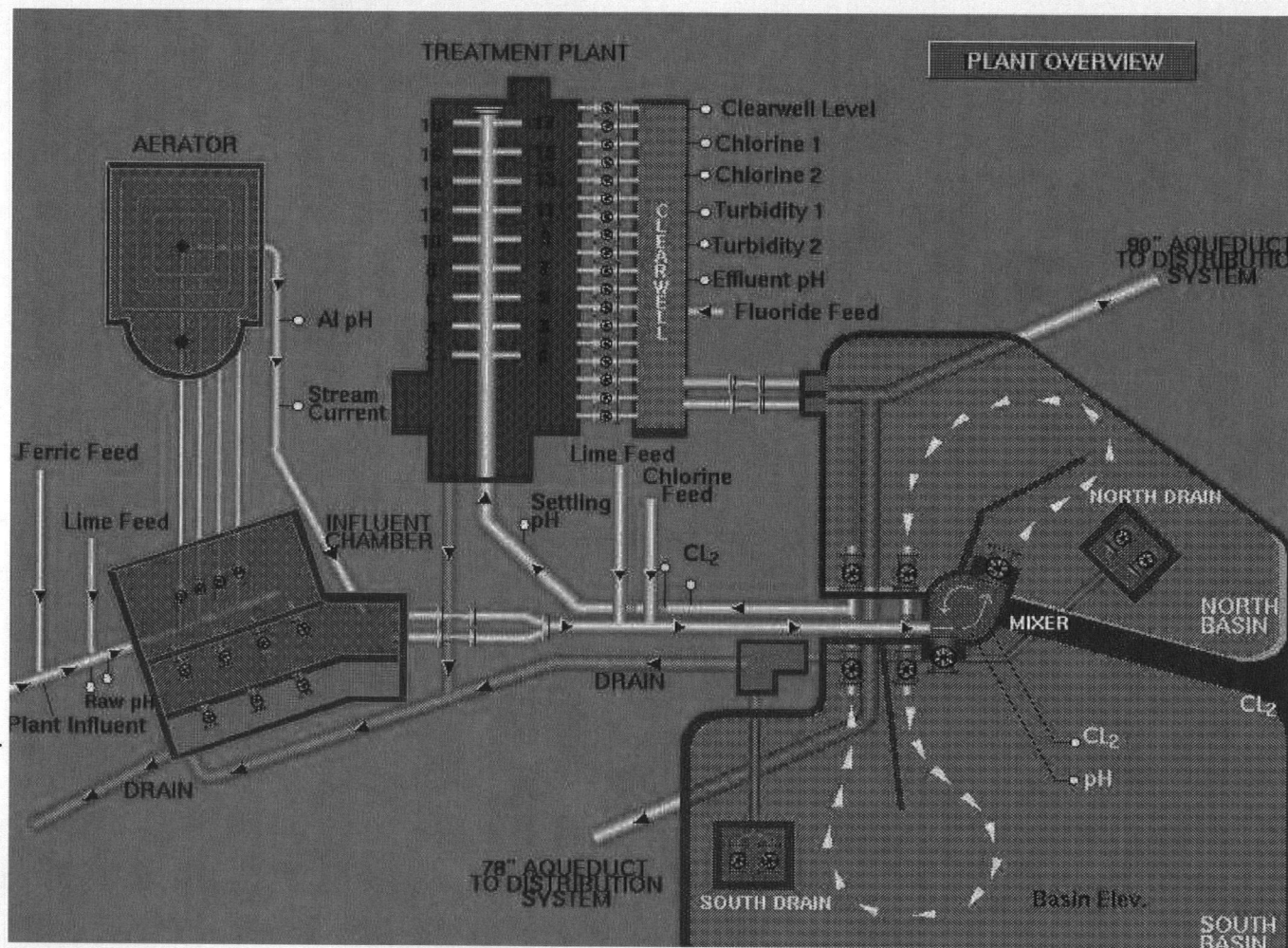
Aqueduct (Cranston)	43 mil. gal.
Neutaconkanut (Johnston)	42 mil. gal.
Longview (N. Providence)	24.8 mil. gal.
Ridge Road Tank (Smithfield)	3.4 mil. gal.

The four reservoirs combined provide sufficient storage for approximately one to one-half days, based on our average daily consumption.

Water samples are taken daily from the Purification Plant at each step in the treatment process, to ensure high-quality finished water. Samples are also obtained from 44 different locations throughout the distribution system, on a weekly basis, and 34 different locations on the watershed, on a monthly basis. The samples are subjected to a battery of chemical and microbiological tests, including pH,

alkalinity, color, chloride, iron, coliform bacteria, metals and volatile organics.

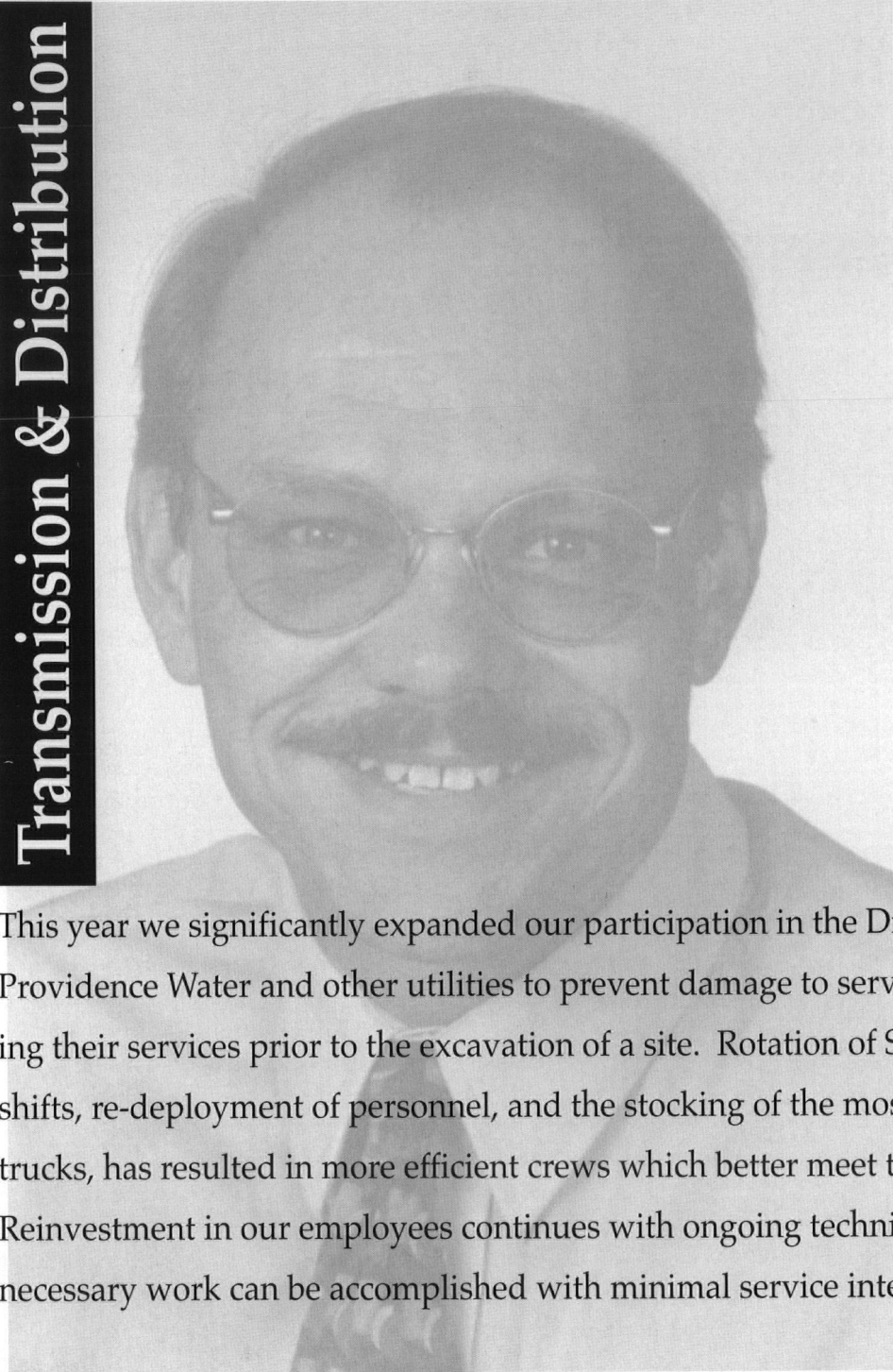
Our water continues to meet or exceed all of the requirements of the Safe Drinking Water Act.



tion prior to entering the filters.

We presently have 18 rapid sand filters, which give the plant a filtration capacity of 144 million gallons a day. The filters consist of concrete tanks with a series of collector pipes located on the bottom of the filter. The

## Transmission & Distribution

A black and white portrait of Paul Titzmann, Deputy General Manager. He is a middle-aged man with glasses, a mustache, and a slight smile, wearing a suit and tie. The portrait is positioned on the left side of the page, partially overlapping the 'Transmission & Distribution' header.

This year we significantly expanded our participation in the Dig Safe program which allows Providence Water and other utilities to prevent damage to service lines and mains by marking their services prior to the excavation of a site. Rotation of Supervisors to cover night shifts, re-deployment of personnel, and the stocking of the most commonly used materials on trucks, has resulted in more efficient crews which better meet the needs of our customers. Reinvestment in our employees continues with ongoing technical and managerial training so necessary work can be accomplished with minimal service interruptions to our customers.

Paul Titzmann, *Deputy General Manager*

## Human Resources

Significant goals have been achieved during the year. The position of Manager of Personnel has been filled, providing consistency in the handling of employee matters throughout the agency. Development of cross-trained employees and the reclassification of positions, along with successful resolution of personnel issues, has resulted in significant strides towards establishing and enforcing performance standards. Minimum job requirements continue to be elevated, resulting in more effective employees and better customer service.



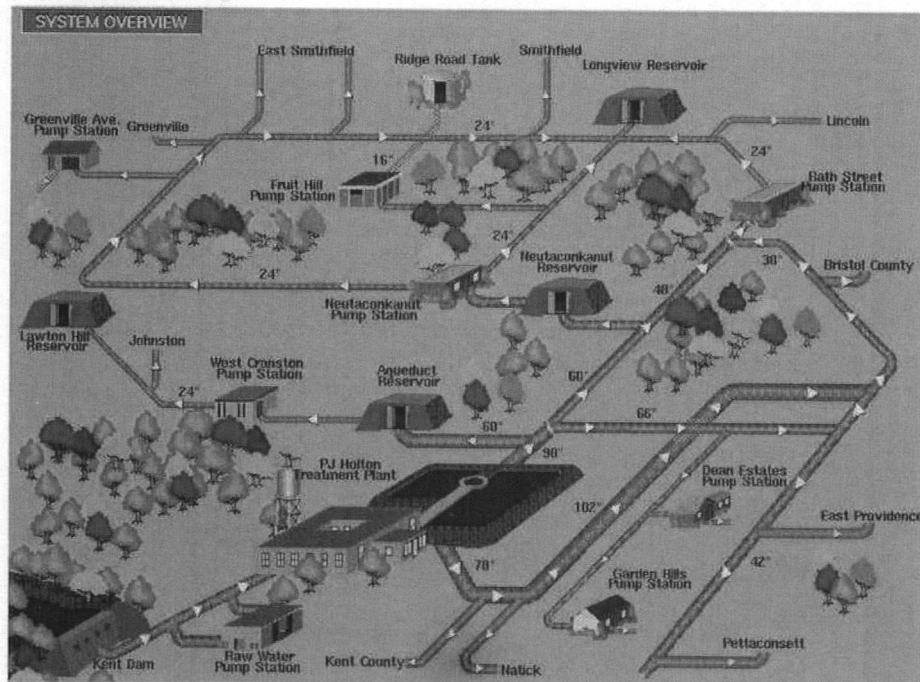
## Transmission

After the water supply has been treated, it is first directed to the clearwell at the treatment plant. Essentially, the clearwell is a large storage tank that stores treated water until it flows to the transmission lines. The addition of fluoride, which helps to prevent dental caries, actually occurs in the clearwell.

Finished water is then transmitted to the distribution system through two major transmission lines. The 90-inch diameter Scituate Tunnel

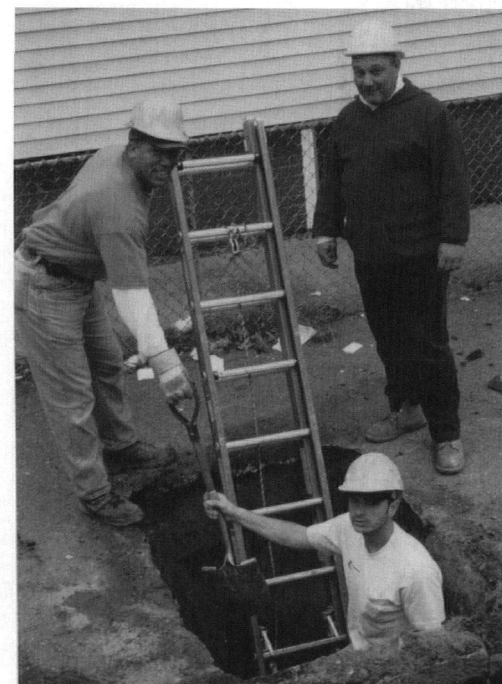


and Aqueduct transports water from the clearwell to the distribution system in an easterly direction, generally along a route that parallels Rhode Island Route 12, ending at the Siphon Chamber near Interstate 295. From the Siphon Chamber the transmission line splits into two lines: a 60-inch diameter concrete conduit, and a 66-inch diameter steel pipeline. The 60-inch line continues in a northerly direction, to feed the Neutaconkanut and Bath Street Pumping Stations and the Neutaconkanut Distribution Storage Reservoir. The 66-inch line continues easterly to the general area of Budlong Road in Cranston where further distribution begins. The second major transmission line is the Supplemental Tunnel and Aqueduct which starts at 78 inches in diameter and transports water in a southeasterly direction through the northern section of West Warwick. At this point, the transmission line expands to 102 inches in diameter and turns northerly to terminate in the general area of Budlong Road in Cranston where further distribution begins. The capacity of the 90-inch line is 100 MGD and the capacity of the 78-inch line is 77 MGD.



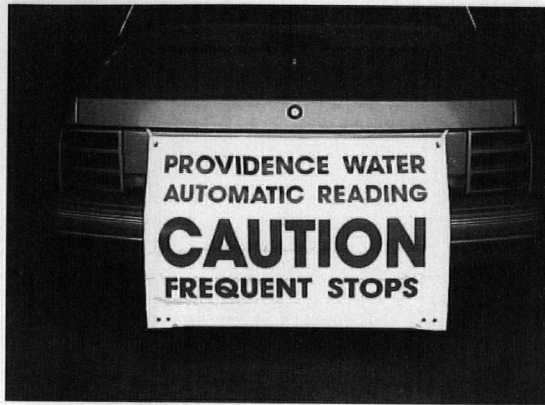
## Distribution

Providence Water's distribution system consists of 930 miles of pipe, 72,033 active service connections and 5700 fire hydrants. The retail distribution system is serviced by three separate pressure zones. The Low Pressure Zone serves elevations of up to 140 feet above sea level. This zone delivers approximately 70% of the total retail water. The High Pressure Zone supplies customers at elevations of 140 feet to 220 feet above sea level and the Extra High Pressure Zone serves customers at elevations of 220 feet to 310 feet above sea level.





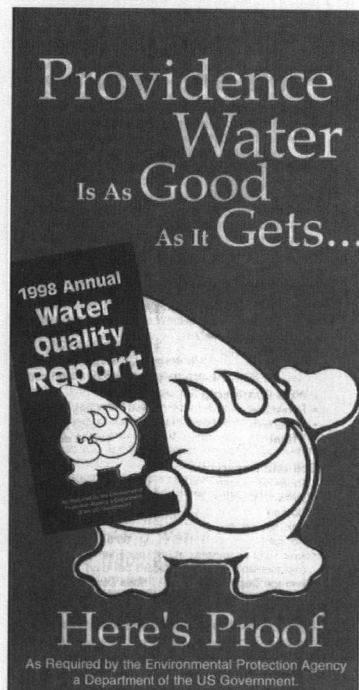
The **Commercial Services** Department is composed of the **Meters, Billing** and **Collection** divisions. New devices are being installed on meters of our retail customers that will emit a radio signal which will be received and processed by technicians driving a computer equipped vehicle. This new technology will enhance accuracy, efficiency and reliability by virtually eliminating any reliance on estimated meter readings. We have also renovated our telephone system and cross-trained our employees to ensure prompt and precise responses to customer inquiries.



## Automatic Meter Reading

Automated Meter Reading (AMR) will allow Providence Water to provide high quality service to all of our residential and commercial customers. Automated Meter Reading is projected to help us achieve the following benefits for our customers: accurate water bills; reduced entry into homes; long term savings; and revenue improvements that will keep rate increases to a minimum.

Implementation of this innovative technology will take place over the next three to five years. Providence Water has made significant efforts to keep our customers apprised of the advantages that these new metering devices will provide, and the progress we are making in our installation of them. Our website, [www.provwater.com](http://www.provwater.com), includes a FAQ page on AMR and maps which track the progress of new meter installation. We have also created an automated telephone information line which provides answers to our customers questions at 1-877-PWSB-AMR.



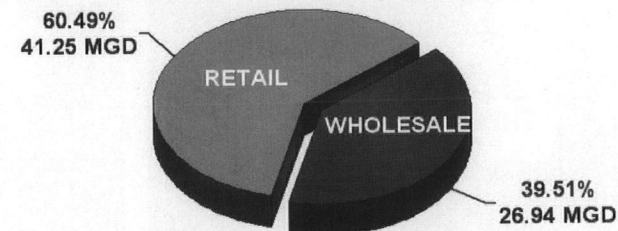
## Consumer Confidence Report

In 1996, the United States Congress amended the Safe Drinking Water Act to include a provision requiring all community water systems to deliver to their customers a summary of their water quality. The Consumer Confidence Report includes basic information on source of supply, levels of any detected contaminants, and some general educational material. Providence Water completed its first CCR in April of 1999, and we're pleased to report that we met or exceeded all regulatory requirements. A condensed version of our CCR may be viewed on our website.

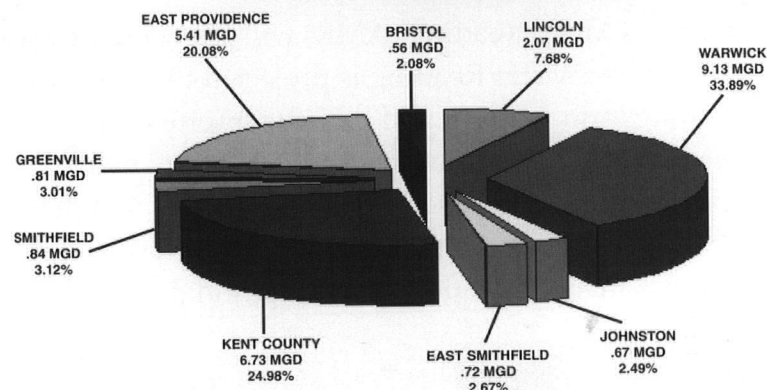


**Michael Russo, Director**

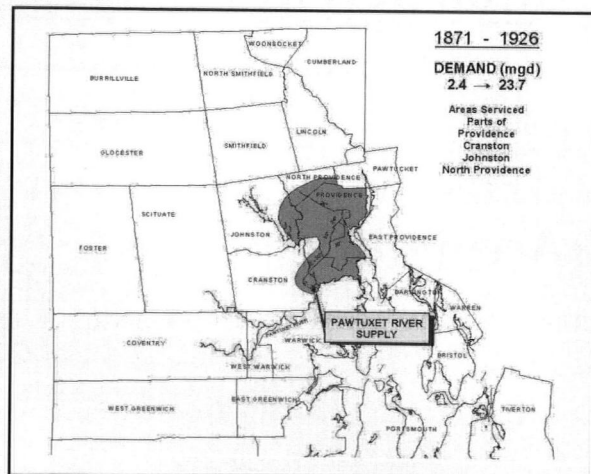
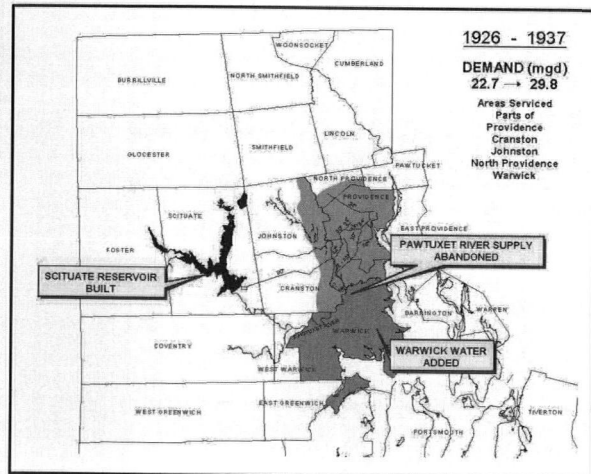
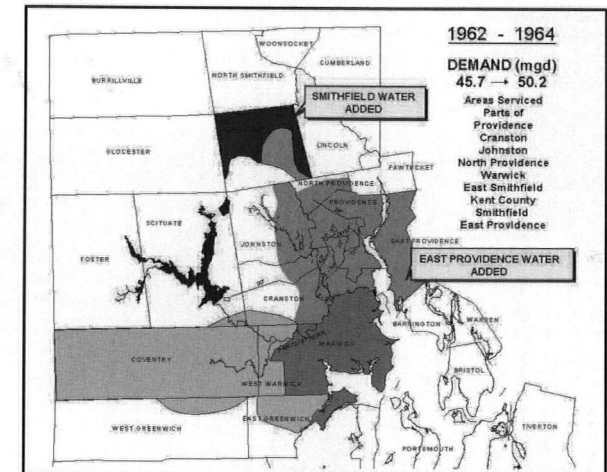
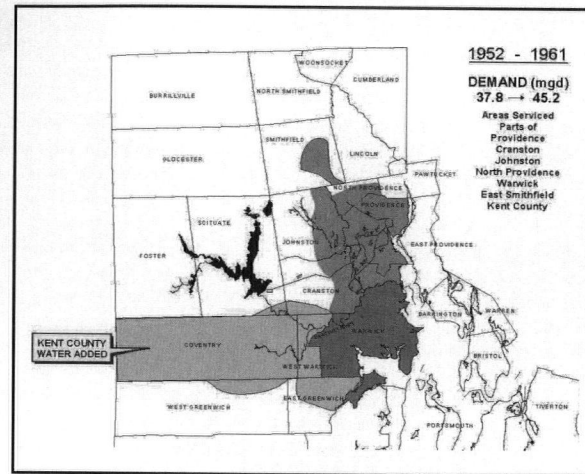
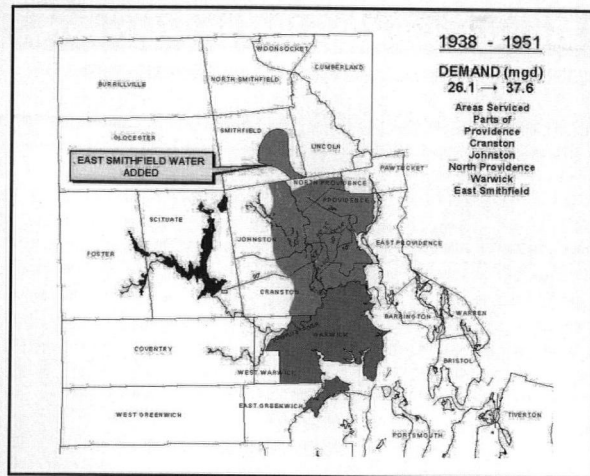
## RETAIL vs. WHOLESALE DEMAND



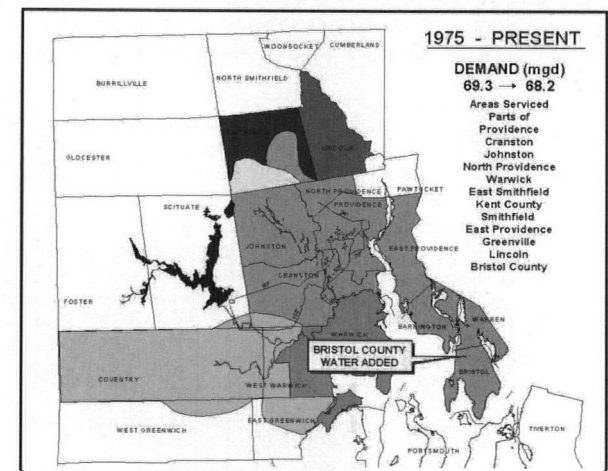
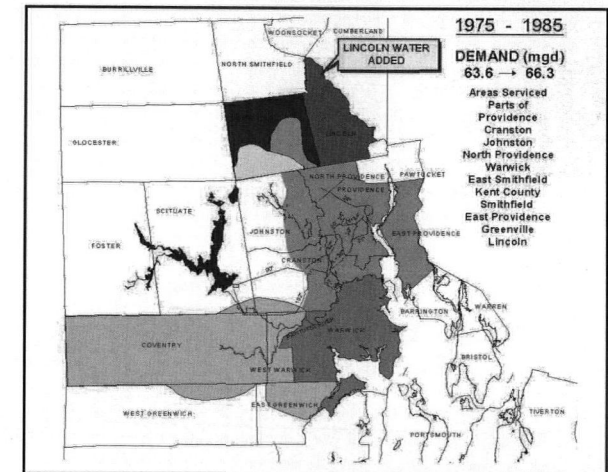
## WHOLESALE CUSTOMER DEMAND



The functions of **Planning and Economic Development** are incorporated into this department. The department's main efforts are directed toward promoting water sales in undeveloped areas within our influence, identifying new areas which could be amalgamated into our service area, participating in all efforts affecting our rate structure, developing long-range plans with our wholesale customers and municipalities with whom we deal, and acting as an intergovernmental communications coordinator. Retail customers include Providence, North Providence, Cranston and Johnston. Wholesale customers include the Warwick Water Department, East Providence Water Division, Kent County Water Authority, East Smithfield Water Company, Smithfield Water District, Greenville Water District, Lincoln Water Department, Johnston Water Department and Bristol County Water.

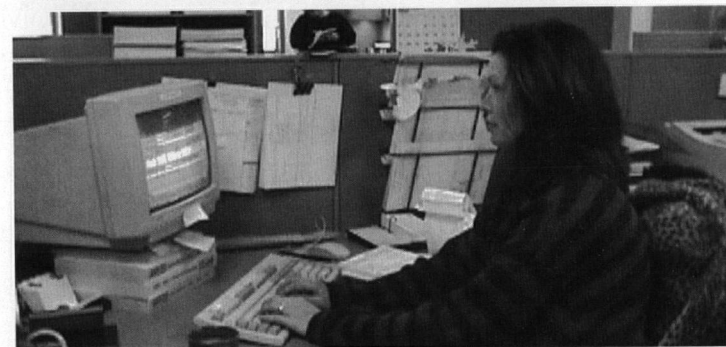
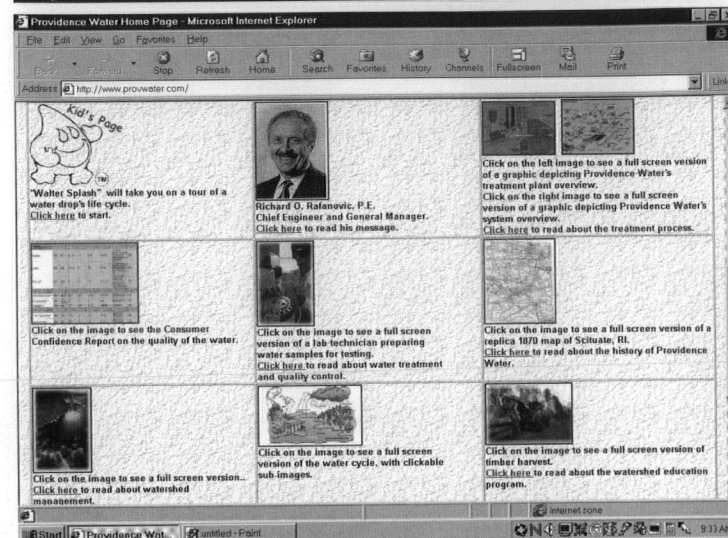


Most of the communities in central Rhode Island receive their water from Providence Water. We have determined that discovery and construction of a supplemental supply is absolutely necessary in order to serve the needs of all of our customers. The development of a supplemental water supply would be a major expense, and it is Providence Water's contention that this financial burden should be borne by all of those who will benefit from it. Providence Water has raised this matter with the Rhode Island Water Resources Board which has endorsed further study of this very important issue.



The **Finance Department** is composed of four divisions. In preparation for Y2K, **Information Services** has completed an inventory of our major system components with an eye toward awareness and testing. The IS division successfully launched our internet web site - [www.provwater.com](http://www.provwater.com) - as well as an intranet site replete with information of particular interest to our employees, including our **Training** schedule highlighting upcoming classes in areas such as Computer Applications, Interpersonal Communications, Customer Relations, Management Development, Work-Skills Development and Technical Training. The **Financial Planning** and **Accounting** divisions have implemented Oracle Government Financials and an ABRA payroll/human resources system which has significantly improved our efficiency in processing financial information.

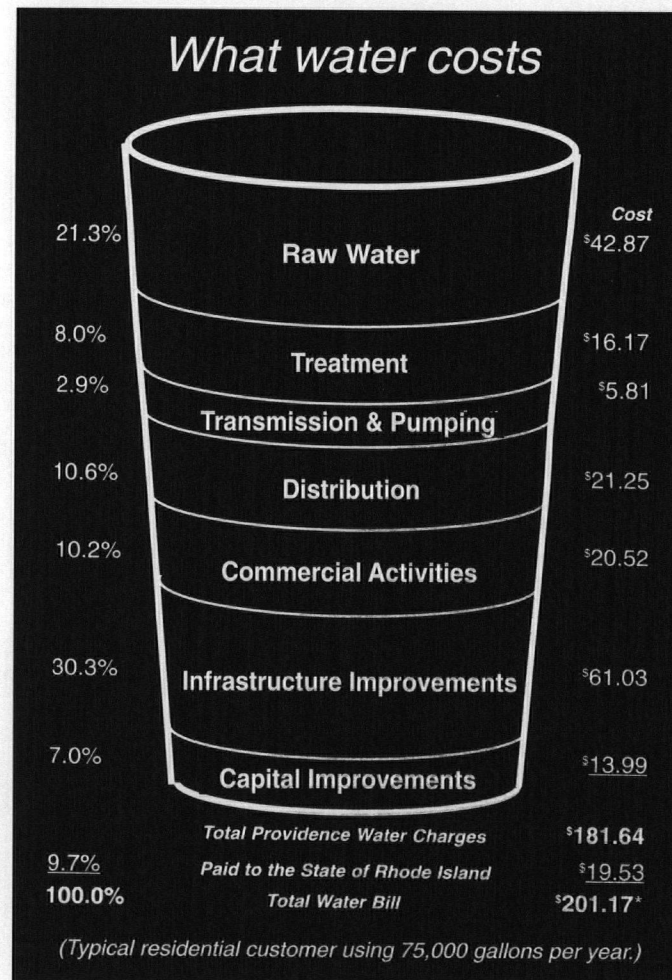
## Jeanne Bondarevskis, Acting Director



Providence Water manages five funds including an Operating Fund and various restricted funds authorized by State Legislation and the Rhode Island Public Utilities Commission. For the fiscal year ending June 30, 1999, our preliminary figures indicate an increase in Operating Revenues to \$35.6 million. This is attributable in part to a small increase in consumption with the addition of Bristol County Water Authority as a wholesale customer mid-way through fiscal year 1999. Operating Expenses increased moderately, resulting in an Operating Income of \$8.8 million for the year. Net Non-Operating revenue also increased from the prior year, which increased our bottom line to over \$9.5 million.

Providence Water's commitment to Infrastructure Replacement has resulted in an increase in Property, Plant and Equipment of approximately \$10 million net of Accumulated Depreciation. Operating and Restricted Current Assets experienced a decrease from the year before. This was primarily due to increased construction activities in

our Infrastructure Replacement Fund during the year. While our Total Capitalization increased, our Long Term Debt decreased. This occurred as Providence Water reinvested proportionally more into the system on a cash basis, as opposed to obtaining long term financing. Current Liabilities also decreased, both Operating and Restricted, indicative of Providence Water's good overall financial picture.



## Conservation Tips

- When you want a cool glass of water, pour it from a bottle of tap water kept in your refrigerator instead of running the tap for several minutes and save as much as 300 gallons of water each month!
- Use a pan filled with clean water to rinse your vegetables instead of running them under the tap and save more than 200 gallons each month!
- Stop defrosting your food under running water and save another 100 gallons!
- While you're waiting for hot water to pour from your tap, catch the cold water in a pitcher and water your plants with it. You may save up to 300 gallons per month!
- Save 300 gallons a month by watering your lawn early in the morning or in the evening when less evaporation will occur.
- Letting your lawn grow longer in the dry weather will keep your lawn's soil moister and save you as much as 500 gallons each month in extra watering!
- Switch to a low flow shower head and save between 500 and 800 gallons every month!
- You can save up to 700 gallons a month by shortening your shower by just one or two minutes!
- You can save 20 gallons of water each time you take a bath instead of a shower!
- Don't leave the water running while you're brushing your teeth or shaving and you can save 3 gallons of water!
- Use dye tablets from time to time to check for toilet leaks. If you find and repair a leak, you could save yourself 200 gallons a month!
- Fixing a leaky faucet or pipe joint can save you 20 gallons of water each day!

# Support Services

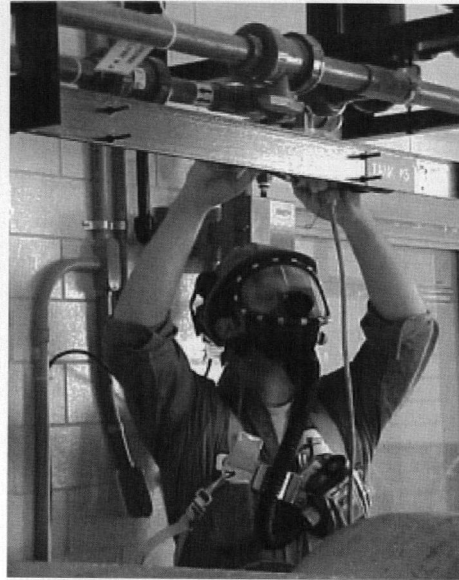
Joseph S. Spremulli, *Director*



Four separate divisions make up the **Support Services** Department. The division of **Facilities & Equipment** and the **Office of Intergovernmental Relations** continue to provide support to Providence Water's line departments. Our **Purchasing Division** has made constant improvements to our operations which ensure efficiency and economy in purchases made by Providence Water. The division of **Security and Risk** has made significant advances toward improved security at our facilities and continues to promote safe practices which reduce risks to our employees and the entire water system.

# Providence Water Facts

- For the average cost of one gallon of bottled water, Providence Water supplies you with nearly 750 gallons of clean, clear drinking water!
- Providence Water's average residential customer receives 90 eight-ounce glasses of water for a single penny!
- Since 1925, when the Scituate Reservoir opened, Providence Water has planted nearly 7.2 million trees in the reservoir watershed!
- More than 785 million gallons of water collect in the Scituate Reservoir when one inch of rain falls across the entire watershed!
- The Scituate Reservoir system holds over 40 billion gallons of water and covers nearly 4, 600 acres!
- An average of 66 million gallons of water leaves our water purification plant for consumption by retail and wholesale customers each day.
- Providence Water's customers consumed almost 25 billion gallons of water in 1999!
- Approximately 40% of Providence Water's water is sold to our wholesale customers.
- Providence Water's 72,033 direct pay retail customers consume 60 of every 100 gallons of water produced by Providence Water.

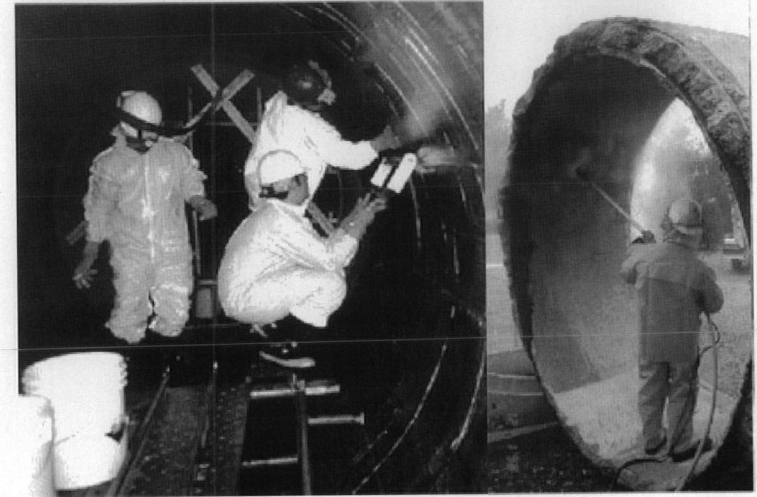


Providence Water is very attentive to safety issues. Our employees receive substantial training in their respective disciplines. Our Safety Committee was developed to review innovative safety procedures in an effort to decrease risks to our employees and promote safety in all areas of the organization.

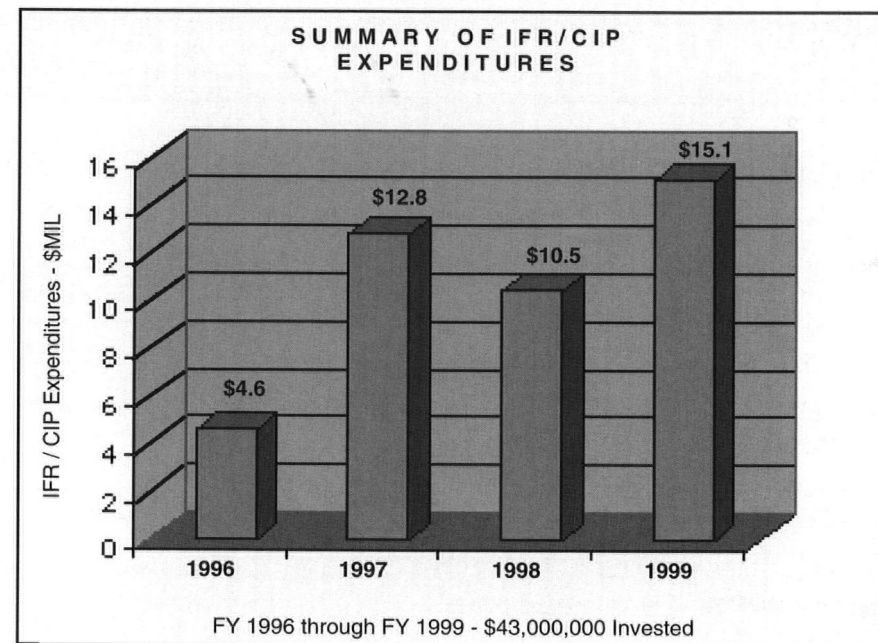
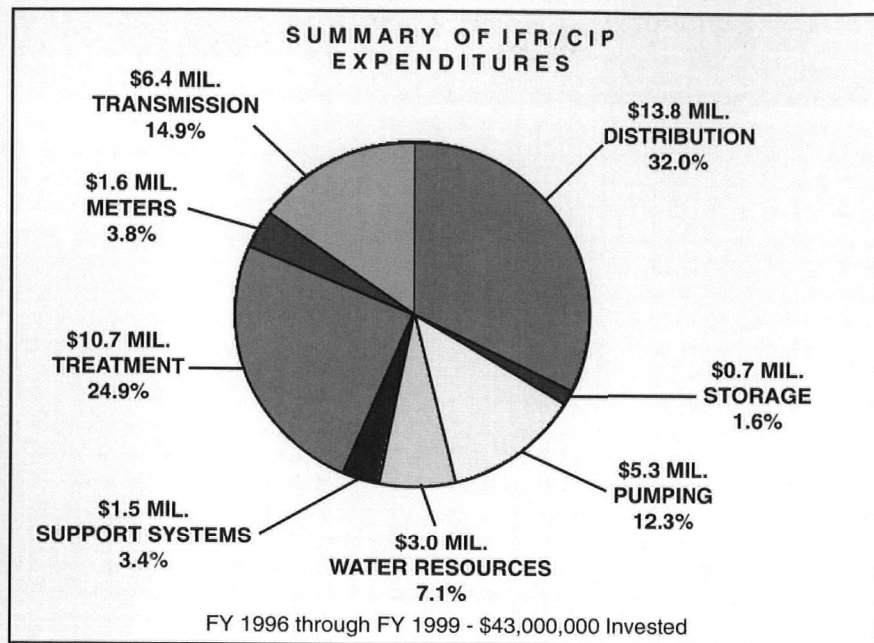
Our mechanics are responsible for maintaining a fleet of over one hundred and twenty vehicles.



We have implemented several new technologies which conform to our customer-friendly approach to communications. Included in our upgrades are our telephone system, our mail system and our record keeping system. We have also implemented procedures which ensure that all customer inquiries are answered in a prompt and knowledgeable manner.

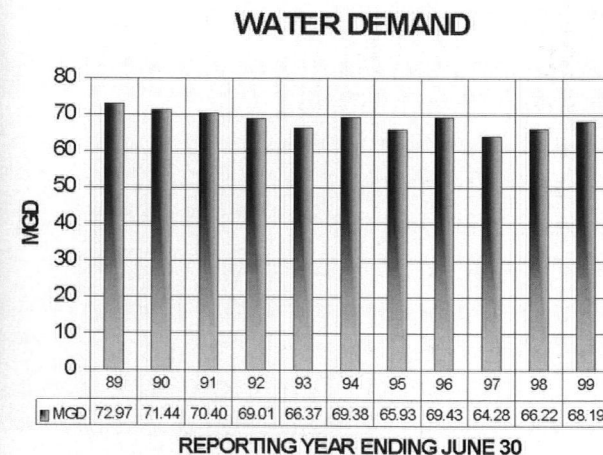


The **Engineering** Department performed extensive renovations on our 102" aqueduct, employing an innovative repair technique which had never before been utilized by a water utility. This technique, which involved the application of an epoxy-impregnated woven carbon-fiber fabric lining to the interior wall of the pipeline, merited such interest that articles about Providence Water were published in national magazines such as *Civil Engineering* and *Public Works*.



Looking into the future, Providence Water realized that the time had come to begin replacing the infrastructure of the current system in order to ensure that our children will receive the same reliable service and high quality water which we presently provide. In 1993, Providence Water's General Manager and Chief Engineer Richard O. Rafanovic, P.E., M.B.A., worked with the R.I. General Assembly to put into law a program that would allow utilities to set aside monies from rate revenues to ensure that facilities are protected against deterioration and obsolescence.

Once the necessary funding for this project was made available in 1996, Providence Water embarked upon a progressive 20-year infrastructure reinvestment plan. This plan provides for the investment of a total of \$200,000,000 to continue replacing and upgrading our facilities to ensure the continuance of a safe and reliable water supply well into the twenty-first century. To date, Providence Water has invested four years of work and some \$43,000,000 into the rehabilitation of our facilities through our formal infrastructure replacement program.



# PRVIDENCE WATER IMPROVEMENT PROJECTS • FY 1996-1999

<u>Project</u>	<u>Status</u>
Upgrade Bath St. Pump Station	Completed
Upgrade Neutaconkanut Pump Station	Completed
Central Control Board Replacement	Substantially Completed
Chlorine Room Modifications	Substantially Completed
Sludge Handling / Disposal	In Progress
Rehabilitate Burton Pond Dam	Completed
Improvements to large dams (Gainer Dam)	Completed
Improvements to large dams (Ponagansett Reservoir)	Completed
Replace Effluent Valve Actuators	Completed
Replace Lime Feed Equipment	Completed
Replace Ferric Feed System	Completed
Longview Reservoir - Structural Rehabilitation	Completed
Replace Electronic Process Monitoring Equipment	Completed
Upgrade Service Water / Wash Water System Controls	Completed
Treatment Plant - Replace Roof / Insulation	Completed
Treatment Plant - Replace Boilers & Water Heaters	Completed
Corrosion Protection - Twin 60" Mains	Completed
Upgrade Electrical Supply System to Treatment Plant	Completed
Wash Water Tank - Replace Check Valves	Completed
Raw Water BPS Generator Replacement	Completed
Installation of Level Measuring Equipment	Completed
Filter Gallery Rehabilitation	Completed
Replace Distribution Valves	In Progress
Replace Fire Hydrants	In Progress
Replace Lead Services	In Progress
Replace 16" & Larger Valves (1871 - 1900)	In Progress
Replace / Upgrade Water Mains	In Progress
Replace Water Meters	In Progress
102" Aqueduct - Inspection & Rehabilitation	In Progress
Aqueduct Reservoir - Inspection & Rehabilitation	In Progress
Rehabilitate Interior of Clearwell	In Progress

# PROVIDENCE WATER IMPROVEMENT PROJECTS • FY 1996-1999

## Project

## Status

Concrete Repairs Effluent Clearwell Yard	In Progress
Convert Secondary Voltage from 550V to 480V at the Treatment Plant	In Progress
Academy Avenue Office Renovation	In Progress
Rehabilitate Roads / Fencing & Pumping Stations / Transmission Lines	In Progress
Replace Sand Filters	In Progress
Remove / Replace Underground Storage Tanks	In Progress
Aqueduct Pump Station Electrical Upgrade	In Progress
Purification Plant Lab Space Modifications	Design
Raw Water BPS Rehabilitation - Replace Valves	Design
Emergency By-Pass Rehabilitation	Design
Cathodic Protection - Transmission Mains	Design
Improvements to Large Dams (Westconaug)	Design
Improvements to Large Dams (Barden)	Design
Study / Evaluation of Secondary Dams	In Progress
Improvements to Large Dams (Moswansicut)	Design
Replace Telephone System	Completed
Academy Avenue Administration Building - Heating System	Completed
Academy Avenue Administration Building - Ventilation Improvements	Completed
Academy Avenue Administration Building - Roof Insulation	Completed
Forestry Garage Roof / Insulation	Completed
Various Pump Stations - Electronic Equipment Upgrades	Completed
Neutaconkanut Gate House - Replace Roof	Completed
Dean Estates Pump Station - Replace Roof	Completed
Aqueduct Siphon Chamber - Replace Roof	Completed
Auxiliary Wash and Blower System for Filters	Completed
Neutaconkanut Hill Pump Station	Completed
Forestry Building Office Construction	Completed
Electronic Treatment Process Monitoring Equipment	Completed
Treatment Plant - Install Pipe for Effluent Metering / Sampling	Completed
New Fencing and Roads - Providence Water Property	In Progress
Automatic Meter Reading System	In Progress
Security Upgrade at Treatment Plant and Facilities	In Progress
Study for Alternate Supply Sources	In Progress

**Providence Water Supply Board**  
**Statement of Revenues and Expenses**  
**for the Years Ended June 30, 1999 and 1998**

	Unaudited 1999	Audited 1998
Total Operating Revenues	\$35,622,857	\$31,917,122
Total Operating Expenses	<u>26,803,192</u>	<u>24,048,824</u>
Operating Income (Loss)	8,819,665	7,868,298
Net Non-Operating Revenues (Expenses)	<u>688,944</u>	<u>389,754</u>
<b>Net Income</b>	<b>9,508,609</b>	<b>8,258,052</b>
Retained Earning - beginning of year	<u>38,006,745</u>	<u>29,748,693</u>
<b>Retained Earnings - end of year</b>	<b>47,515,354</b>	<b>38,006,745</b>

**Statement of Contributed Capital and Retained Earnings**  
**for the Years Ended June 30, 1999 and 1998**

	Contributed Capital	Reserved Retained Earnings	Unreserved Retained Earnings
Balance at June 30, 1999	57,215,976	9,770,289	37,745,065
Balance at June 30, 1998	56,828,167	7,821,475	30,185,270

**Balance Sheet**  
**for the Years Ended June 30, 1999 and 1998**

	Unaudited 1999	Audited 1998
<b>ASSETS</b>		
Property, Plant and Equipment	\$177,252,813	\$163,411,203
Less Accumulated Depreciation and Amortization	<u>45,190,515</u>	<u>41,077,731</u>
Net Property, Plant and Equipment	132,062,298	122,333,472
Total Operating Current Assets	11,465,889	13,204,495
Total Restricted Current Assets	<u>4,495,185</u>	<u>10,335,511</u>
<b>Total Assets</b>	<b>148,023,372</b>	<b>145,873,478</b>
<b>CAPITALIZATION AND LIABILITIES</b>		
Capitalization		
Total Capitalization	104,731,279	94,834,860
Total Long-Term Debt	27,266,387	31,182,258
Total Operating Current Liabilities	14,765,952	17,341,364
Total Restricted Current Liabilities	<u>1,259,754</u>	<u>2,514,996</u>
<b>Total Liabilities and Capitalization</b>	<b>148,023,372</b>	<b>145,873,478</b>

(Please note that the 1999 amounts have not been audited and reflect preliminary amounts as of October 25, 1999.)

Detailed financial, engineering and statistical data is available in Volume II of the Providence Water Annual Report. Please call (401) 521-6300 to request a copy.

**Reservoir Watershed****Drainage Area**

92.8 square miles ~ (59,392 acres)

**PWSB Ownership**

Forest 11,685 acres  
Reservoir 4,563 acres  
16,248 acres

**Scituate Reservoir**

Shoreline length: 66 miles  
Dimensions: 7 miles x 2.5 miles  
Depth: 32 feet (avg); 87 feet (max)  
Spillway elevation: 284.01 feet  
Spillway storage: 36.611 billion gallons  
Maximum elevation: 285.35 feet  
Max. elevation storage: 38.094 billion gallons  
Safe yield (98% confidence): 92 million gallons / day (MGD)

**Phillip J. Holton****Water Purification Works**

Placed in service: 1926  
Filtration capacity: 144 MGD  
Treatment process: conventional

**Distribution System**

Active services: 72,033  
Distribution mains: 930 miles  
Fire hydrants: 5,700



## *Protecting our Watershed and Preserving our Resources*

The Scituate Reservoir watershed is one of the most beautiful areas in Rhode Island. This spectacular area is a very special place because it collects, naturally filters and stores raw water from rainfall and melting snow. The Scituate watershed covers almost 60,000 acres of land, representing almost 9% of the State of Rhode Island's land mass. In all, six reservoirs cover 4,600 acres and hold more than 40 billion gallons of water. That's more than a year's reserve of our drinking water supply on average.

Providence Water's Scituate Reservoir Watershed Management Plan was developed to ensure the long-term water quality of the Scituate Reservoir. This plan focuses on land use planning, development



controls and the identification and control of potential pollution sources.

In fulfillment of an objective outlined in our Watershed Management Plan, Providence Water has developed a strong watershed patrol function responsible for monitoring and controlling all activities within the watershed. It includes an active forestry program directed at developing the best tree cover for the forest environment while promoting controlled water retention and runoff. Forestry management activities are conducted on about 12,000 acres of forest land, and some timber is sold for profit in an environmentally sensitive manner.

# **Providence** **Water**

552 Academy Avenue  
Providence, Rhode Island 02908-2792  
401.521.6300  
[www.provwater.com](http://www.provwater.com)