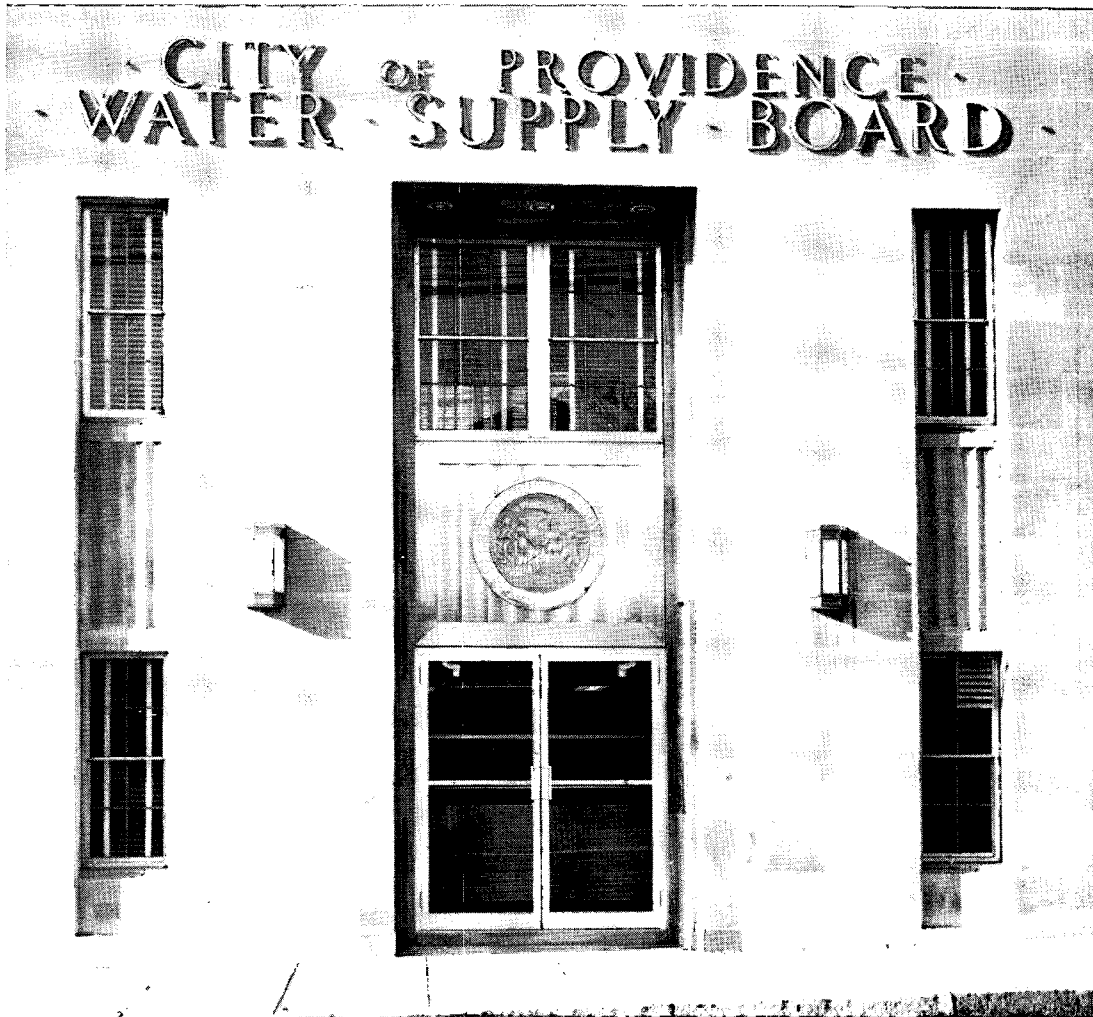


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## ANNUAL REPORT



For the Year Ended September 30, 1955

108

CITY DOCUMENT

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ANNUAL REPORT  
OF THE  
WATER SUPPLY BOARD  
OF THE  
CITY OF PROVIDENCE  
RHODE ISLAND

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For the Year Ended September 30, 1955



# REPORT

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ADMINISTRATIVE OFFICE,  
WATER SUPPLY BOARD  
CITY OF PROVIDENCE  
OCTOBER 1, 1955

TO THE HONORABLE WALTER H. REYNOLDS, MAYOR, AND  
THE HONORABLE CITY COUNCIL:

*Gentlemen:*

In compliance with Chapter XX of the Charter of the City of Providence, enacted by the General Assembly of the State of Rhode Island at its January Session, A. D. 1940, and approved April 26, 1940, we have the honor to present the fourteenth annual report of the Water Supply Board for the year ended September 30, 1955.

On January 3, 1955 Earl H. Ashley was re-appointed a member of the Water Supply Board for a 4-year term ending on the first Monday in January 1959.

At the re-organization meeting of the Board held on January 10, 1955 Thomas H. Driscoll was re-elected Chairman and John J. Deary was re-appointed Secretary.

The Board has held regular meetings throughout the year, meeting practically every week, at which careful consideration has been given to the many problems arising in connection with maintenance and operating activities, the Department's financial structure, matters relative to taxes levied on property owned in nearby communities, and other miscellaneous departmental duties which properly come before the Board. Special meetings

were held throughout the year for consideration of particular problems which have arisen.

The report of the Chief Engineer with many important tables and statistical data is appended hereto, to which we invite your attention for details and particular information regarding the finances of the Department and conduct of the work during the above period.

Respectfully submitted,

WATER SUPPLY BOARD

THOMAS H. DRISCOLL, *Chairman*

JOHN A. DOHERTY

EARL H. ASHLEY

UGO RICCIO

MICHAEL N. CARDARELLI, Ex-Officio

*John A. Doherty*  
*Chairman*

IN CITY COUNCIL  
FEB 2 - 1956

READ:

WHEREUPON IT IS ORDERED THAT  
THE SAME BE RECEIVED.

*Everett Whelan*  
CLERK

## REPORT OF THE CHIEF ENGINEER

Providence, R. I.  
October 1, 1955

WATER SUPPLY BOARD  
CITY OF PROVIDENCE

*Gentlemen:*

The following is the report of operations of the Providence Water Works for the fiscal year ended September 30, 1955.

Construction of the new 24-inch High Service Force Main in the northwesterly section of the distribution system, which began on July 12, 1954, was completed on July 19, 1955. Final tests were made and the project was accepted on September 6, 1955. Actual construction work was completed in 372 calendar days, 78 days ahead of the estimated 450. The project involved a total construction cost of \$546,457.27, and included 30,630 linear feet of 24-inch pipe at an average laid cost per foot of \$17.84. This includes incidental costs of valves, fittings and branch outlet connections. The new main was constructed of prestressed reinforced concrete cylinder pipe, with a short section of cast iron pipe, 302 ft. in length. Five 16" rotary plug valves were installed at critical points of control, with the conventional type of gate valves at intermediate points for sectionalizing in emergencies.

With the placing of the new Force Main in service, pressure deficiencies in the Greenville Avenue area were completely eliminated, and the pumping capacity at Neutaconkanut Station increased by approximately ten per cent, due to the additional outlet capacity. Completion of this work brings water

service and fire protection into new areas along Atwood Avenue and Cherry Hill Avenue in Johnston, and represents the only major improvement to the high service system since 1938. The project was financed by a special appropriation from the Water Depreciation and Extension Fund.

The construction of new extensions to the distribution system and replacement of existing mains required the installation of 56,768 ft. of various size pipe. The greater part of this footage was installed by private contractors under competitive bidding. Five contracts, involving 54,921 ft. of main extensions and replacements, were awarded during the year; one to Fanning & Doorley Construction Co. Inc. for 7,349 ft., one to John Ambrose for 5,687 ft., two to A. E. Bragger Construction Co. for 25,082 ft., and one to Sun Valley Construction Co. for 16,803 ft. In connection with highway construction in the City, 612 ft. of water main was installed, this work being done by our own forces. Main extensions were laid in 235 different streets, with approximately 8,439 ft. uncompleted by the end of the year.

Capital improvements in the distribution system, including the regular main extensions, new services, gate valves and hydrants, amounted to \$372,937.12. Adding this to the cost of the 24" High Service Force Main, which amounted to \$546,457.27, brings the total cost of improvements completed during the year to \$919,394.39.

Meters repaired and tested in our Meter Shop totalled 9,099, an increase of 2,570 over the previous year. The cost averaged \$2.65 per meter as compared with \$3.70 during the previous year. The substantial increase in the number of meters repaired and the reduction in cost of repairs is due in large measure to the modern facilities and efficient arrangement provided when the Meter Shop was relocated from the second floor to the ground floor of the Administration and Operations Building in July, 1954.

Applications for water service totalled 1,270, or 130 more than in the previous year. Of this number, 169 required extensions to the distribution system. A total of 1,206 new services was installed, an increase of 101 over the previous year. A new 12-inch service from the 30-inch Southeasterly Trunk Main in Dresden Street, Cranston, to provide an additional supply for the City of Warwick, was placed in service on October 22, 1954. This installation, and an additional 12-inch connection in Oaklawn Avenue, Cranston, which was placed in service on September 22, 1954, was made by the Bragger Construction Co. for the City of Warwick, supplementing the two original connections to our system which the City of Warwick had depended upon to supply its needs.

At the request of Governor Dennis J. Roberts, two fully equipped utility trucks and crews were dispatched to the City of Woonsocket on Saturday, August 20, 1955, following the disastrous floods of Hurricane Diane, to aid in the control and repair of their badly disrupted water distribution system. The crews assisted in the operation of valves, mainly at bridge and river crossings, in order to isolate broken mains and restore normal pressures to usable sections of the system. While these operations were being carried on, other crews with technical assistance and equipment furnished by this department were setting up emergency chlorinating stations to sterilize and safeguard the water reaching consumers located away from the flooded area. By 2:30 A.M. Sunday, the broken mains were isolated, and with pressures returning to normal the Providence utility crews were released. Chlorinating equipment was left in service to be operated and controlled by the Woonsocket water officials.

Continuing the replacement program of worn filter control valves at the Purification Works, four 12" electric motor operated butterfly valves, purchased in the previous year, were installed on the effluent piping of filters No. 3 and 4. These new rubber lined butterfly valves will be operated both as automatic control and positive shut off valves. Each single unit

replaces and does the work of three valves required in the original installation. On August 29, 1955, a contract for \$11,192.00 was awarded to Builders-Providence, Incorporated covering eight additional 12" electric operated butterfly valves for filter controls. The installation of these additional units is planned for the spring of 1956, and will leave 16 of the original 28 valves installed in 1926 to be replaced in the future. Contracts and purchase orders totalling \$5,692.44 for miscellaneous cast iron pipe, pipe fittings and electrical supplies incidental to the valve replacement program also were awarded for this work.

Studies also were undertaken to determine the proper type valve replacement for the 24" filter wash water gate valves, installed in 1926. Most of these valves have had a service life in excess of 7000 operations, and due to the unusual service requirements are in need of early replacement. Field observations were made to determine actual and safe speeds of operation, loss of head conditions across the valves, and rates of flow at various positions throughout the opening and closing cycles. Filter sand expansion and rise in inches per minute were observed simultaneously with the operation of the valves. It has been recognized for some time by leading waterworks authorities that the standard double disc gate valve is unsatisfactory for filter wash water service. Studies are being continued as to the relative merits of butterfly valves, solid wedge gate valves and rotary plug valves for this service.

Plans and specifications have been completed to expand the electrical power transmission facilities between the Hydro-Electric Station and the Purification Works in Scituate. Transformer capacity at the Purification Works will be increased from a present total of 200 KVA to a new total of 1000 KVA, which represents 100 per cent standby capacity for estimated plant requirements to the year 1975. The new design also provides 100 per cent standby in the underground cable transmission facilities, and increases the number of power circuits available within the plant to provide for expansion of existing

facilities and anticipated future requirements. Incoming power centers are the dry type air cooled transformers, and control centers are enclosed in steel cubicles with external push button or lever operation for maximum protection of operation personnel.

A long range comprehensive study of overall requirements at the Water Purification Works was started by the engineering force, and outline plans are being prepared to coordinate anticipated growth and expansion of the plant for the next twenty years. These studies will continue, and all future modifications, alterations, changes or other requirements will be carried out as an integral part of this master plan.

Under the terms of Chapter 1525 of the Ordinances and Resolutions of the City of Providence for 1946, this department was charged with the operation of the sewer rental law, which took effect October 1, 1946. During the fiscal year ended September 30, 1955, the gross sewer rental collection totalled \$153,-499.20.

During the year two coupe model passenger cars, two station wagon passenger cars, three meter trucks and one utility truck were purchased to replace obsolete equipment. At the end of the year the automotive and construction equipment owned and in use by the department totalled 25 various trucks, 18 passenger cars including 2 jeeps, 9 compressors, various pumps and other miscellaneous construction equipment. The records of the department indicate that trucks were operated a total of 35,196 truck hours at a cost of 63.3 cents per hour including depreciation, compressors 3,309 hours at 75.5 cents per hour, and passenger cars were driven a total of 210,036 miles at a cost of 5.3 cents per mile.

In addition to the special studies and projects described, the Engineering Staff was engaged in more or less routine work of analyzing local distribution system problems, making flow and pressure tests, real estate surveys, and preparing inven-

tories and appraisals. Consumer demands were investigated individually for proper size of service and meters, and the inspection of contract work on new installations and the preparation of permanent records and estimates for payment were part of the regular duties. Tax valuations in communities outside of Providence for assessments shown in Table 50 of the appendix were prepared, and pertinent operation data and records for future and long range studies were assembled and tabulated in the usual manner.

## SOURCE OF SUPPLY

### SCITUATE WATERSHED—RAINFALL AND RUNOFF

The rainfall on the 92.8 square mile Scituate Watershed above Gainer Dam was measured as usual by rain gages at Rocky Hill, Hopkins Mills, North Scituate, Westcott District and Gainer Dam. For the year ending September 30, 1955, a total of 56.00 inches was recorded which is 7.73 inches above the 40 year (1915-1955) average of 48.27 inches. The rainfall for the year was 116% of the long term average.

The longest period of rainfall occurred between April 24 and 29, 1955, when a total of 3.09 inches was recorded with a maximum of 1.30 inches on April 28, and a minimum of 0.02 inches on April 27. The longest period of no rainfall was between November 6 and 16, 1955.

During the months of November and December 1954, and February, June, August and September 1955, the rainfall exceeded the 40 year averages for the respective months; the maximum monthly rainfall occurring in August when 12.75 inches was recorded, exceeding the average for August by 8.00 inches. The maximum days rainfall for the year was on August 18 when 4.70 was recorded, with the station at Hopkins Mills measuring 6.19 inches. The minimum monthly rainfall, 1.00 inches, was measured during January 1955, which was 3.08 inches below the 40 year average for that month.

During the months of January, March, April, May, June and July 1955, the monthly runoff was below the 40 year average for the respective months, with a maximum deficiency of 0.96 inches in April 1955. The maximum monthly runoff was in December 1954, when the amount collected totalled 5.90 inches or 3.39 inches above the 40 year average for that month.

Statistical rainfall and runoff data for the year ending September 30, 1955 and the 40 years of previous watershed record may be found in Tables 1, 2, 3 and 4 of the Appendix.

## SCITUATE WATERSHED

### STORAGE, DRAFT AND YIELD

On October 1, 1954 the water in Scituate Reservoir was at elevation 282.61 or 1.40 feet below the spillway level; the total storage then amounting to 35,513,000,000 gallons, or 96% of reservoir capacity. At the end of the year (October 1, 1955), the reservoir was at elevation 279.97 or 4.04 feet below the spillway; the storage amounting to 32,748,000,000 gallons or 88.5% of capacity. From October 1, 1954 the elevation fluctuated downward to 281.82 on December 11, with a storage of 34,667,000,000 gallons. From December 11, the elevation rose rapidly and reached spillway elevation 284.01 on December 20. The elevation continued rising to 284.75 on January 4, 1955 and remained above spillway level until January 14. The elevation receded from that date to 281.00 on February 5, and then rose steadily reaching the top of spillway on April 30. The level continued rising and reached a maximum for the year of elevation 284.78 on May 17, 1955. The storage at this maximum level was 37,874,000,000 gallons or 102.3% of reservoir capacity. The storage remained above spillway until June 8, and fluctuated downward gradually to 280.01 on September 30, 1955, which was the minimum elevation for the year, representing a storage of 32,790,000,000 gallons or 88.6% of capacity.

The combined storage on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponagansett and Scituate Reservoirs, on October 1, 1954 amounted to 39,803,000,000 gallons or 96.4% of combined total capacity; and at the end of the year September 30, 1955 the combined storage was at the minimum of 36,977,000,000 gallons or 89.6% of combined total capacity. The maximum combined storage for the year occurred on January 2, 1955 at 42,166,000,000 gallons, which is 102.2% of total combined capacity.

Available storage statistics in detail will be found in Table 5 of the Appendix.

The total draft from the watershed for the year was 54,035,090,000 gallons or an average of 148,040,000 gallons per day. The draft for water supply purposes was 15,845,050,000 total gallons or an average of 43,410,000 gallons per day. The discharge into the north branch of the Pawtuxet River totalled 38,190,040,000 gallons, equal to 104,630,000 gallons per day. The discharge to the river was released at rates and during the hours which were most advantageous to the mills on the Pawtuxet River below the Gainer Dam.

The yield from the Scituate Watershed for the year was 51,209,090,000 gallons or an average of 140,300,000 gallons per day which is 7,740,000 gallons per day less than the total draft, and 30,750,000 gallons per day in excess of the 40 year average (1915-1955).

Draft and yield statistics will be found in Table 6 of the Appendix.

## SCITUATE WATERSHED

### FORESTRY OPERATIONS—1955

Forestry operations during the year 1955 have resulted in the expansion of roadside brush control areas, plantation pruning, thinning of natural stands and plantation pine, hurricane salvage, reforestation and related operations.

Hurricane damage resulting from the hurricanes of August 31st and September 11th, 1954 necessitated special attention in the forestry program for 1955. Hurricane salvage was handled by our regular pulpwood crews and resulted in 21,700 f.b.m. of small white and red pine sawlogs. By June 1955, hurricane salvage of blowdown areas had been subjected to cutting operations and was 95% completed in the pine plantations. The remaining 5% of hurricane damage occurred as scattered single tree blowdowns, and is scheduled for removal in the course of our regular plantation thinning program.

In line with forest conditions on the watershed, the forestry program has been directed toward:

- (1) Thinning in pine plantations.
- (2) Selective thinning in natural white pine.
- (3) Conversion of hardwood site possession to pine.

Under our thinning program, we are now operating our 20-30 year old pine plantations for pulpwood. It is important that a fast rate of growth be maintained in our plantations if we are to produce good quality lumber at a relatively young age. Older plantations which have not been thinned are exhibiting a decreasing growth rate due to the existence of a greater number of trees per acre than the physical and mineral carrying capacities of the soil can support. As trees grow older their crowns and roots expand. In the 20th year, individual trees are in strong competition with one another for available light, water and mineral nutrients. The cutting of selected trees reduces crown and root competition, while leaving the better trees to grow at a satisfactory rate. The trees to be removed are marked by the Forester on the basis of tree form, vigor and spacing. Volume removal is limited to no more than 1/3 of the total stand volume and leaves from 400-450 trees per acre after thinning. The ideal thinning leaves a maximum number of trees per acre which can completely utilize the available supplies of light, moisture and mineral nutrients.

Plantation thinning methods on the watershed are described as follows:

- (1) In alternate row red and white pine plantations, it is usually necessary to remove the white pine almost completely due to heavy weevil damage to the white pine leaders.
- (2) In pure stands of red or white pine, tree marking is entirely on the basis of form, vigor and spacing on a selective basis.

Natural white pine stands exist on the watershed as a result of white pine seed trees discharging large quantities of seed into open fields. Conditions in natural white pine stands differ sharply from those of plantations. In planting an open field, we limit the number of trees to no more than 1000 per acre. With natural seeding, the number of trees may rise to 2000 per acre with resulting stand stagnation at an early age. It is fortunate that the majority of the natural white pine stands contain an appreciable amount of pitch pine. Pitch pine is an excellent pulpwood species in Rhode Island, but it is not valuable as lumber. We are able to thin the natural white pine stands at a profit by removing the undesirable stand component, pitch pine, for pulpwood. The physical process of removing pitch pine thins the white pine and leaves the stand in excellent condition for maximum growth.

Our program of converting forest cover from hardwood to pine is continuing. This program involves the removal of hardwoods to release a good understory of pine. This is a reasonable practice wherever pine of sufficient size and stocking occurs as an understory and where the soil is capable of growing good pine. In all cases, hardwood of poor quality and vigor is removed in order to make way for a crop which can better utilize the site and is more economically valuable.

Pruning operations were continued during 1955 and involved the following steps:

- (1) Pruning pine stands before pulpwood operations.
- (2) Pruning lower limbs to reduce roadside fire hazard.

In carrying out a thinning operation in white pine, it is necessary to prune all dead branches to a height of 6 feet above ground. This is due to the white pine's habit of retaining dead branches and making it impossible to approach the butt of the tree to mark or cut it.

The reduction of roadside fire hazard necessitates the removal of the lower limbs of all conifer to a nominal height of 7 feet

above ground. By removing the lower limbs, we hope to limit roadside fires to surface fires on the ground rather than a fire running through the lower limbs into the crown and producing a devastating crown fire.

The planting program of re-establishing forest cover on open field areas was continued with 5000 larch and 5000 white pine set out in the 1955 Spring season. Satisfactory planting stock for the forestry program is becoming very difficult to find. This is due to two reasons:

- (1) Commercial nurseries are asking too high a price for 2-1, 2-2 transplants.
- (2) State nurseries do not produce transplant stock at all.

Seedling stock (2-0) has not been found satisfactory for our planting conditions which demand good top growth and well developed root systems. In order to secure satisfactory planting stock, we plan to establish our own transplant nursery producing 20,000, 2-2, transplants per year. This nursery will be located in the open field south of the access road to the South Settling Basin and will be supplied from commercial and state nurseries with 2-0 stock which is readily available at reasonable prices.

The roadside brush control program was expanded during 1955. We now have 10.5 miles of our primary road network under a program of annual brush control. This represents an area of approximately 100 acres. We have now completed the initial phase of the brush control program on the easterly side of Scituate Reservoir. Work was started on the Tunk Hill roadsides in the winter of 1955 and resulted in the completion of one mile on Tunk Hill Road. The emphasis on brush control will now be directed toward the major roads on the westerly side of Scituate Reservoir.

The fire control record for the past year was excellent. Two fires were discovered and brought under immediate control with

approximately two acres being burned over. Damage was held to a minimum as a result of the excellent work on the part of the volunteer fire companies in the area.

Fencing was limited to the erection of 1000 linear feet of farm type fence on Central Pike at its intersection with Barden Reservoir.

Regular maintenance of property at the Source of Supply was carried on throughout the year.

#### 1955 FORESTRY OPERATIONS—AREA AND YIELD

PULPWOOD					
Pine	...54.2 Acres...	552.4 Tons...	10.2 Tons/acre	\$ 7.64/acre	\$414.28
Oak	...20.2 Acres...	262.75 Cords	..13.0 Cords/acre	\$13.00/acre	\$262.75

#### MISCELLANEOUS INCOME

Lumber:	
15,266 f.b.m.—Oak	.....\$149.86
24,300 f.b.m.—Pine	.....\$243.00
Piling:	
Oak ....123 pieces.....16'—35' in length	\$124.50

#### GAINER DAM—HYDRO-ELECTRIC PLANT

The Hydro-Electric Station at Gainer Dam has been in satisfactory operation throughout the year. The plant was operated on 294 days for a total of 4,747.5 hours. Power generated from the discharge of 38,005,050,000 gallons of water through the 1875 KVA Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 7,515,000 kilowatt hours, or an average of 5,063.27 gallons per kilowatt hour. Of the power generated, 6,793,800 kilowatt hours, or 90.4% was sold to the Narragansett Electric Company, and 440,400 kilowatt hours was used at the Water Purification Works. The rate of discharge through the station, concentrated during the hours of downstream mill operations, averaged 192.13 million gallons per day.

Hydro-Electric Plant statistics on the basis of the "Contract Year" with the Narragansett Electric Company are shown in Table 8 of the Appendix.

## WATER PURIFICATION WORKS

The Water Purification Works, located on the North Scituate-Hope Road about three-fourths of a mile from the Scituate Reservoir, has been in continuous and satisfactory operation throughout the year.

Water was drawn from Scituate Reservoir between elevations 213 and 220 and totalled 15,845,050,000 gallons, or an average of 43,410,000 gallons per day; the maximum for any one day being 77,700,000 gallons on July 22, 1955 and the minimum 23,130,000 gallons on November 20, 1954.

This water was treated with Ferri-Floc, aerated, dosed with slaked lime, mixed in the tangential mixer and coagulated in two concrete basins operated in series. Following a sedimentation period of from four to five days, it was filtered through rapid sand filters, treated with Sodium Silicofluoride, and finally chlorinated before being delivered into the Scituate Aqueduct leading to the water distribution system.

With the exception of a few short-period shutdowns to examine plant structures and service equipment, influent flow and chemical treatment were carried on 24 hours daily to obtain a constant and unvarying degree of coagulation and filter efficiency. The Ferri-Floc Feeders and the Quicklime Feeders and Slakers are the Omega Gravimetric type, the automatic operation of each being controlled by an electric signalling device proportional to the rate of flow of water through the influent Venturi.

Water for dissolving Ferri-Floc and for lime slaking was maintained at a temperature of from 90 to 100 degrees Fahrenheit. The Ferri-Floc was dissolved by using a ratio of three pounds of water to each pound of chemical and the quicklime was slaked by using a ratio of four pounds of water to each pound of lime.

Ferri-Floc used totalled 1,548,395 pounds, or an average of 4,242 pounds daily; with a maximum for any one day of

8,140 pounds on January 31, 1955 and a minimum of 1,856 pounds on November 20, 1954. The dosage averaged 0.68 grains per gallon, the maximum for any one day being 1.22 grains per gallon and the minimum 0.54 grains per gallon.

Quicklime used during the year totalled 1,503,245 pounds or an average of 4,118 pounds daily; with a maximum for any one day of 7,594 pounds on July 22, 1955 and a minimum of 1,946 pounds on December 18, 1954. The lime dosage averaged 0.66 grains per gallon, the maximum for any one day being 0.87 grains per gallon and the minimum 0.54 grains per gallon.

Filters were operated a total of 72,828.52 hours during the year, at an average of 199.53 filter hours per day; the average length of filter runs being 77.00 hours which is 9.16 hours, or 10.63 per cent less than the average of 86.16 hours for the previous year. The maximum daily average of filter runs was 189.00 hours on September 10, 1955 as compared to a maximum of 184.75 hours during the previous year; and the minimum was 43.81 hours on June 5, 1955 as compared to a minimum of 31.50 hours during the previous year.

Wash water rates varied from 11 to 34 inches rise per minute, the rate of rise being adjusted inversely to the temperature of the wash water. Filters 1 to 10, exclusive of number 2, were washed at rates which varied from 13 to 32 inches rise per minute and an average sand expansion of 31%. These nine filters have sand with an effective size of 0.52 millimeters. Filter number 2 which has 0.65 millimeter sand was washed at rates varying from 27 to 34 inches per minute rise and an average sand expansion of 29%. Filters 11, 12, 13 and 14 which have 0.46 millimeter sand were washed at rates varying from 11 to 23 inches rise per minute and an average sand expansion of 34%. A total of 238 tests were made during the year to determine the sand expansion and rate of rise. The total wash water used was 113,474,000 gallons, an average of 311,000 gallons per day, or 119,321 gallons per wash. The 113,474,000 gallons of wash water used was 1.57% more than the 111,714,000 gallons for the previous year.

The total water filtered for the year amounted to 15,047,-287,000 gallons, an average of 41,225,000 gallons daily; the maximum day being 70,356,000 gallons on July 22, 1955 and the minimum 25,492,000 gallons on January 1, 1955. The average rate of filtration per filter was 4,960,000 gallons per day and the average amount of water filtered per filter per run was 15,910,000 gallons, or 6.52% less than the 17,020,000 gallons for the previous year.

The total plant effluent, or pure water delivered to the Scituate Aqueduct and the Kent County Water Authority, totalled 14,933,813,000 gallons, an average of 40,914,000 gallons per day; with a maximum of 70,098,000 gallons on July 22, 1955 and a minimum of 25,302,000 gallons on January 1, 1955.

With the exception of a few short-period shutdowns to make inspections and adjustments to the Fluoridizer and the Chlorinators, Fluoridation and Chlorination of the plant effluent were carried on 24 hours daily. With respect to Fluoridation, the City of Providence Water Supply Board is acting solely as the agent of the R. I. State Health Department in carrying out their directives relative to the chemical used, the applied dosage and the type of feeding equipment. Sodium Silicofluoride, the source of the fluoride ion, has been added in amounts sufficient to produce a concentration throughout the distribution system of 1.2 parts per million from October 1, 1954 to May 31, 1955 and 1.0 part per million from June 1, 1955 to September 30, 1955.

Plant effluent delivered to the Scituate Aqueduct, and treated with Sodium Silicofluoride amounted to 14,382,178,000 gallons, an average of 39,403,000 gallons per day. Sodium Solicofluoride used during the year totalled 202,053 pounds, or an average of 553 pounds per day; with a maximum for any one day of 880 pounds on July 22, 1955 and a minimum of 107 pounds on October 11, 1954. The actual dosage of fluoride

ion averaged 1.01 parts per million, the maximum and minimum dosages being 1.21 and 0.89 parts per million. Water delivered to the Kent County Water Authority is not treated with Sodium Silicofluoride.

Chlorination of the plant effluent delivered to the Scituate Aqueduct was carried on continuously out of abundant caution. The amount treated with Chlorine totalled 14,838,759,000 gallons, an average of 40,654,000 gallons per day. Water delivered to Kent County is chlorinated separately by their facilities.

Chlorine used during the year totalled 41,750 pounds, or an average of 114 pounds per day. Of this total, 1219 pounds were used to treat the water after influent aeration from September 26 to 30, 1955. The maximum and minimum amounts used to treat the influent water were 271 and 174 pounds on September 27 and 26 respectively. The dosage of the influent averaged 0.66 parts per million, the maximum and minimum dosages being 0.69 and 0.61 parts per million. The maximum and minimum amounts used to treat the plant effluent delivered to the Scituate Aqueduct were 186 pounds on September 29, 1955 and 65 pounds on both December 25, 1954 and January 1, 1955. The dosage of the effluent averaged 0.33 parts per million, the maximum and minimum dosages being 0.50 and 0.24 parts per million. Chlorine residual of the water at a point adjacent to the main Aqueduct averaged 0.022 parts per million, and of the tap water at the Police and Fire Headquarters Building 0.010 parts per million.

The following statistics show that the chemical cost of treatment for the year ended September 30, 1955 was \$4.59 per million gallons. This is 7.24% more than the figure of \$4.28 last year. The price of Ferri-Floc was \$49.38 per ton for both years. The price per ton of Quicklime increased from a low of \$18.82 last year to a high of \$19.43 this year, an increase of \$0.61 per ton, or 3.24%. The price per ton of Sodium

Silicofluoride increased from \$136.00 last year to \$152.80 this year, an increase of \$16.80 per ton, or 12.35%. The price of Chlorine has remained the same for the two years,—\$0.0875 per pound.

<i>Chemicals Used, etc.</i>	<i>Year Ended Sept. 30, 1952</i>	<i>Year Ended Sept. 30, 1953</i>	<i>Year Ended Sept. 30, 1954</i>	<i>Year Ended Sept. 30, 1955</i>
Chlorine. . . . .	0.30 P.P.M.	0.34 P.P.M.	0.32 P.P.M.	0.33 P.P.M.
Ferri-Floc. . . . .	0.68 G.P.G.	0.64 G.P.G.	0.62 G.P.G.	0.68 G.P.G.
Quicklime. . . . .	0.65 G.P.G.	0.69 G.P.G.	0.65 G.P.G.	0.66 G.P.G.
Sodium Silicofluoride. . . . .		1.07*	1.01*	1.01*
Length of Filter Runs. . . . .	86.72 Hrs.	81.55 Hrs.	86.16 Hrs.	77.00 Hrs.
Tap Water—Color . . . . .	6 P.P.M.	6 P.P.M.	7 P.P.M.	7 P.P.M.
Tap Water—Iron . . . . .	0.01 P.P.M.	0.02 P.P.M.	0.01 P.P.M.	0.02 P.P.M.
Cost of Chemicals per M.G. of Water Treated..	\$3.17	\$4.34	\$4.28	\$4.59

\*Dosage expressed as P.P.M. of Fluoride.

Operating figures and statistics relative to chemical use and cost will be found in Tables 9 and 10 of the Appendix.

The Ferri-Floc used as a coagulant was obtained under contract from Faesy and Besthoff, Inc., New York, for the period October 1, 1954 to September 30, 1955 at \$49.38 per ton. Specifications for Ferri-Floc read as follows: "The material furnished shall be Ferri Sulphate. It shall contain not less than sixty-nine per cent (69%) of water soluble Ferric Sulphate ( $\text{Fe}_2(\text{SO}_4)_3$ ). The content of ferrous iron shall not exceed one and one-half per cent (1.5%) as (Fe). It shall be free of foreign material or material deemed undesirable in water purification processes. The material shall be in granular or lump form. Not more than thirty-five per cent (35%) shall pass a 20 mesh per inch screen, and no particle shall be larger than will pass a one-inch mesh screen. Deliveries to be made in cars suitably lined to protect the material from moisture and foreign matter." The specifications contain a provision that allows us to penalize the manufacturer at the end of the contract

year in event that the total amount of material received falls below an average of sixty-nine per cent (69%) of water soluble Ferric Sulphate ( $\text{Fe}_2(\text{SO}_4)_3$ ).

Ferri-Floc has been delivered in bulk carload lots to the railroad siding at Washington, R. I., about five and one-half miles from the Water Purification Works. Deliveries to the plant have been made by our force with the use of a Holly Pneumatic Transfer Truck, which removes the Ferri-Floc from the car and delivers it into a storage silo of glazed segment tile masonry. This silo has an inside diameter of 16 feet, a height of 55 feet and a capacity for 180 tons of the material; which, in addition to the 40-ton storage provided in the feeding hopper on the fifth floor of the Purification Works Head House, assures a maximum of approximately 116 average days' supply. The stored Ferri-Floc in the silo is conveyed pneumatically through a 4-inch underground conveyor pipe approximately 600 feet to the concrete feeding hopper within the Purification Works building by means of a motor-driven air blower and control equipment, housed in a single story brick building adjacent to the silo.

Analysis of the Ferri-Floc received has shown an average ferrous iron content of 0.675% which is 0.825% less than the maximum of 1.500% allowed by the specifications. The average water soluble Ferric Sulphate ( $\text{Fe}_2(\text{SO}_4)_3$ ) content of the nineteen deliveries received was 70.091% or 1.091% more than the minimum of 69% demanded by specification requirements. The average amount of material passing a 20 mesh per inch screen was 32.6% as compared to the permissible maximum of 35.0%. The following table shows the date of delivery, together with the per cent of ferrous iron, per cent of water soluble Ferric Sulphate and per cent passing a 20 mesh per inch screen.

<i>Date Received</i>	<i>Percent Ferrous Iron</i>	<i>Percent water soluble Ferric Sulphate</i>	<i>Percent passing a 20 mesh per inch screen</i>
October 13, 1954.....	0.838	66.978	25.6
October 21, 1954.....	1.061	69.180	29.0
November 17, 1954.....	0.179	68.739	31.8
November 22, 1954.....	0.201	70.139	19.5
November 26, 1954.....	0.223	70.741	13.2
February 4, 1955.....	0.739	67.662	41.7
February 15, 1955.....	0.447	69.778	33.3
February 26, 1955.....	0.894	71.217	27.8
March 3, 1955.....	0.972	70.898	33.3
March 10, 1955.....	0.860	71.661	32.0
March 17, 1955.....	0.335	72.298	26.8
May 27, 1955.....	0.536	68.904	78.3
June 3, 1955.....	0.983	68.861	31.4
June 14, 1955.....	0.827	70.820	21.2
July 29, 1955.....	0.402	69.459	25.9
August 10, 1955.....	0.447	70.859	34.6
August 12, 1955.....	1.240	70.619	32.3
September 7, 1955.....	0.279	71.700	44.4
September 16, 1955.....	1.318	71.221	37.0

The table shows that out of 19 deliveries received, 5 failed to meet specifications on the water soluble Ferric Sulphate content, and 4 failed to meet screen test requirements. Each time a delivery failed to meet specifications, the manufacturer was notified to this effect and requested to conform to his obligations.

Quicklime was obtained under contract with the Manchester & Hudson Company, Providence, from October 1, 1954 to March 31, 1955 at \$18.93 per ton. Specifications for the Quicklime purchased from this company read as follows: "The material furnished shall be granular or fine grain Quicklime, of which 100% shall pass a 4 mesh per inch screen and not less than 85% shall be retained on a 100 mesh per inch screen. Insoluble matter shall be less than 2%, and Magnesium Oxide shall be less than 3%. It shall have an Available Calcium Oxide (CaO) content of not less than 90%. The calculation of the Available Lime shall be on an 'As Received' basis".

Analysis of the Quicklime received from the Manchester & Hudson Company showed an average available Calcium Oxide (CaO) content of 93.6% which is 3.6% greater than specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery and the per cent

retained on a 100 mesh per inch screen averaged 99.0%. The following table shows the date of delivery, together with the per cent of Available Calcium Oxide and the per cent of material retained on a 100 mesh per inch screen:

<i>Date Received</i>	<i>Percent Available Calcium Oxide</i>	<i>Percent Retained on a 100 mesh per inch screen</i>
October 27, 1954.....	90.8	99.1
November 2, 1954.....	93.0	99.5
November 10, 1954....	93.7	99.2
December 21, 1954.....	95.2	99.2
December 28, 1954.....	94.8	99.3
December 31, 1954.....	93.5	99.0
March 23, 1955.....	92.4	97.8
March 26, 1955.....	95.6	99.6
March 31, 1955.....	93.9	98.4

The table shows that all nine deliveries met specification requirements.

Shipments of Quicklime received from April 14, 1955 to September 30, 1955 were obtained under contract with the F. D. McKendall Lumber Company, Providence at a price of \$19.43 per ton. These deliveries were subject to the same specifications as the Quicklime purchased from the Manchester & Hudson Company.

Analysis of the Quicklime received from the F. D. McKendall Lumber Company showed an average available Calcium Oxide content of 94.0% which is 4.0% greater than the specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery and the per cent retained on a 100 mesh per inch screen averaged 98.5%. The following table shows the date of delivery, together with the per cent of available Calcium Oxide and the per cent of material retained on a 100 mesh per inch screen:

<i>Date Received</i>	<i>Percent Available Calcium Oxide</i>	<i>Percent Retained on a 100 mesh per inch screen</i>
April 14, 1955.....	95.3.....	99.4
April 19, 1955.....	94.5.....	98.5
April 26, 1955.....	94.5.....	99.0
June 24, 1955.....	92.8.....	98.0
June 29, 1955.....	93.4.....	98.6
July 5, 1955.....	94.5.....	98.2
September 30, 1955.....	92.8.....	98.0

The table shows that all seven deliveries met specification requirements.

The Quicklime has been delivered in bulk carload lots to the railroad siding at Washington, R. I. Deliveries to the plant have been made by our force with the use of the same Holly Pneumatic Transfer Truck used for transporting the Ferri-Floc. There is a separate storage silo, 4-inch underground conveyor pipe, feeding hopper, motor-driven air blower and control equipment for the pneumatic handling of the Quicklime which is an exact duplicate of the pneumatic handling system for Ferri-Floc. The Quicklime storage silo has a capacity for 180 tons of the material; which, in addition to the 40-ton storage provided in the feeding hopper on the fifth floor of the Purification Works Head House, assures a maximum of approximately 123 average day's supply.

The liquid Chlorine used to treat the water was obtained under contract from the Fields Point Manufacturing Company, Inc., Providence, for the period October 1, 1954 to September 30, 1955 at \$0.0875 per pound. This material was delivered to the Purification Plant by our force in lots of 14 cylinders, each containing 150 pounds of Chlorine.

The Sodium Silicofluoride was purchased under contract with the General Chemical Division, Allied Chemical & Dye Corporation, New York, from October 1, 1954 to June 6, 1955 at a price of \$144.08 per ton. A delivery received on August 10, 1955 was obtained from the Henry Sundheimer Company, New York, at a contract price of \$152.80 per ton. The specifications covering both contracts called for a minimum available fluoride ion content of 59.4%. All shipments received showed fluoride ion contents higher than the permissible minimum. The following table shows the date of delivery, together with the per cent of available fluoride ion. The average fluoride ion content was 60.43%.

<i>Date Received</i>	<i>Percent Available Fluoride Ion</i>
October 25, 1954.....	60.62
January 11, 1955.....	60.45
April 12, 1955.....	59.85
June 6, 1955.....	60.62
August 10, 1955.....	60.62

A special pneumatic conveying system operates to transfer the chemical from the drums to the storage collector supplying the Fluoridizer hopper. The Fluoridizer is an Omega gravimetric type feeder equipped with a non-flooding gate to prevent any possible overtreatment. The feeder is operated automatically by an electric signalling device proportional to the rate of flow of water to the Scituate Aqueduct.

Number 6 fuel oil was used for heating the plant from October 1954 to May 1955 inclusive, and during September 1955, and totalled 58,631 gallons, an average of 4,886 gallons per month. Number 2 fuel oil was used during the entire year for heating water and amounted to 5,553 gallons, an average of 463 gallons per month.

#### WATER PURIFICATION WORKS LABORATORY

The fully equipped and modern laboratory maintained at the Purification Works for control over the quality of the water supply, from the raw water on the watershed to the tap at the consumers' premises, has been in operation throughout the year, with constant vigilance being exercised by the chemists and bacteriologists. Samples of tap water were obtained daily from not less than eight consumers' taps in various parts of the distribution system, the Police and Fire Headquarters building in Providence, and from Longview and Neutaconkanut distribution reservoirs. Also, samples for analysis were obtained from the brooks, streams and reservoirs on the watershed, the raw water from the lower intake of Scituate Reservoir, the Reservoir Surface water, Gainer Memorial Dam Meter Chamber, Fiskeville Reservoir, twelve locations on the Pawtuxet River below the Dam, the various stages of the purification process, coincident with the investigation of complaints, from extensions to the distribution system, and selected locations in the distribution system.

Studies on filtration were continued throughout the year. Comparative examinations were made of four plant filters: number 2, having sand of an effective size of 0.65 millimeters; num-

ber 14, with an effective size of 0.46 millimeters, and two of the nine filters rebuilt in March 1954 with 0.52 millimeter sand. Rates of filtration were varied from 1.76 to 3.00 gallons per square foot per minute with operation to a maximum of 7.5 feet loss of head. Samples were obtained from the effluents of these filters at the start of the run, each morning after that, and at the completion of the run. Determinations made on these samples included chemical and sanitary chemical tests in addition to bacteriological examinations. Glass cartridge filters containing absorbent cotton which were placed on the effluents of the filters were examined at the time of sampling to observe whether any coagulated material was passing through the sand. The total number of samples obtained from the filters during the year was 4,809, which is 27.9% of the total number of samples obtained from all sources. Tests made on these samples totalled 26,089, or 22.5% of all the determinations made in the laboratory during the past year.

The total number of samples obtained from all sources during the year amounted to 17,217 which, based on a forty-hour work week, means that one sample or another was obtained every 7.2 minutes. Tests made on these samples included chemical, sanitary chemical and mineral analyses, and bacteriological and microscopical examinations. The total number of tests made amounted to 115,845 which, based on a forty-hour work week, means that the water was receiving one test or another every 65 seconds. Each delivery of Ferri-Floc and Quicklime was tested to determine conformance to specifications and the optimum dosages required for coagulation and pH control. Each delivery of Sodium Silicofluoride was also tested, not only for conformance to specifications but to assure that the proper concentration of fluoride ion would be maintained throughout the distribution system. Filter washings were regulated by means of tests on the sand expansion and rate of rise of wash water. Samples taken after sterilization of extensions to the distribution system were tested for chlorine residual, B. Coli, 35°C and 20°C bacteria before permitting any extension to be placed in service. Consumer complaints were serviced and recommendations made to eliminate the source of trouble.

Some idea of the laboratory control over the quality of the water supply may be had by a comparison of our sampling schedule with that recommended by the U. S. Public Health Service Standards. The following table taken from the Standards shows the minimum number of bacteriological samples that should be obtained from the distribution system per month for any given population served.

<i>Population Served</i>	<i>Minimum Number of Samples per Month</i>
2,500 and under.....	1
10,000. . . . .	7
25,000. . . . .	25
100,000. . . . .	100
300,000. . . . .	180
400,000. . . . .	200
1,000,000. . . . .	300
2,000,000. . . . .	390
5,000,000. . . . .	500

The population served by the City of Providence water supply, exclusive of the Kent County System, is approximately 372,000. From the above table, it may be seen that the minimum number of bacteriological samples that should be obtained from the distribution system per month for this population is 195. The actual number of bacteriological samples obtained in the distribution system for the year amounted to a total of 3,058, or an average of 255 per month, a figure 30.8% greater than recommended by the Standards and more than is required for a population of 500,000. A sample for chemical and sanitary chemical analysis was also obtained with each bacteriological sample.

Coagulation tests were made on one liter quantities of raw water treated with various amounts of Ferri-Floc and Slaked Lime, simulating all the operations of the purification processes on a laboratory scale, for the purpose of determining the most economical dosage consistent with good coagulation.

Rigid laboratory control has resulted in the continuation of economies consistent with an excellent quality of water. Constant vigilance over and technical maintenance of the chemical

treatment machinery and the filter controls have aided greatly in keeping the cost of treatment low despite increased costs of chemicals, the filter runs long, and the quality of water at a high degree of purity.

Tables 11 to 21, inclusive, of the Appendix show statistics relative to the quality of the water and the kind and number of laboratory **examinations** made during the past year.

## TRANSMISSION AND DISTRIBUTION

### SCITUATE AQUEDUCT

The Scituate Aqueduct, which conveys the effluent water from the Water Purification Works in Scituate to the distribution system, has been in continuous and satisfactory service throughout the year. Maintenance of the property along this line included cutting and burning brush, repairs to grassed embankments, repairs to fencing and other miscellaneous work as required.

### HIGH SERVICE PUMPING STATIONS

Neutaconkanut and Bath Street Pumping Stations, supplying water to the high service system of the distribution system generally above elevation 140, and to the special high pressure fire service in the congested area of downtown Providence, have been in satisfactory operation through the year.

Water pumped into the high service area totalled 2,465,850,000 gallons or an average of 6,755,753 gallons per day. Neutaconkanut station pumped 1,383,140,000 gallons from the East Venturi and 303,010,000 gallons from the west venturi meter for a total of 1,686,150,000 gallons or 4,619,589 gallons per day, and Bath Street Station pumped 779,695,000 gallons or 2,136,150 gallons per day.

The total power required for pumping at both stations amounted to 1,006,860 kilowatt-hours. Neutaconkanut Station required 686,400 kilowatt-hours, and Bath Street Station 320,460 kilowatt-hours. The cost of power at both stations was \$16,636.19 or \$6.75 per million gallons pumped.

Test runs of the auxiliary gasoline engine driven pump at Neutaconkanut Pumping Station were made weekly, the pump being operated a total of 50 hours and pumping 15,880,000

gallons during the year. Weekly test runs of the auxiliary gasoline engine driven pumps at the Bath Street Pumping Station were made throughout the year. These pumps were operated a total of 60 hours and 45 minutes, pumping 7,840,000 gallons for the year.

A 24-inch by 10-inch venturi meter was installed at the Neutaconkanut Pumping Station. This meter, on the new High Service Force Main described elsewhere in this report, was placed in operation on March 25, 1955. Also, to permit better access to this station, a new entrance road was provided. This road, built in connection with the Force Main, enters the property at Ashby Street.

Operating statistics for the high service pumping stations will be found in Tables 22 and 23 of the Appendix.

#### DISTRIBUTION RESERVOIRS

The 42 million gallon Neutaconkanut Low Service Distribution Reservoir on Neutaconkanut Hill, Johnston, and the 12-million gallon Longview High Service Distribution Reservoir on Mineral Spring Avenue and Smithfield Road in North Providence have been in continuous and satisfactory operation during the year.

Routine maintenance activities were carried on with respect to the care of equipment, grounds, fencing, etc.

Operating statistics for the Distribution Reservoirs will be found in Tables 24 and 25 of the Appendix.

## WATER DISTRIBUTION SYSTEM

The water distribution system has been maintained in satisfactory and continuous operation throughout the year. Work done included the extensions of mains, the installation of gate valves, hydrants and services, and necessary repairs and replacement to the various appurtenances of the system when and where required. As was the case during the previous year, the extensive highway repairs and reconstruction program accounted for the greater part of repairs and replacements to the system.

The amount of pipe laid during the year, all sizes, totalled 87,993.04 feet including 3,886.31 feet which replaced existing mains. Included in this amount, 56,634.58 feet was laid with cement asbestos pipe, 874.88 feet with cement mortar lined cast iron pipe, and 30,483.58 feet of prestressed reinforced concrete steel cylinder pipe.

A total of 1,779.89 feet of pipe was removed or abandoned, resulting in a net increase to the distribution system of 82,326.84 feet. In the City of Providence the net increase amounted to 5,728.09 feet, in the City of Cranston 31,855.44 feet, in the Town of North Providence 9,773.82 feet, and in the Town of Johnston 34,969.49 feet. The net increase in the Town of Johnston includes 30,919.67 feet laid in conjunction with the High Service Force Main to reinforce the northwesterly section of the distribution system and described elsewhere in this report.

At the end of the year the total length of mains in the distribution system aggregated 724.53 miles, including 12.71 miles in the special high service system in the City of Providence. Cement asbestos pipe in the system totalled 550,370.21 feet, consisting of 358,829.77 feet of 6-inch, 181,767.19 feet of 8-inch, 9,971.22 feet of 12-inch and 502.03 feet of 16-inch. Prestressed reinforced concrete steel cylinder pipe totalled 52,352.12 feet, consisting of 104.38 feet of 16-inch, 32,694.08 feet of 24-inch and 19,553.66 feet of 30-inch. Reinforced concrete steel cylinder

pipe totalled 36,597.00 feet consisting of 715.00 feet of 36-inch, 15,312.00 feet of 48-inch and 20,570.00 feet of 60-inch. Steel pipe totalled 10,032.00 feet consisting of 1,584.00 feet of 48-inch and 8,448.00 feet of 66-inch, the remaining footage being laid with cast iron pipe in sizes ranging from 6-inch to 42-inch.

Details of pipe laid, removed, replaced, and in use at the end of the year are shown in Tables 26 and 27 of the Appendix.

A total of 149 stop gates were added to the system during the year, 86 six-inch, 50 eight-inch, 4 twelve-inch, 5 sixteen-inch and 4 twenty-four inch. One 6-inch gate was removed and 5 stop gates were replaced, 4 six-inch and 1 sixteen inch. At the end of the year there was a total of 10,204 stop gates in the system ranging from 6-inch to 48-inch including 15 sixteen-inch rotary plug valves. A total of 116 hydrant gates were added, 113 six-inch and 3 eight-inch, and 3 six inch hydrant gates were replaced. Hydrant gates at the end of the year totalled 3,420. Three 6-inch gates on unwatering hydrants were added during the year, the total at the end of the year being 30, eight 6-inch and twenty-two 8-inch. Gates on blow-offs remained the same at 11, one 6-inch, four 8-inch and six 12-inch. The total number of gates, not including service gates, all sizes, in use at the end of the year totalled 13,665, an increase of 268 over the previous year.

Details of gates in use on September 30, 1955 are shown in Table 28 of the Appendix.

The number of private pipes connected to the system at the end of the year totalled 346, a reduction of 17 over the previous year. In the City of Providence there was a total of 199, in Cranston 90, in Johnston 25, and 32 in North Providence.

A total of 1,206 new services, general and fire supplies, were installed during the year; 394 in Providence, 499 in Cranston, 147 in Johnston, and 166 in North Providence. Services removed, replaced or abandoned totalled 133 during the year; 107 in Providence, 18 in Cranston, 1 in Johnston, and 7 in

North Providence. Seventy-one services were repaired. The number of services in the system at the end of the year was 66,612, including both general and fire supplies.

Statistics relative to service pipes installed, removed, replaced or abandoned and services repaired are shown in Table 29 of the Appendix.

Services in use at the end of the year totalled 57,198, the number of metered services totalling 56,924, and the unmetered services totalling 274. Metered services at the end of the year constituted 99.52% of the total services in use.

Statistics relative to metered and unmetered services will be found in Table 30 of the Appendix.

Public fire hydrants in use at the end of the year totalled 4,206, an increase over the previous year of 82. Flush hydrants totalled 2,363 and post hydrants 1,843. Ninety flush hydrants in Providence and three flush hydrants in Johnston were replaced with post hydrants. Since the adoption in March 1947 of the New York Pattern Post Hydrant, 571 flush hydrants have been replaced with the post type.

The replacement of flush type hydrants by the post type and new installations have increased the number of post hydrants in Providence from 668 to 774 and reduced the flush hydrants from 2,443 to 2,352. In Johnston the number of post hydrants have increased from 195 to 217, and flush hydrants have decreased from 19 to 16. In Cranston the number of post hydrants have increased from 569 to 620, and in North Providence from 230 to 232.

Statistics relative to public fire hydrants will be found in Tables 31 and 32 of the Appendix.

Leaks in the distribution and transmission mains totalled 77 during the year, 41 occurring at joints and 36 as a result of ruptured mains. With the exception of the rupture of the 8-

inch main in Oakland Avenue at Smith Street which occurred on November 21, 1954, a rupture of the 24-inch main in Smith Street between Oakland Avenue and Ritcher Street which occurred on June 30, 1955, and a joint leak on the 16-inch main on the west end of the Branch Avenue Railroad Bridge, these leaks were of minor nature and caused little or no damage. The ruptured 8-inch main in Oakland Avenue undermined the roadway at that location, and the ruptured 24-inch main in Smith Street washed out the sidewalk and undermined the roadway. The joint leak on the 16-inch main at the Branch Avenue Railroad Bridge caused a serious washout of the embankment on the south side of the bridge adjacent to the railroad right of way. Leaks at joints averaged 1 for every 17.67 miles of main, while total leaks averaged 1 for every 9.41 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 9,099, while those receiving attention in the field numbered 198, making a total of 9,297. The number repaired last year in shop and field was 6,757. The cost of meter repairs in the shop averaged \$2.65 per meter as against \$3.70 last year. Meters requiring servicing in the field involved an average expenditure of \$2.28 per meter during the current year as compared with \$2.04 the previous year.

The number, make and size of meters on active services at the end of the year are shown in Table 33 of the Appendix.

### CONSUMPTION

Water consumption for the year ended September 30, 1955 amounted to 14,932,990,000 gallons or at an average of 40,910,000 gallons per day. This average was 2,990,000 gallons per day greater than the average for the previous year. With the exception of the month of June during which the consumption was 570,000 gallons per day less than that of the same month of the previous year, there was an increase in consumption for each month of the year, ranging from 1,640,000 gallons per day during October 1954 to 6,490,000 gallons per day during the month of May, 1955.

On July 22, 1955 a maximum daily record was established when the consumption totalled 70,160,000 gallons, exceeding the previous maximum of 70,000,000 gallons which occurred on July 22, 1952. An analysis of the hourly consumption for July 22, 1955 indicated that the peak demand for that day occurred between the hours of 10 and 11 A.M. when the consumption rate was 117,120,000 gallons per day.

Water consumption statistics will be found in Tables 34 through 37 of the Appendix.

## FINANCIAL SUMMARY

The gross income for the year ended September 30, 1955, totalled \$2,545,190.97, an increase of \$95,536.41, or 3.89% over the previous year. Revenue from the sale of water alone was \$2,166,180.84, an increase over the previous year of \$19,233.66. The remaining income of \$379,010.13 was received from other sources, including hydrant rentals, sale of power, installation of services, miscellaneous items, and surpluses in the Meter Revolving Fund and Main Extension Account. The receipts for these items show an increase of \$76,302.75.

During the year total payments for water main extensions amounted to \$150,715.90, an increase over the previous year of \$56,325.50.

Income from service connection charges amounted to \$72,696.00, an increase over the previous year of \$1,847.00.

At the end of the year unpaid water bills totalled \$131,391.58, as compared with \$154,439.34, at the beginning of the year or 5.86% of the total net billing.

Miscellaneous accounts receivable amounted to \$14,827.29 at the end of the year as compared with \$3,798.38 at the beginning of the year.

Operating expenses totalled \$1,179,343.20, an increase over the previous year of \$74,008.06. This is due chiefly to the increase of Water Main Extensions during the present fiscal year.

Fixed charges totalled \$1,055,760.76, or 41.48% of gross revenue. As in previous years, the largest single item continues to be the interest charge on the bonded indebtedness, which amounts to \$610,000.00 equivalent to 23.96 cents per dollar of the gross income.

The aggregate of all expenditures of the Board during the year totalled \$2,235,103.96, which deducted from the gross revenue

of \$2,545,190.97 leaves a net balance of \$310,087.01. According to law this reverts to the Sinking Fund for the retirement of Water Bonds.

As none of the bonds mature until July 1956, at which time the next \$1,000,000 principal will be payable, there was no reduction in the gross bonded indebtedness during the year. Bonds outstanding in the amount of \$15,000,000 will become due in various amounts periodically between 1956 and 1968. At the end of the year, the Sinking Fund balance totalled \$10,468,027.11, or \$62,177.52 in excess of the amortization requirements on that date.

The net bonded debt at the end of the present year was \$4,531,972.89, and at the end of the previous year \$5,055,999.16, showing a reduction of \$524,026.27.

Financial accounts of the department, tabulation of water works property, statements of revenues, various funds, outstanding bonds and sinking fund requirements, inventories, and other statistics may be found in Tables 38 to 49, of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1955, as recommended by the New England Water Works Association, may be found in Table 51, of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.  
*City Engineer*

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35. WATER CONSUMPTION—Water Sold to State Institutions and City of Warwick.
36. WATER CONSUMPTION—Water Sold to East Smithfield Water Co. and Kent County Water Authority.
37. WATER CONSUMPTION—Average Daily Consumption for Years 1877-1955.
38. FINANCIAL STATEMENT OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1955.
39. OPERATING EXPENSES OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1955.
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**TABLE 1**  
**MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED**

STATIONS ON WATERSHED	YEAR ENDED SEPTEMBER 30, 1955											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Rocky Hill....	3.12	5.62	6.53	1.06	4.99	4.46	4.42	1.69	5.10	2.48	15.00	4.42
Hopkins Mills..	3.60	5.66	6.68	1.06	5.16	4.29	3.61	1.81	4.80	2.27	14.70	4.87
North Scituate.	3.01	5.58	7.43	1.03	5.17	4.11	4.55	1.52	4.70	2.15	12.51	4.37
Westcott .....	3.06	5.84	6.20	0.95	4.51	3.79	4.28	2.10	4.30	1.94	11.64	4.89
Gainer Dam ...	2.86	5.56	7.73	0.92	4.96	4.20	3.96	1.80	3.74	3.29	9.92	4.12
AVERAGE...	3.13	5.65	6.91	1.00	4.96	4.17	4.16	1.78	4.53	2.43	12.75	4.53
												56.00*
												4.67

\*Total of monthly averages.

**TABLE 2**  
**MONTHLY AND YEARLY RAINFALL IN INCHES ON SCITUATE WATERSHED**

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.	
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year
1915-1916.....	2.75(e)	2.88	5.86	1.88	5.88	2.46	3.60	4.83	5.71	7.38	1.33	1.24	45.80	1916
1916-1917.....	2.61	2.34	3.30	3.96	2.18	2.46	2.70	4.15	4.54	1.51	6.13	1.24	42.56	1917
1917-1918.....	6.71	0.48	3.23	3.56	3.73	2.15	4.56	3.12	4.49	5.13	4.14	8.79	40.99	1918
1918-1919.....	1.07	2.60	3.75	4.89	3.42	6.05	4.31	5.99	3.65	5.47	6.65	6.07	50.09	1919
1919-1920.....	2.29	5.05	2.58	3.03	6.10	4.90	6.28	3.95	7.93	4.44	3.86	3.04	53.45	1920
1920-1921.....	1.34	5.85	5.09	3.46	3.06	3.72	5.45	3.73	4.30	6.80	2.97	2.53	48.30	1921
1921-1922.....	1.26	8.02	2.54	1.91	2.67	6.40	1.98	5.22	6.34	8.36	9.09	5.35	59.14	1922
1922-1923.....	2.92	1.41	3.11	6.78	1.82	3.73	5.92	1.48	4.93	2.78	2.35	2.15	39.38	1923
1923-1924.....	5.67	5.68	5.10	4.49	2.92	2.80	6.12	3.66	1.49	1.72	5.85	5.28	50.78	1924
1924-1925.....	0.21	2.23	2.38	4.41	2.22	4.76	2.85	2.72	2.36	6.14	1.70	2.96	34.94	1925
1925-1926.....	4.32	4.83	5.18	3.26	6.10	3.73	2.46	2.27	1.74	3.80	3.94	1.89	43.52	1926
1926-1927.....	5.04	5.55	3.55	2.98	3.31	1.59	2.56	3.41	3.36	3.99	8.55	2.61	46.50	1927
1927-1928.....	5.24	9.27	5.63	2.72	4.32	2.70	5.43	1.45	3.91	5.06	5.50	4.80	55.98	1928
1928-1929.....	3.99	2.50	3.21	5.20	4.89	3.92	7.56	3.47	2.27	2.06	2.93	1.35	43.35	1929
1929-1930.....	3.09	3.06	4.15	2.86	2.88	3.23	2.03	2.74	3.05	3.33	3.00	1.35	34.77	1930
1930-1931.....	3.36	4.65	3.10	3.55	2.57	6.37	3.36	4.19	6.31	3.74	5.96	1.97	49.13	1931
1931-1932.....	2.22	1.03	3.16	6.16	2.38	6.16	1.97	2.57	2.75	2.57	6.44	11.75	49.16	1932
1932-1933.....	6.63	7.13	2.09	2.02	3.81	6.55	6.18	3.76	4.04	2.00	3.60	7.56	55.37	1933
1933-1934.....	3.41	1.48	3.72	3.87	4.53	4.03	5.24	3.98	4.79	2.20	3.89	7.37	48.51	1934
1934-1935.....	3.25	4.44	3.55	7.24	3.09	1.93	4.76	2.27	5.12	4.10	1.42	3.59	44.76	1935
1935-1936.....	1.04	5.86	0.88	8.81	4.16	9.31	3.80	1.98	2.98	2.63	3.28	7.72	52.45	1936
1936-1937.....	2.00	1.25	0.83	5.02	2.45	4.99	5.42	3.05	3.40	1.58	6.47	4.19	48.75	1937
1937-1938.....	3.92	8.10	2.89	5.29	2.91	2.70	2.60	4.17	8.62	11.49	3.10	6.76	62.55	1938
1938-1939.....	2.64	3.91	3.64	3.08	5.06	5.86	4.53	0.94	2.95	1.20	6.52	3.47	43.80	1939
1939-1940.....	5.76	1.40	3.40	2.82	5.97	4.04	6.00	5.76	2.45	4.41	2.01	2.63	46.65	1940
1940-1941.....	2.00	6.81	2.28	3.12	3.37	2.97	1.36	3.16	4.92	5.90	4.00	0.20	40.09	1941
1941-1942.....	1.75	3.35	3.78	4.95	3.30	6.35	0.89	2.80	3.88	5.38	4.32	1.94	44.69	1942
1942-1943.....	4.26	5.52	6.39	3.56	1.95	4.26	3.90	3.87	1.99	3.41	2.15	1.30	41.98	1943
1943-1944.....	6.38	3.43	1.22	1.79	2.50	5.95	4.01	1.35	3.75	1.74	2.01	11.03	44.36	1944
1944-1945.....	2.71	8.45	4.35	3.45	5.79	2.13	3.36	4.89	5.17	2.74	3.06	2.84	48.92	1945
1945-1946.....	2.21	9.03	7.58	3.82	3.81	1.42	2.37	4.92	3.31	2.49	11.48	3.69	56.13	1946
1946-1947.....	0.48	1.32	3.90	2.98	2.60	3.85	5.40	3.37	4.10	4.86	2.91	4.02	39.79	1947
1947-1948.....	3.26	6.42	3.91	7.14	2.57	4.26	3.97	9.36	4.20	3.73	3.14	1.59	53.55	1948
1948-1949.....	4.86	7.43	3.45	4.38	3.62	2.47	4.65	4.03	0.10	1.24	6.07	3.49	45.79	1949
1949-1950.....	2.27	3.47	2.79	3.68	4.62	3.99	3.68	3.51	2.93	1.62	5.04	2.03	39.63	1950
1950-1951.....	2.23	7.21	4.57	4.95	4.48	5.91	3.97	5.20	2.71	3.36	3.08	2.41	50.08	1951
1951-1952.....	4.14	0.64	5.55	4.88	4.81	4.13	4.41	3.97	3.16	1.20	7.33	2.21	55.41	1952
1952-1953.....	1.94	3.02	4.20	7.38	4.64	9.33	7.54	3.24	1.67	4.27	2.94	2.74	55.91	1953
1953-1954.....	5.57	6.22	5.56	2.91	3.16	4.36	5.37	4.91	1.55	2.76	9.16	7.63	59.10	1954
1954-1955.....	3.13	5.55	6.91	1.00	4.96	4.17	4.16	1.78	4.53	2.43	12.75	4.53	56.00	1955
Average.....	3.25	4.70	4.03	4.08	3.72	4.35	4.17	3.63	3.79	3.78	4.75	4.02	48.27*	Avg.
Maximum.....	6.71	9.64	9.83	8.81	6.10	9.33	7.56	9.36	8.62	11.49	12.75	11.75	62.55	Max.
Minimum.....	0.21	0.48	0.88	1.00	1.82	1.42	0.89	0.94	0.10	1.20	1.33	0.20	34.77	Min.

(e Estimated; \*Total of monthly averages, †30-year Average.

**TABLE 3**  
**MONTHLY AND YEARLY RUNOFF IN INCHES ON SCITUATE WATERSHED (92.8 SQ. MI.)**

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.	
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year
1915-1916.....	0.75(e)	1.24(e)	3.03(e)	2.50	3.70	3.99	4.64	3.69	3.42	2.74	1.09	0.42	31.21	1916
1916-1917.....	0.51	0.58	0.97	1.91	1.30	4.29	3.05	2.79	2.18	2.74	0.71	0.63	19.71	1917
1917-1918.....	1.79	1.59	1.38	1.83	4.04	3.17	3.40	2.24	1.24	0.47	0.82	1.81	23.78	1918
1918-1919.....	1.02	1.34	2.37	3.81	2.27	5.01	4.43	3.86	1.27	1.35	0.91	3.33	30.07	1919
1919-1920.....	1.45	2.25	2.71	1.19	1.69	9.60	5.10	3.73	4.15	1.38	0.79	0.34	34.38	1920
1920-1921.....	0.37	1.73	3.22	2.79	1.69	4.19	3.68	2.85	0.95	2.56	0.93	0.31	25.27	1921
1921-1922.....	0.24	1.65	2.68	1.13	1.80	4.81	3.92	3.50	2.39	3.50	3.50	4.39	33.60	1922
1922-1923.....	1.66	1.26	1.37	4.16	2.46	6.10	4.02	2.68	1.15	0.64	0.40	0.25	26.39	1923
1923-1924.....	1.27	2.01	4.57	4.52	1.88	3.43	5.70	3.38	1.05	0.20	0.56	0.68	26.35	1924
1924-1925.....	0.49	0.45	0.97	0.91	3.65	3.41	2.40	1.46	0.52	0.58	0.39	0.32	15.61	1925
1925-1926.....	0.61	1.48	3.25	2.23	3.11	4.38	3.00	1.70	0.62	0.40	0.42	0.17	21.37	1926
1926-1927.....	0.76	2.15	2.09	3.34	2.64	3.05	1.71	2.03	1.44	0.32	1.50	0.64	21.76	1927
1927-1928.....	1.95	6.73	4.70	2.62	3.76	2.86	3.18	2.05	1.15	1.08	1.17	0.80	30.14	1928
1928-1929.....	1.21	1.16	1.99	4.02	3.65	5.56	6.09	3.53	0.88	0.09	0.07	-0.09	22.05	1929
1929-1930.....	0.07	0.53	1.18	1.96	2.38	2.74	1.84	0.88	0.42	0.09	0.04	-0.11	27.76	1930
1930-1931.....	0.12	0.63	0.83	1.56	2.11	5.95	3.21	3.10	2.97	0.69	0.85	0.10	22.12	1931
1931-1932.....	0.07	0.15	0.91	3.35	2.16	4.10	3.08	1.35	0.39	0.07	0.33	3.27	19.45	1932
1932-1933.....	3.48	6.29	2.26	2.24	2.70	6.38	6.88	1.93	1.37	0.17	0.25	1.32	35.57	1933
1933-1934.....	0.95	0.82	1.82	3.78	1.18	5.48	6.08	2.88	1.37	0.08	0.14	1.40	26.08	1934
1934-1935.....	1.33	1.91	3.21	4.78	2.83	4.22	4.05	1.71	1.78	0.62	-0.14	0.26	26.36	1935
1935-1936.....	-0.13	1.09	0.75	3.94	1.93	11.51	4.45	1.59	0.44	0.03	-0.02	0.82	26.40	1936
1936-1937.....	0.46	0.43	6.05	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	0.37	25.90	1937
1937-1938.....	0.79	4.17	3.25	4.15	2.99	5.99	2.79	1.84	2.35	6.23	1.32	1.66	33.23	1938
1938-1939.....	1.22	1.90	3.62	2.11	4.12	5.34	4.60	1.08	0.31	-0.24	0.22	0.09	24.57	1939
1939-1940.....	0.63	1.35	1.54	2.03	1.51	4.56	6.89	3.17	1.65	0.84	-0.14	-0.04	24.29	1940
1940-1941.....	-0.07	1.63	1.65	1.53	2.88	2.42	1.65	1.16	1.33	0.54	0.10	-0.41	14.41	1941
1941-1942.....	-0.15	0.32	0.80	1.87	2.34	7.74	1.75	1.06	0.39	0.86	0.26	-0.17	17.13	1942
1942-1943.....	0.45	1.86	4.50	2.85	3.76	4.70	2.68	3.01	0.36	0.02	-0.16	-0.22	22.87	1943
1943-1944.....	0.60	0.95	0.43	0.73	1.76	3.44	3.53	1.08	0.33	-0.26	-0.31	1.73	13.37	1944
1944-1945.....	0.50	3.16	3.55	2.91	2.58	5.91	2.13	3.10	1.26	0.13	-0.12	-0.15	24.70	1945
1945-1946.....	0.06	1.88	4.59	3.93	2.98	3.70	1.43	2.50	1.65	0	2.35	0.56	25.63	1946
1946-1947.....	0.49	0.30	1.19	2.16	1.52	7.01	3.21	2.86	1.09	0.53	0.12	0.31	17.89	1947
1947-1948.....	0.23	2.94	1.30	1.55	3.15	7.74	3.76	5.25	3.2	0.07	0.15	-0.21	29.05	1948
1948-1949.....	0.15	2.24	2.00	3.57	3.22	2.92	3.20	1.78	-0.02	0.56	0.02	0.09	19.11	1949
1949-1950.....	0.05	0.57	1.20	2.03	2.42	4.16	3.01	2.20	1.00	-0.11	0.22	-0.02	16.79	1950
1950-1951.....	0.04	1.85	2.59	3.24	4.95	4.36	4.30	2.70	1.21	0.14	0.07	-0.07	25.38	1951
1951-1952.....	0.34	4.62	4.30	4.24	3.33	5.02	2.97	2.46	0.98	-0.35	0.33	-0.20	28.21	1952
1952-1953.....	-0.20	0.37	1.35	4.61	3.33	7.24	6.36	3.20	0.20	0.07	-0.05	-0.13	27.17	1953
1953-1954.....	0.38	1.86	4.32	2.12	2.66	3.56	4.01	3.71	0.33	-0.01	0.93	3.96	27.83	1954
1954-1955.....	1.33	3.55	5.90	2.46	3.61	4.26	2.76	1.62	0.89	0.02	4.04	1.19	31.73	1955
Average.....	0.69	1.83	2.51	2.77	2.73	4.74	3.72	2.48	1.28	0.68	0.63	0.75	24.81*	Avg.
Maximum....	3.48	6.73	6.06	4.78	4.95	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.57	Max.
Minimum....	-0.20	0.15	0.42	0.73	1.18	2.42	1.43	0.88	-0.02	-0.35	-0.31	-0.41	12.02	Min.

(e Estimated; \*Total of monthly averages; †39-year Average.

**TABLE 4**  
**MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SCITUATE WATERSHED**

YEARS ENDED SEPTEMBER 30															Jan.-Dec.	
Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total	
1915-1916.....	27.3(e)	43.0(e)	51.7(e)	133.0	62.9	162.2	128.9	76.4	59.9	37.1	82.0	33.9	68.1	1916	66.4	
1916-1917.....	19.5	24.8	29.4	48.2	59.6	87.4	113.0	67.2	48.0	52.5	11.6	23.7	48.1	1917	51.9	
1917-1918.....	26.7	31.2	42.7	51.4	108.3	147.4	173.0	71.8	27.6	9.2	10.8	20.6	47.5	1918	50.4	
1918-1919.....	95.3	51.5	63.2	77.9	66.4	82.8	102.8	64.4	34.8	24.7	13.7	54.8	57.3	1919	57.9	
1919-1920.....	63.3	44.6	105.0	39.3	27.7	195.9	81.2	94.4	52.3	31.1	20.5	11.2	64.3	1920	59.6	
1920-1921.....	27.6	29.6	63.3	80.6	55.2	112.6	67.5	76.4	22.1	37.6	31.3	12.2	52.3	1921	51.2	
1921-1922.....	19.0	20.6	105.5	59.2	67.4	75.2	198.0	67.0	37.7	41.9	39.5	82.0	56.8	1922	60.8	
1922-1923.....	56.8	89.4	44.0	61.4	135.2	163.5	68.6	181.1	23.3	23.0	17.0	11.6	66.5	1923	61.5	
1923-1924.....	22.4	35.4	89.6	100.7	164.4	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.6	1924	53.5	
1924-1925.....	233.3	20.2	40.8	20.6	164.4	71.6	86.3	53.7	22.0	9.4	22.9	10.8	44.7	1925	42.8	
1925-1926.....	14.1	30.6	62.7	68.4	51.0	117.4	122.0	74.9	35.6	10.5	10.6	9.0	49.1	1926	48.5	
1926-1927.....	15.1	38.7	58.9	112.1	79.8	191.8	66.8	59.5	42.8	8.0	18.6	24.5	46.8	1927	57.5	
1927-1928.....	37.2	73.0	83.5	96.3	87.0	105.9	58.6	141.4	29.4	21.3	21.3	16.7	57.2	1928	50.5	
1928-1929.....	30.3	46.4	62.0	77.3	74.6	141.8	80.6	102.6	21.1	2.9	2.4	-6.7	64.0	1929	57.3	
1929-1930.....	2.3	17.3	28.4	68.5	82.6	84.8	90.6	32.1	13.8	2.7	1.3	-8.1	34.6	1930	33.2	
1930-1931.....	3.6	13.5	26.8	43.9	82.1	93.4	95.5	74.0	47.1	18.4	14.3	5.1	45.0	1931	48.8	
1931-1932.....	3.2	14.6	28.8	54.4	90.8	66.6	156.3	52.5	14.2	2.7	5.4	27.8	39.2	1932	51.4	
1932-1933.....	52.5	88.2	108.1	110.9	70.9	95.9	111.3	51.3	38.9	8.5	6.9	20.1	64.2	1933	56.4	
1933-1934.....	27.9	55.4	48.9	97.7	26.0	136.0	116.0	72.4	30.7	3.6	3.6	19.0	53.8	1934	56.6	
1934-1935.....	40.9	43.0	90.4	66.0	91.6	218.6	85.1	75.3	34.8	15.1	-9.8	7.2	59.3	1935	52.8	
1935-1936.....	-12.5	18.6	85.2	44.7	46.4	123.6	117.1	80.3	14.8	1.1	-0.6	10.6	50.3	1936	54.8	
1936-1937.....	23.0	34.4	61.6	91.4	113.1	81.7	69.9	82.6	22.0	1.3	9.3	13.6	53.1	1937	53.7	
1937-1938.....	20.2	51.5	112.5	78.4	102.7	110.7	88.1	44.1	33.1	60.3	42.6	24.6	56.3	1938	58.4	
1938-1939.....	46.2	48.6	99.4	68.5	81.4	89.4	108.2	114.9	10.5	-20.0	3.4	2.6	56.1	1939	48.3	
1939-1940.....	10.9	96.4	45.3	72.0	25.3	120.3	114.8	55.0	67.3	19.0	-7.0	-1.5	52.1	1940	50.8	
1940-1941.....	-3.5	23.9	72.4	49.0	87.4	81.5	121.3	36.7	27.0	9.2	2.5	-205.0	35.9	1941	32.8	
1941-1942.....	-8.6	15.5	22.8	37.8	77.0	85.5	196.6	37.8	15.2	16.0	6.0	-8.8	38.3	1942	43.8	
1942-1943.....	10.6	33.7	71.4	68.8	177.4	119.6	68.7	77.8	18.1	0.6	-7.4	-16.9	54.5	1943	48.8	
1943-1944.....	9.4	27.7	34.4	40.8	49.2	64.2	85.9	80.0	11.5	-14.9	-15.4	13.7	30.1	1944	38.1	
1944-1945.....	18.4	37.4	82.0	84.3	44.6	263.4	64.0	63.4	24.4	5.5	-3.9	-5.3	50.5	1945	46.0	
1945-1946.....	2.7	20.8	60.6	102.9	78.2	260.6	60.3	50.8	49.8	0	20.5	15.2	45.7	1946	49.0	
1946-1947.....	102.1	22.7	30.5	22.5	58.5	104.2	61.3	84.9	26.6	10.9	4.1	7.7	45.0	1947	42.9	
1947-1948.....	7.0	45.8	35.5	21.7	122.6	168.1	94.7	56.1	74.3	15.0	4.8	-13.2	34.2	1948	52.2	
1948-1949.....	7.2	30.1	58.0	81.5	89.0	118.2	68.8	44.2	-20.0	-21.0	0.3	2.6	41.7	1949	42.5	
1949-1950.....	2.2	16.4	45.2	55.2	52.4	104.3	81.8	62.7	34.1	-6.8	4.4	-1.0	42.4	1950	43.0	
1950-1951.....	1.8	25.6	56.7	65.4	110.5	73.8	108.3	51.9	44.6	4.2	2.3	-2.9	50.7	1951	54.5	
1951-1952.....	-8.2	47.9	77.8	86.9	68.6	121.5	67.3	61.7	31.0	-29.2	7.2	-9.0	50.9	1952	44.8	
1952-1953.....	10.3	12.2	27.4	62.5	93.8	77.6	84.4	98.8	12.0	1.6	-1.7	-4.7	51.4	1953	53.0	
1953-1954.....	6.8	29.9	77.7	72.8	84.2	81.6	74.7	75.6	21.3	-0.4	10.2	51.9	47.1	1954	56.0	
1954-1955.....	42.5	64.6	85.4	246.0	72.8	102.2	66.3	91.0	19.6	0.8	32.7	26.3	56.7	1955	-	
Average.....	21.2	38.9	62.3	67.9	73.4	109.0	89.2	68.3	33.8	18.0	13.3	18.6	51.4	Avg.	51.4†	
Maximum.....	233.3	331.2	112.5	246.0	177.4	263.4	198.0	181.1	74.3	60.3	82.0	82.0	68.1	Max.	66.4	
Minimum.....	-12.5	12.2	22.8	20.6	25.3	64.2	58.6	32.1	-20.0	-29.2	-15.4	-205.0	30.1	Min.	32.8	

TABLE 5

## STATISTICS OF STORAGE FOR YEAR ENDED SEPTEMBER 30, 1955

NOTE: Elevations shown are in feet above mean high water in Providence Harbor. Statistics shown are for the first day (7 A.M.) of the month indicated.

**TABLE 6**  
**SCITUATE WATERSHED**  
(92.8 Square Miles)

DRAFT AND YIELD FOR YEAR ENDED SEPTEMBER 30, 1955

1954- 1955	DRAFT FROM SCITUATE RESERVOIR Million Gallons				WATERSHED YIELD Million Gallons				
	To River Below Gainer Dam			Total	For Month	Avg. per Day	40-Year Mean 1916-1955		
	Over Spillway	Through Gatehouse	Total						
				To Water Purification Works					
Oct.	0	1,773.92	1,773.92	1,270.92	3,044.84	98.22	2,146.84	69.25	35.20
Nov.	0	3,349.16	3,349.16	1,154.21	4,503.37	150.11	5,889.37	196.31	98.38
Dec.	†14.90	6,459.68	6,474.58	1,224.50	7,699.08	248.36	9,514.08	306.90	130.58
Jan.	†48.83	6,147.67	6,196.50	1,230.15	7,426.65	239.57	3,975.65	128.25	144.11
Feb.	0	3,722.19	3,722.19	1,145.61	4,867.80	173.85	5,829.80	208.21	157.24
Mar.	0	5,312.84	5,312.84	1,250.97	6,563.81	211.73	6,865.81	221.48	246.59
Apr.	0	1,735.72	1,735.72	1,177.74	2,913.46	97.12	4,455.46	148.52	199.98
May	†120.63	924.72	1,045.35	1,374.66	2,470.01	78.06	2,619.01	84.48	129.02
June	†11.45	790.36	801.81	1,443.79	2,245.60	74.85	1,439.60	47.99	68.81
July	0	1,399.22	1,399.22	1,662.39	3,061.61	98.76	35.61	1.15	35.38
Aug.	0	3,189.43	3,189.43	1,556.54	4,745.97	153.09	6,519.97	210.32	32.78
Sept.	0	3,189.32	3,189.32	1,353.57	4,542.89	151.43	1,917.89	63.93	40.52
For Yr.	195.81	37,994.23	38,190.04	15,845.05	54,035.09	148.04	51,209.09	140.30	109.55

†Flashboard Leakage.

**TABLE 7**  
**SCITUATE WATERSHED — REFORESTATION**  
**NUMBER AND KINDS OF TREES PLANTED IN VARIOUS YEARS**

Planted During Calendar Year	Balsam Fir	Red Pine	White Pine	Douglas Fir	Austrian Pine	Scotch Pine	Jack Pine	White Spruce	Norway Spruce	Hemlock	Larch	Total Number Planted Yearly
1926 .....	0	160,000	40,000	0	0	0	0	0	0	0	0	200,000
1927 .....	0	60,000	150,000	0	0	0	0	0	0	0	0	210,000
1928 .....	0	10,000	10,000	0	0	0	0	0	0	0	0	20,000
1929 .....	0	10,000	75,000	0	0	0	0	0	0	0	0	85,000
1930 .....	0	40,000	40,000	0	0	0	0	0	0	0	0	80,000
1931 .....	0	40,000	50,000	0	0	0	0	9,000	0	0	0	99,000
1932 .....	0	40,000	40,000	0	0	0	0	20,000	0	0	0	100,000
1933 .....	0	0	0	0	0	0	0	0	0	0	0	0
1934 & 1935 .....	0	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936 .....	0	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937 .....	0	481,100	0	0	0	0	0	213,200	0	0	0	694,300
1938 .....	0	229,000	21,693	0	0	0	0	0	0	0	0	250,693
1939 .....	0	8,000	761,000	0	0	0	50,000	0	0	0	0	819,000
1940 .....	0	267,387	618,828	0	45,916	0	67,750	0	0	0	0	999,881
1941 .....	0	51,000	295,650	0	0	0	0	34,350	0	0	0	381,000
1942 .....	0	0	308,120	0	0	0	0	0	0	0	0	308,120
1943 .....	0	0	0	0	0	0	0	0	0	0	0	0
1944 .....	0	0	0	0	0	0	0	0	0	0	0	0
1945 .....	0	0	0	0	0	0	0	0	0	0	0	0
1946 .....	0	0	0	0	0	0	0	0	0	0	0	0
1947 .....	0	0	0	0	0	0	0	0	0	0	0	0
1948 .....	0	0	0	0	0	0	0	0	0	0	0	0
1949 .....	0	0	0	0	0	0	0	0	0	0	0	0
1950 .....	0	0	0	0	0	0	0	0	0	0	0	0
1951 .....	0	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952 .....	0	20,000	0	0	0	0	0	10,000	0	0	10,000	40,000
1953 .....	0	10,000	0	0	0	0	0	6,000	0	0	0	16,000
1954 .....	2,000	0	0	2,000	0	0	0	0	0	0	6,000	10,000
1955 .....	0	0	5,000	0	0	0	0	0	0	0	5,000	10,000
<b>TOTALS .....</b>	<b>2,000</b>	<b>2,635,187</b>	<b>2,782,791</b>	<b>14,000</b>	<b>96,316</b>	<b>136,000</b>	<b>121,750</b>	<b>817,350</b>	<b>219,000</b>	<b>29,000</b>	<b>21,000</b>	<b>6,874,594</b>

TABLE 8

GAINER DAM HYDRO-ELECTRIC PLANT\*  
POWER STATISTICS ON THE BASIS OF THE "CONTRACT  
YEAR" WITH THE NARRAGANSETT ELECTRIC COMPANY

Contract Year	KWH Generated at Gainer Dam	KWH Used at Gainer Dam and Water Purification Works	Net KWH Delivered to Narrag. Elec. Co.	Payment Received
(Period June 20-30, 1930)....	87,000	6,470	75,100	\$300.40
July 1930—June 1931.....	3,023,000	152,940	2,758,340	20,000.00
July 1931—June 1932.....	4,201,500	158,070	3,980,570	19,600.00
July 1932—June 1933.....	7,024,900	155,210	6,697,656	26,790.62
July 1933—June 1934.....	5,080,900	152,420	4,837,371	19,349.48
July 1934—June 1935.....	7,102,900	174,710	6,756,101	27,024.40
July 1935—June 1936.....	5,761,200	173,530	5,394,176	21,576.70
July 1936—June 1937.....	5,626,000	174,110	5,262,807	21,051.23
July 1937—June 1938.....	6,438,300	156,710	6,069,927	24,279.71
July 1938—June 1939.....	8,915,000	159,860	8,457,980	33,831.92
July 1939—June 1940.....	4,681,100	231,850	4,329,115	17,316.46
July 1940—June 1941.....	3,291,200	185,540	2,982,991	16,000.00
July 1941—June 1942.....	2,585,300	194,250	2,322,916	15,600.00
July 1942—June 1943.....	4,655,800	170,520	4,372,359	17,489.44
July 1943—June 1944.....	2,290,100	183,250	2,096,811	14,597.25
July 1944—June 1945.....	4,146,200	187,080	3,879,622	15,518.49
July 1945—June 1946.....	4,754,100	200,200	4,460,596	17,343.70
July 1946—June 1947.....	3,494,400	251,270	3,224,049	13,600.00
July 1947—June 1948.....	5,576,900	249,940	5,313,209	21,252.84
July 1948—June 1949.....	3,790,500	264,160	3,521,404	14,085.62
July 1949—June 1950.....	1,972,200	303,460	1,548,000	9,288.00
July 1950—June 1951.....	4,965,900	322,220	4,476,900	26,861.40
July 1951—June 1952.....	6,381,400	329,080	5,836,700	35,020.20
July 1952—June 1953.....	4,993,400	351,080	4,429,900	26,579.40
July 1953—June 1954.....	3,945,700	389,050	3,389,000	20,334.00
July 1954—June 1955.....	6,776,900	422,250	6,111,000	36,666.00

\*1875 KVA 3 Phase, 60 Cycles, 2300 Volts, 80 Ft. Head Turbo-Generator.

(e Estimated; 739-year Average.

**TABLE 9**  
**WATER PURIFICATION WORKS**  
**OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955**

1954-1955	Influent Aerator Hours Operated	Plant Influent Mil. Gals.		Water Filtered Mil. Gals.		Wash Water Mil. Gals.		Plant Effluent Mil. Gals.		Plant Effluent Flow Hours	Number of Filters In Operation			Avg. Rate of Filtration per M.C.D.
		Total	Avg. per Day	Total	Avg. per day	Total	Avg. per Day	Total	Avg. per Day		Max.	Min.	Avg.	
Oct. ....	745.0	1,270.92	41.00	1,245.839	40.188	10,721	0.346	1,235.118	39.842	745.0	13.0	2.0	8.6	4.65
Nov. ....	718.4	1,154.21	38.47	1,141.783	38.058	7,359	0.245	1,134.424	37.814	720.0	14.0	3.0	8.2	4.65
Dec. ....	744.0	1,224.50	39.50	1,160.166	37.423	7,244	0.234	1,152.922	37.191	744.0	12.5	4.0	8.1	4.60
Jan. ....	744.0	1,230.15	39.68	1,163.742	37.540	9,312	0.316	1,153.930	37.223	744.0	12.5	4.0	8.1	4.62
Feb. ....	672.0	1,145.61	40.91	1,086.060	38.788	10,488	0.374	1,073.572	38.413	672.0	14.0	5.0	8.7	4.45
Mar. ....	744.0	1,250.97	40.35	1,183.453	38.176	9,560	0.308	1,173.893	37.867	744.0	14.0	4.5	9.1	4.17
Apr. ....	715.0	1,177.74	39.26	1,117.073	37.236	8,221	0.274	1,108.852	36.062	717.1	13.5	2.5	8.1	4.61
May ....	744.0	1,374.66	44.34	1,301.433	41.982	12,563	0.403	1,288.870	41.376	744.0	14.0	4.0	9.1	4.61
June ....	720.0	1,443.79	48.13	1,346.204	44.873	11,197	0.373	1,335.007	44.500	720.0	14.0	3.5	8.0	5.61
July ....	744.0	1,662.39	53.62	1,559.261	50.299	10,808	0.349	1,548.453	49.950	744.0	14.0	3.0	8.1	6.21
Aug. ....	744.0	1,556.54	50.21	1,467.869	47.351	8,453	0.273	1,459.416	47.078	744.0	14.0	2.0	6.9	6.86
Sept. ....	720.0	1,353.57	45.12	1,274.404	42.480	7,048	0.235	1,267.356	42.245	720.0	14.0	3.5	8.7	4.90
Totals ....	8,754.4	15,845.05	.....	15,047.287	.....	113,474	.....	14,933.813	.....	8,758.1	.....	.....	.....	.....
Average ....	729.5	.....	43.41	.....	41.225	.....	0.311	.....	40.914	729.8	.....	.....	8.3	4.96

Raw water treated with Ferri-Floc before Influent Aeration.  
Quick lime added to Ferri-Floc treated water in conduit opposite Fluoridation Room.  
Chlorine added to water after filtration.  
Sodium Silicofluoride added to water after filtration.  
Raw water drawn from lower intake at Gainer Memorial Dam all year.

**Table 9 (Continued)**  
**WATER PURIFICATION WORKS**  
**OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955**

1954- 1955	Number of Filters Washed			Ferri-Floc Used			Quicklime Used			Chlorine Used			Sodium Silicofluoride Used			Fuel Oil Used for Heating—Gals.	
	No. of Filters	Avg. Per Day	Sum of Days	Lbs.	Avg. Per Day	Gr. Per Gal.	Lbs.	Avg. Per Day	Gr. Per Gal.	Lbs.	Avg. Per Day	Parts Per Mil.	Lbs.	Avg. Per Day	Parts Per Mil.*	No. 2	No. 6
Oct. . . . .	81	2.5	85.16	102,177	3,296	0.56	121,214	3,910	0.67	3,128	101	0.30	14,968	483	1.11	509	2,083
Nov. . . . .	59	2.0	98.85	95,597	3,186	0.58	104,830	3,494	0.63	2,901	97	0.31	16,684	556	1.06	162	8,380
Dec. . . . .	69	2.2	90.02	104,436	3,369	0.60	104,205	3,361	0.59	2,950	95	0.31	16,426	530	1.06	39	10,115
Jan. . . . .	110	3.5	56.45	141,056	4,550	0.80	123,605	3,987	0.70	2,904	94	0.30	16,781	541	1.12	117	11,292
Feb. . . . .	99	3.5	60.37	157,895	5,639	0.96	120,192	4,292	0.74	2,740	98	0.31	15,606	557	1.04	548	10,444
Mar. . . . .	91	2.9	72.49	143,043	4,614	0.80	124,588	4,019	0.66	2,973	96	0.30	17,024	549	1.06	631	10,101
Apr. . . . .	69	2.3	85.56	117,988	3,933	0.70	114,217	3,807	0.68	2,885	96	0.31	16,385	546	1.07	323	5,931
May . . . . .	97	3.1	70.13	130,923	4,223	0.67	130,658	4,215	0.66	4,583	148	0.43	19,092	616	1.07	477	60
June . . . . .	85	2.8	66.61	136,301	4,543	0.66	128,701	4,290	0.62	3,984	133	0.36	16,736	558	0.91	556	0
July . . . . .	79	2.5	77.61	157,730	5,088	0.66	159,835	5,156	0.67	3,804	123	0.30	18,550	598	0.91	802	0
Aug. . . . .	61	2.0	80.78	146,664	4,731	0.66	151,239	4,879	0.68	3,653	118	0.31	18,269	589	0.92	671	0
Sept. . . . .	51	1.7	118.15	114,585	3,810	0.59	119,961	3,999	0.62	5,245	175	0.38**	15,532	518	0.92	718	225
Totals . . . . .	951	.....	.....	1,548,395	.....	.....	1,503,245	.....	.....	41,750	.....	.....	202,053	.....	.....	5,553	58,631
Average . . . . .	.....	2.6	77.00	.....	4,242	0.68	.....	4,118	0.66	.....	114	0.33**	.....	553	1.01	463	4,886

Total filter hours for year, 72,828.52; average per day, 199.53.  
Average quantity of water filtered per filter per run, 15.91 m.g.  
\*Dosage expressed as p.p.m. of Fluoride ion.  
\*\*Dosage applied to plant effluent delivered to Siltuate Aqueduct.  
In addition, chlorine was also applied to water after Influent Aeration from Sept. 26 to Sept. 30 at an average dosage of 0.66 p.p.m.

**TABLE 10**  
**WATER PURIFICATION WORKS**  
**CHEMICALS USED DURING THE FISCAL YEAR ENDED**  
**SEPTEMBER 30, 1955**

Chemicals	Pounds of Chemicals Used		Total Gallons of Water Treated	Cost of Chemicals	Pounds of Chemicals Used per 1,000,000 Gals. of Water Treated (Avg.)	Cost of Chemicals Per 1,000,000 Gals. of Water Treated
	Total	Lbs. Per Day (Avg.)				
Ferri-Floc. ....	6,548,395	4,242	15,845,050,000	\$38,229.87	97.72	\$2.41
Quicklime ....	1,503,245	4,118	15,845,050,000	14,359.24	94.87	0.91
Chlorine .....	41,750	114	14,838,759,000	3,653.13	2.77	0.25
Sod. Silicofluoride.	202,053	553	14,382,178,000	14,649.82	14.05	1.02
Totals .....	3,295,443			\$70,892.06		\$4.59

Price of Ferri-Floc—From Oct. 1, 1954 to Sept. 30, 1955—\$49.38 per ton.  
Price of Quicklime—From Oct. 1, 1954 to Apr. 13, 1955—\$18.93 per ton; from Apr. 14 to Sept. 30, 1955—\$19.43 per ton.  
Price of Chlorine—From Oct. 1, 1954 to Sept. 30, 1955—\$0.0875 per pound.  
Price of Sodium Silicofluoride—From Oct. 1, 1954 to Aug. 8, 1955—\$144.08 per ton; from Aug. 9 to Sept. 30, 1955—\$152.80 per ton.

**TABLE 11**  
**WATER PURIFICATION WORKS**  
**\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**  
**PROCESS OF FILTRATION**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. Year for
<b>Alkalinity</b>													
Raw .....	4.1	3.9	3.8	3.6	3.5	3.6	3.7	3.8	3.7	4.1	3.7	3.8	3.8
Effluent .....	16.2	14.5	14.5	14.6	13.7	14.2	14.7	15.2	14.2	15.7	15.8	15.0	14.8
Tap .....	14.6	12.6	12.3	12.7	11.9	12.2	12.5	12.8	12.5	14.1	13.9	13.1	12.9
<b>Hardness</b>													
Raw .....	9	9	8	7	8	8	8	8	8	9	9	8	8
Effluent .....	28	27	26	27	29	28	28	28	28	29	28	28	28
Tap .....	28	28	26	28	30	29	28	28	28	28	29	28	28
<b>Hydrogen Ion Concentration</b>													
Raw .....	6.3	6.3	6.3	6.3	6.2	6.2	6.3	6.1	6.0	6.0	5.9	5.9	6.1
Aerated Influent .....	4.3	4.3	4.2	4.1	3.9	4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.1
Treated .....	9.7	9.7	9.5	9.6	9.5	9.6	9.6	9.6	9.6	9.6	9.6	9.5	9.6
Settled .....	9.7	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6	9.5	9.5	9.5
Filtered .....	9.6	9.5	9.5	9.6	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Effluent .....	9.6	9.5	9.5	9.6	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Tap .....	9.4	9.3	9.3	9.3	9.2	9.2	9.2	9.3	9.2	9.4	9.3	9.2	9.3
<b>Free CO<sub>2</sub></b>													
Raw .....	2.1	1.9	1.6	1.8	2.3	1.7	1.8	1.9	2.9	4.3	5.2	5.8	2.8
Aerated Influent .....	5.7	6.0	6.1	8.8	11.3	8.6	7.9	7.4	7.0	7.5	7.6	7.1	7.6
<b>Phenolphthalein Alkalinity</b>													
Treated .....	10.8	10.3	9.1	9.6	9.4	9.0	10.2	10.4	9.6	10.4	10.2	9.5	9.9
Settled .....	10.2	9.2	8.7	9.2	8.6	8.3	9.0	9.7	9.1	9.7	9.7	8.9	9.2
Filtered .....	10.1	8.9	8.6	9.3	8.4	8.4	9.0	9.6	8.9	9.7	9.6	8.8	9.1
Effluent .....	10.1	8.8	8.6	9.1	8.4	8.3	8.9	9.5	8.8	9.6	9.5	8.7	9.0
Tap .....	7.7	6.4	6.3	6.9	6.2	6.1	6.3	6.4	6.3	7.1	7.0	6.5	6.6
<b>Color</b>													
Raw .....	12	14	15	20	20	16	13	11	11	12	11	13	14
Effluent .....	7	8	7	11	8	5	6	6	7	7	7	8	7
Tap .....	6	7	7	11	8	5	6	6	6	7	7	7	7
<b>Turbidity</b>													
Raw .....	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.1
Settled .....	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1
Effluent .....	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Iron</b>													
Raw .....	.03	.04	.03	.12	.09	.08	.04	.02	.03	.05	.07	.13	.06
Settled .....	.39	.42	.56	.87	.76	.78	.42	.40	.46	.40	.33	.35	.51
Effluent .....	.00	.01	.02	.06	.04	.03	.01	.01	.00	.00	.00	.00	.01
Tap .....	.00	.01	.01	.07	.05	.03	.01	.01	.01	.01	.00	.00	.02
<b>Manganese</b>													
Raw .....	.05	.02	.01	.03	.04	.02	.02	.00	.00	.01	.02	.07	.02
Settled .....	.02	.01	.00	.01	.01	.01	.00	.00	.00	.00	.01	.02	.01
Effluent .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tap .....	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
<b>Fluoride</b>													
Raw .....	.22	.16	.23	.23	.25	.25	.24	.19	.19	.16	.20	.19	.21
Effluent .....	.18	.21	.19	.16	.18	.17	.17	.15	.15	.15	.16	.17	.17
Tap .....	.95	1.15	1.12	1.14	1.15	1.15	1.16	1.15	1.01	.94	1.00	.97	1.07
<b>Temperature (°F.)</b>													
Air (av. of daily max.)	66	50	40	34	40	45	57	70	70	82	79	70	58
Air (av. of daily min.)	46	35	25	19	22	28	40	48	55	65	62	51	41
Raw water .....	62	52	42	36	37	38	44	49	51	52	53	54	47
Water on filters .....	61	50	39	35	36	38	45	53	55	57	58	58	49
Tap .....	63	54	43	38	38	40	45	53	60	64	65	63	52

\*Parts per million, except pH and Temperature.

**TABLE 12**  
**WATER PURIFICATION WORKS**  
**\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**  
**VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Color</b>													
Coventry Brook ....	28	55	17	11	21	13	42	28	41	13	38	43	29
Wilbur Brook .....	74	108	27	28	27	24	85	83	130	120	132	86	77
Westconnaug Res.....	14	21	16	13	12	9	25	11	13	14	16	27	16
Barden Reservoir ....	42	82	27	23	28	25	23	32	25	39	94	42	40
Cork Brook .....	14	42	15	8	12	9	30	11	11	20	23	23	18
Rush Brook .....	68	56	20	12	23	14	45	53	68	9	72	84	44
Huntinghouse Brook ..	33	46	18	13	12	14	23	26	39	33	75	30	30
Harrisdale Brook ....	34	45	19	14	12	13	23	25	38	27	41	31	27
Blanchard Brook .....	184	192	58	116	38	45	165	240	320	**	300	172	166
Moswansicut Pond ..	15	27	14	12	13	9	27	44	60	15	50	33	26
Regulating Reservoir ..	66	52	20	11	23	16	38	43	66	25	74	98	44
Quonapaug Brook ....	325	172	35	48	32	34	140	185	230	**	130	192	138
Hemlock Brook .....	55	84	33	23	28	26	19	29	30	33	60	48	39
Betty Pond Stream....	23	18	15	10	8	10	14	19	25	16	28	33	18
Spruce Brook .....	56	82	28	17	24	21	47	45	90	44	70	85	51
<b>Turbidity</b>													
Coventry Brook ....	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Wilbur Brook .....	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.2	0.3	0.1
Westconnaug Res.....	0.1	0.0	0.2	0.2	0.2	0.1	0.3	0.1	0.2	0.1	0.1	0.2	0.1
Barden Reservoir ....	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.3	0.1	0.1
Cork Brook .....	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.3	0.1	0.1
Rush Brook .....	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.4	0.1	0.1
Huntinghouse Brook ..	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.1	0.1
Harrisdale Brook ....	0.1	0.2	0.1	0.2	0.2	0.0	0.3	0.2	0.3	0.2	0.1	0.1	0.2
Blanchard Brook .....	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.1	**	0.3	0.1	0.1
Moswansicut Pond ..	0.0	0.2	0.2	0.2	0.2	0.1	0.3	0.7	0.1	0.3	0.5	0.5	0.3
Regulating Reservoir ..	0.0	0.1	0.2	0.3	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.3	0.1
Quonapaug Brook ....	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.2	1.3	**	0.4	0.2	0.2
Hemlock Brook .....	0.1	0.0	0.8	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.3	0.2
Betty Pond Stream....	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.0	0.4	0.2	0.0	0.3	0.2
Spruce Brook .....	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1
<b>Iron</b>													
Coventry Brook ....	0.02	0.04	0.01	0.03	0.02	0.02	0.01	0.04	0.14	0.24	0.06	0.12	0.06
Wilbur Brook .....	.70	.29	.04	.07	.03	.04	.14	.58	.65	1.50	.57	.34	.41
Westconnaug Res.....	.05	.02	.01	.05	.02	.04	.11	.15	.15	.15	.12	.13	.08
Barden Reservoir ....	.33	.10	.05	.08	.03	.03	.04	.13	.13	.58	.25	.33	.17
Cork Brook .....	.02	.03	.00	.02	.02	.02	.02	.02	.04	.24	.04	.04	.04
Rush Brook .....	.34	.04	.02	.03	.03	.02	.05	.17	.20	.00	.31	.33	.13
Huntinghouse Brook ..	.42	.15	.04	.06	.02	.08	.12	.28	.49	.45	.24	.20	.21
Harrisdale Brook ....	.46	.13	.10	.05	.01	.05	.12	.25	.53	.53	.28	.32	.23
Blanchard Brook .....	1.15	.44	.08	.30	.15	.09	.22	.70	.95	**	.92	.58	.51
Moswansicut Pond ..	.02	.40	.25	.15	.20	.40	.31	1.44	1.80	.11	1.64	.95	.64
Regulating Reservoir ..	.35	.02	.00	.04	.02	.17	.05	.26	.33	.40	.41	.41	.20
Quonapaug Brook ....	2.05	.50	.03	.10	.10	.14	.24	.82	.97	**	.70	.54	.56
Hemlock Brook .....	.40	.07	.00	.05	.02	.02	.04	.23	.28	.37	.17	.38	.17
Betty Pond Stream....	.20	.00	.00	.03	.02	.13	.14	.20	.32	.28	.10	.13	.13
Spruce Brook .....	.03	.03	.00	.02	.02	.01	.11	.07	.20	.22	.23	.24	.10
<b>Manganese</b>													
Coventry Brook ....	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Wilbur Brook .....	.03	.00	.00	.03	.00	.00	.02	.04	.00	.10	.00	.04	.02
Westconnaug Res.....	.00	.00	.00	.03	.00	.00	.01	.02	.01	.00	.00	.00	.01
Barden Reservoir ....	.00	.06	.02	.04	.00	.02	.01	.03	.01	.03	.07	.03	.03
Cork Brook .....	.00	.02	.00	.00	.00	.00	.00	.00	.01	.04	.00	.00	.01
Rush Brook .....	.01	.03	.00	.05	.00	.01	.00	.00	.00	.01	.00	.01	.01
Huntinghouse Brook ..	.00	.00	.00	.00	.00	.01	.04	.00	.01	.05	.00	.00	.01
Harrisdale Brook ....	.00	.00	.00	.00	.00	.00	.01	.00	.02	.00	.00	.00	.00
Blanchard Brook .....	.05	.03	.04	.09	.02	.00	.02	.00	.01	**	.01	.01	.02
Moswansicut Pond ..	.00	.00	.00	.06	.00	.01	.01	.04	.08	.03	.13	.01	.03
Regulating Reservoir ..	.00	.00	.00	.03	.00	.00	.02	.00	.01	.01	.01	.00	0.1
Quonapaug Brook ....	.07	.02	.02	.10	.00	.01	.01	.02	.02	**	.01	.02	.03
Hemlock Brook .....	.04	.06	.04	.05	.01	.01	.00	.01	.01	.02	.11	.04	.03
Betty Pond Stream....	.00	.00	.02	.04	.00	.00	.02	.01	.01	.02	.00	.00	.01
Spruce Brook .....	.00	.01	.01	.00	.00	.00	.01	.00	.01	.01	.01	.01	.01

\*Parts per million.

\*\*No Sample Obtained—Brook Dry.

**Table 12 (Continued)**  
**WATER PURIFICATION WORKS**  
**\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**  
**VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Hydrogen Ion Concentration</b>													
Coventry Brook . . . .	6.1	6.0	6.0	6.1	6.9	6.7	6.0	6.1	6.2	6.5	6.1	6.1	6.2
Wilbur Brook . . . .	5.9	5.8	5.9	5.8	6.9	6.1	5.9	6.1	6.1	6.3	5.7	5.7	6.0
Westconnaug Res. . . .	6.3	6.1	6.4	6.2	7.3	6.1	6.2	6.4	6.3	6.5	6.2	6.2	6.3
Barden Reservoir . . . .	6.1	5.7	6.0	6.1	6.7	6.3	6.2	6.4	6.3	6.4	5.7	6.1	6.2
Cork Brook . . . . .	6.3	5.9	6.1	5.9	6.7	6.1	6.2	6.3	6.2	6.7	6.2	6.1	6.2
Rush Brook . . . . .	6.2	6.0	6.1	5.8	6.9	6.1	6.1	6.2	6.3	6.3	6.0	6.0	6.2
Huntinghouse Brook . . .	6.4	6.1	6.1	6.3	8.6	6.7	6.3	6.4	6.5	6.7	6.2	6.2	6.5
Harrisdale Brook . . . .	6.5	6.2	6.2	6.2	7.3	6.9	6.5	6.5	6.6	6.9	6.4	6.3	6.5
Blanchard Brook . . . .	5.7	5.7	5.7	5.7	6.1	6.3	5.7	5.8	5.8	**	5.6	5.5	5.8
Moswansicut Pond . . . .	6.4	6.2	6.1	6.0	8.7	6.9	6.3	6.1	6.4	6.5	5.9	6.1	6.5
Regulating Reservoir . .	6.3	6.0	6.1	5.9	7.1	7.1	6.2	6.2	6.4	6.7	6.0	6.0	6.3
Quonapaug Brook . . . .	5.8	5.8	5.8	5.7	6.9	6.0	5.7	5.9	5.9	**	5.7	5.6	5.9
Hemlock Brook . . . . .	6.0	5.9	5.9	6.1	6.5	6.7	6.3	6.4	6.5	6.5	5.7	6.0	6.2
Betty Pond Stream . . . .	6.0	6.1	5.9	5.8	6.3	6.4	6.3	6.0	6.1	6.0	5.7	5.7	6.0
Spruce Brook . . . . .	6.1	5.9	5.9	6.0	6.7	6.3	5.9	6.3	6.1	6.7	5.9	5.7	6.1
<b>Free CO<sub>2</sub></b>													
Coventry Brook . . . .	4.0	8.0	5.0	3.5	1.5	2.0	6.5	3.0	2.5	2.5	2.5	4.0	3.7
Wilbur Brook . . . . .	8.5	9.5	6.0	10.0	1.5	6.5	10.0	8.0	5.0	4.5	11.5	11.0	7.7
Westconnaug Res. . . .	3.5	4.0	3.0	2.5	1.5	5.0	5.0	2.0	2.0	1.0	2.0	2.5	2.8
Barden Reservoir . . . .	4.5	7.5	4.0	3.0	2.0	3.0	4.0	2.5	1.5	1.5	7.5	3.0	3.7
Cork Brook . . . . .	3.0	5.5	3.0	4.5	1.5	4.0	4.0	2.0	2.0	1.5	2.5	3.0	3.0
Rush Brook . . . . .	6.5	5.5	3.5	12.0	1.5	4.0	5.5	4.0	3.0	3.0	6.0	5.0	4.9
Huntinghouse Brook . . .	4.0	4.5	4.5	5.0	0.0	2.5	5.0	2.5	2.5	3.5	4.5	4.5	3.6
Harrisdale Brook . . . .	3.0	4.0	5.0	5.0	1.0	2.0	4.0	3.0	2.0	1.5	2.5	3.5	3.0
Blanchard Brook . . . .	13.5	12.0	11.0	48.0	4.0	1.5	15.0	11.0	10.0	**	24.0	15.0	15.0
Moswansicut Pond . . . .	2.0	5.0	4.5	6.5	0.0	2.0	6.0	11.0	3.5	1.0	23.0	11.0	6.3
Regulating Reservoir . .	5.0	5.0	3.5	13.5	1.5	1.0	4.5	5.0	3.0	1.5	7.0	6.0	4.7
Quonapaug Brook . . . .	24.0	15.5	12.5	24.0	1.5	8.0	17.0	14.0	9.5	**	18.0	19.0	14.8
Hemlock Brook . . . . .	5.0	7.5	8.0	4.0	2.0	2.5	3.5	2.5	2.0	1.5	8.5	4.0	4.2
Betty Pond Stream . . . .	4.0	4.5	8.0	16.5	2.5	2.5	4.5	5.5	2.5	3.5	9.0	8.5	5.9
Spruce Brook . . . . .	4.0	8.0	4.5	5.0	1.5	3.0	8.0	3.0	4.5	2.0	6.5	8.0	4.8
<b>Alkalinity</b>													
Coventry Brook . . . .	5.0	3.5	5.0	5.5	4.5	3.5	4.5	4.5	5.0	6.5	5.0	4.0	4.7
Wilbur Brook . . . . .	6.0	3.5	4.0	5.0	4.5	4.0	4.5	7.0	6.5	10.0	6.0	3.5	5.4
Westconnaug Res. . . .	3.5	3.0	4.5	4.0	4.5	3.5	4.5	5.0	4.0	3.5	5.0	4.5	4.4
Barden Reservoir . . . .	4.5	2.5	3.0	3.0	2.5	2.5	4.0	4.0	4.0	5.0	2.5	3.5	3.4
Cork Brook . . . . .	5.0	3.0	3.5	4.0	3.5	3.5	4.5	4.5	4.0	6.0	5.0	4.0	4.2
Rush Brook . . . . .	7.5	3.0	4.0	7.5	3.5	3.5	4.0	5.5	6.0	11.0	6.0	4.5	5.5
Huntinghouse Brook . . .	8.5	5.5	5.5	8.0	6.5	6.5	8.5	8.5	9.0	16.0	7.0	8.0	8.1
Harrisdale Brook . . . .	9.5	5.5	6.0	9.0	6.5	6.0	8.5	8.5	10.0	13.0	8.5	9.0	8.3
Blanchard Brook . . . .	3.0	2.0	2.5	3.5	3.5	3.5	4.0	4.0	6.0	**	4.0	2.5	3.5
Moswansicut Pond . . . .	5.0	10.5	7.0	7.5	7.0	7.5	8.5	11.5	13.0	7.5	19.5	12.5	9.7
Regulating Reservoir . .	8.0	3.5	4.0	7.0	4.0	6.0	5.0	6.5	6.0	7.5	6.0	4.0	5.6
Quonapaug Brook . . . .	9.5	4.0	3.5	5.0	4.5	3.0	5.5	6.5	11.0	**	9.0	4.0	5.9
Hemlock Brook . . . . .	3.5	2.5	3.0	4.0	3.5	4.0	4.0	4.5	5.0	6.0	4.0	4.0	4.0
Betty Pond Stream . . . .	5.0	4.0	3.5	6.5	3.5	3.0	5.5	5.0	4.0	4.0	4.0	5.0	4.4
Spruce Brook . . . . .	3.5	3.0	3.5	3.0	3.5	3.5	4.0	3.0	4.5	7.5	4.5	3.0	3.9

\*Parts per million, except pH.  
\*\*No Sample Obtained—Brook Dry.

**TABLE 13**  
**WATER PURIFICATION WORKS**  
**CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**  
**VARIOUS PARTS OF THE DISTRIBUTION SYSTEM**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Hydrogen Ion Concentration</b>													
Neutaconkanut Reservoir...	9.4	9.3	9.3	9.3	9.2	9.2	9.2	9.2	9.2	9.3	9.3	9.3	9.3
Wayland Ave., Cranston...	9.5	9.3	9.3	9.3	9.2	9.2	9.2	9.3	9.3	9.4	9.3	9.2	9.3
Westminster St., Olneyville	9.5	9.3	9.3	9.4	9.2	9.2	9.3	9.3	9.3	9.4	9.4	9.2	9.3
Budlong Road, Cranston...	9.5	9.3	9.3	9.4	9.2	9.3	9.3	9.3	9.3	9.4	9.4	9.2	9.3
Reservoir Ave., Cranston...	9.4	9.3	9.3	9.4	9.2	9.2	9.2	9.3	9.2	9.4	9.3	9.2	9.3
Post Road, Warwick.....	9.5	9.3	9.3	9.4	9.3	9.2	9.3	9.3	9.3	9.4	9.4	9.3	9.3
Biltmore Hotel .....	9.5	9.3	9.3	9.4	9.2	9.2	9.2	9.3	9.3	9.4	9.3	9.2	9.3
Crown Hotel .....	9.5	9.2	9.3	9.4	9.2	9.2	9.2	9.3	9.3	9.4	9.3	9.2	9.3
Sewer Maintenance Bldg...	9.6	9.5	9.4	9.5	9.3	9.4	9.4	9.5	9.5	9.5	9.5	9.3	9.4
Longview Reservoir .....	9.4	9.3	9.3	9.3	9.2	9.2	9.2	9.2	9.3	9.5	9.5	9.5	9.3
<b>Phenolphthalein Alkalinity</b>													
Neutaconkanut Reservoir...	7.9	6.5	6.5	6.8	6.2	7.5	6.2	6.4	6.4	7.0	7.1	6.8	6.8
Wayland Ave., Cranston...	7.8	6.5	6.2	6.9	6.2	6.1	6.4	6.5	6.3	7.3	7.2	6.4	6.6
Westminster St., Olneyville	8.1	6.6	6.4	7.0	6.2	6.1	6.5	6.7	6.3	7.2	7.1	6.6	6.7
Budlong Road, Cranston...	8.2	6.7	6.5	7.1	6.4	6.3	6.4	6.7	6.6	7.2	7.3	6.8	6.8
Reservoir Ave., Cranston...	8.0	6.5	6.2	7.1	6.1	6.3	6.5	6.6	6.5	7.5	7.3	6.7	6.8
Post Road, Warwick.....	8.1	6.7	6.4	7.2	6.4	6.4	6.7	6.8	6.6	7.6	7.6	7.0	6.9
Biltmore Hotel .....	8.0	6.7	6.4	7.2	6.3	6.3	6.3	6.7	6.4	7.3	7.2	6.6	6.8
Crown Hotel .....	7.9	6.6	6.4	7.2	6.4	6.3	6.5	6.7	6.4	7.3	7.3	6.7	6.8
Sewer Maintenance Bldg...	10.0	8.3	7.5	8.1	7.2	7.4	7.7	8.2	8.0	8.6	8.5	7.1	8.0
Longview Reservoir .....	7.9	7.0	6.5	6.9	6.3	6.3	6.2	6.5	6.5	8.6	8.5	9.1	7.2
<b>Methyl Orange Alkalinity</b>													
Neutaconkanut Reservoir...	14.6	13.2	12.5	12.7	11.7	13.7	12.3	12.8	12.5	13.9	14.1	13.5	13.1
Wayland Ave., Cranston...	14.6	12.5	12.1	12.7	11.6	12.2	12.5	12.6	12.3	14.3	14.0	12.8	12.8
Westminster St., Olneyville	14.8	12.5	12.3	12.8	11.9	12.2	12.6	12.9	12.5	14.3	14.0	13.1	13.0
Budlong Road, Cranston...	14.6	12.8	12.4	12.8	11.8	12.3	12.6	13.0	12.7	14.8	14.3	13.3	13.1
Reservoir Ave., Cranston...	14.3	12.4	12.1	12.7	11.6	12.2	12.7	12.7	12.5	14.6	14.2	13.2	12.9
Post Road, Warwick.....	14.6	12.7	12.3	12.9	11.8	12.3	12.8	13.2	12.8	14.8	14.8	13.8	13.2
Biltmore Hotel .....	14.6	12.6	12.1	12.8	11.8	12.3	12.5	12.8	12.5	14.3	14.2	13.2	13.0
Crown Hotel .....	14.6	12.4	12.2	12.9	11.9	12.2	12.7	12.8	12.5	14.3	14.2	13.2	13.0
Sewer Maintenance Bldg...	16.9	14.6	13.7	14.0	12.8	13.4	14.3	14.8	14.6	16.1	15.8	13.8	14.6
Longview Reservoir .....	15.1	13.9	13.1	13.6	12.8	12.5	12.8	13.2	13.0	16.2	16.2	16.8	14.1
<b>Color</b>													
Neutaconkanut Reservoir...	6	6	6	10	8	5	5	7	7	6	7	7	7
Wayland Ave., Cranston...	6	6	6	10	8	5	5	6	6	7	7	7	6
Westminster St., Olneyville	6	6	6	11	8	5	5	6	6	7	7	7	6
Budlong Road, Cranston...	6	6	6	10	8	5	5	6	6	7	7	7	6
Reservoir Ave., Cranston...	6	6	6	11	8	5	6	5	6	7	7	7	7
Post Road, Warwick.....	7	8	8	12	12	7	7	6	6	7	7	8	8
Biltmore Hotel .....	6	7	6	10	8	5	6	5	6	7	7	7	7
Crown Hotel .....	6	7	6	10	8	5	6	6	6	7	7	7	7
Sewer Maintenance Bldg...	6	7	6	10	8	5	5	6	6	7	7	7	6
Longview Reservoir .....	6	6	6	9	8	6	5	6	6	7	10	10	7
<b>Iron</b>													
Neutaconkanut Reservoir...	0.00	0.00	0.01	0.05	0.04	0.02	0.02	0.04	0.06	0.01	0.01	0.01	0.02
Wayland Ave., Cranston...	.00	.00	.02	.06	.05	.03	.01	.01	.01	.01	.00	.00	.02
Westminster St., Olneyville	.00	.02	.01	.07	.05	.03	.02	.00	.01	.01	.00	.00	.02
Budlong Road, Cranston...	.00	.00	.01	.06	.04	.02	.01	.00	.01	.01	.00	.00	.01
Reservoir Ave., Cranston...	.00	.00	.02	.08	.05	.03	.02	.01	.02	.02	.01	.00	.02
Post Road, Warwick.....	.01	.03	.04	.12	.17	.12	.07	.03	.02	.02	.01	.02	.05
Biltmore Hotel .....	.00	.01	.02	.07	.05	.03	.02	.01	.01	.01	.00	.00	.02
Crown Hotel .....	.01	.01	.02	.07	.05	.03	.02	.01	.02	.02	.02	.01	.02
Sewer Maintenance Bldg...	.00	.00	.01	.06	.04	.02	.01	.01	.01	.01	.01	.00	.01
Longview Reservoir .....	.00	.00	.01	.05	.04	.03	.02	.01	.01	.02	.12	.09	.03

Sewer Maintenance Bldg. sampling location changed to Room 337, State Office Bldg., on Sept. 9, 1955.  
Longview Reservoir sample obtained from a Mineral Spring Ave. residence adjacent to the Reservoir from Oct. 1., 1954 to July 31, 1955, and at Our Lady of Fatima Hospital from Aug. 1 to Sept. 30, 1955.

**TABLE 13 (Continued)**  
**WATER PURIFICATION WORKS**  
**CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**  
**VARIOUS PARTS OF THE DISTRIBUTION SYSTEM**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Chlorides</b>													
Neutaconkanut Reservoir...	2.5	2.9	2.7	2.8	2.9	2.8	2.8	3.0	2.8	2.6	2.7	2.8	2.8
Wayland Ave., Cranston...	2.5	2.8	2.6	2.8	2.7	2.7	2.7	2.8	2.6	2.6	2.7	2.6	2.7
Westminster St., Olneyville	2.6	2.7	2.8	2.7	2.8	3.0	2.8	2.8	2.6	2.7	2.8	2.7	2.7
Budlong Road, Cranston...	2.7	2.8	2.9	2.6	2.7	2.9	2.7	2.8	2.6	2.6	2.6	2.8	2.7
Reservoir Ave., Cranston...	2.5	2.8	2.7	2.8	2.7	2.8	2.7	2.7	2.7	2.6	2.8	2.7	2.7
Post Road, Warwick.....	2.6	2.8	2.9	2.8	2.7	2.9	2.7	2.9	2.7	2.7	2.9	2.8	2.8
Biltmore Hotel .....	2.6	2.8	2.8	2.8	2.7	2.9	2.7	2.9	2.7	2.5	2.7	2.8	2.7
Crown Hotel .....	2.6	2.8	2.8	2.7	2.8	2.9	2.8	2.9	2.8	2.7	2.7	2.8	2.8
Sewer Maintenance Bldg...	2.6	2.7	2.7	2.7	2.6	2.7	2.7	2.9	2.6	2.6	2.6	2.7	2.7
Longview Reservoir .....	2.6	2.9	2.9	2.8	2.9	3.0	2.8	3.0	2.7	2.7	2.9	2.8	2.7
<b>Nitrites</b>													
Neutaconkanut Reservoir...	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Wayland Ave., Cranston...	.001	.001	.001	.001	.001	.001	.002	.001	.002	.002	.002	.001	.001
Westminster St., Olneyville	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Budlong Road, Cranston...	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.002	.001	.001
Reservoir Ave., Cranston...	.001	.000	.000	.001	.001	.001	.001	.001	.001	.002	.002	.001	.001
Post Road, Warwick.....	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Biltmore Hotel .....	.001	.001	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Crown Hotel .....	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Sewer Maintenance Bldg...	.000	.000	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Longview Reservoir .....	.001	.001	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
<b>Taste</b>													
Neutaconkanut Reservoir...	0	0	0	0	0	0	0	0	0	0	0	0	0
Wayland Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Post Road, Warwick.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Sewer Maintenance Bldg...	0	0	0	0	0	0	0	0	0	0	0	0	0
Longview Reservoir .....	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Odor</b>													
Neutaconkanut Reservoir...	0	0	0	0	0	0	0	0	0	0	0	0	0
Wayland Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Post Road, Warwick.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel .....	0	0	0	0	0	0	0	0	0	0	0	0	0
Sewer Maintenance Bldg...	0	0	0	0	0	0	0	0	0	0	0	0	0
Longview Reservoir .....	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Fluoride</b>													
Neutaconkanut Reservoir...	0.94	1.13	1.15	1.14	1.16	1.15	1.16	1.15	1.03	0.94	0.99	0.99	1.08
Wayland Ave., Cranston...	0.93	1.16	1.08	1.15	1.10	1.12	1.14	1.12	0.99	0.74	0.94	1.02	1.04
Westminster St., Olneyville	0.99	1.18	1.10	1.15	1.14	1.12	1.16	1.15	0.99	1.02	1.00	1.08	1.09
Budlong Road, Cranston...	0.99	1.17	1.11	1.15	1.15	1.13	1.19	1.15	0.98	0.83	1.00	1.01	1.07
Reservoir Ave., Cranston...	1.02	1.13	1.12	1.13	1.15	1.09	1.16	1.13	1.01	0.73	1.00	1.01	1.06
Post Road, Warwick.....	0.88	1.15	1.09	1.11	1.13	1.16	1.16	1.12	0.99	0.94	0.99	1.02	1.06
Biltmore Hotel .....	0.92	1.15	1.10	1.13	1.15	1.14	1.17	1.13	1.00	0.95	1.01	1.01	1.07
Crown Hotel .....	0.94	1.15	1.10	1.14	1.15	1.16	1.17	1.12	0.99	0.92	1.01	1.02	1.07
Sewer Maintenance Bldg...	0.88	1.15	1.10	1.14	1.15	1.15	1.18	1.12	0.99	0.93	0.95	1.01	1.06
Longview Reservoir .....	0.93	1.11	1.11	1.12	1.13	1.14	1.15	1.13	1.06	0.95	0.98	1.00	1.07

Sewer Maintenance Bldg. sampling location changed to Room 337, State Office Bldg., on Sept. 9, 1955.  
Longview Reservoir sample obtained from a Mineral Spring Ave. residence adjacent to the Reservoir from Oct. 1, 1954 to July 31, 1955, and at Our Lady of Fatima Hospital from Aug. 1 to Sept. 30, 1955.

TABLE 14

WATER PURIFICATION WORKS  
BACTERIOLOGICAL EXAMINATION OF WATER IN  
PROCESS OF FILTRATION  
YEAR ENDED SEPTEMBER 30, 1955

1954-1955	BACTERIA per ml. (48 HOURS ON AGAR AT 20°C.)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct. ....	90	4	34	170	0	32	400	0	19	0	0	0
Nov. ....	40	2	15	250	20	105	190	0	66	8	0	1
Dec. ....	800	4	49	750	0	229	650	0	147	30	0	2
Jan. ....	50	2	19	2200	0	226	450	0	79	1	0	0
Feb. ....	30	1	11	1300	0	160	650	0	61	0	0	0
Mar. ....	120	3	35	500	0	51	190	0	29	130	0	6
Apr. ....	400	6	54	900	0	304	1100	0	182	4	0	1
May ....	70	0	9	450	6	120	110	0	34	35	0	2
June ....	1500	0	96	1200	2	261	70	0	16	8	0	1
July ....	55	0	14	600	2	143	35	0	13	25	0	1
Aug. ....	70	0	20	20000	0	2000	20	0	8	1	0	0
Sept. ....	140	3	33	2000	6	416	33	0	9	6	0	0
For Year .....	1500	0	32	20000	0	337	1100	0	55	130	0	1

**TABLE 15**  
**WATER PURIFICATION WORKS**  
**BACTERIOLOGICAL EXAMINATION OF WATER IN**  
**PROCESS OF FILTRATION**  
**YEAR ENDED SEPTEMBER 30, 1955**

1954-1955	BACTERIA per ml. (24 HOURS ON AGAR AT 37°C.*)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct. ....	70	0	17	40	0	5	1	0	0	35	0	2
Nov. ....	60	0	7	9	0	1	2	0	0	5	0	1
Dec. ....	60	0	6	6	0	1	1	0	0	1	0	0
Jan. ....	180	0	18	450	0	24	60	0	3	35	0	2
Feb. ....	70	0	6	2	0	0	1	0	0	3	0	0
Mar. ....	42	0	8	17	0	1	1	0	0	20	0	1
Apr. ....	25	0	3	400	0	17	120	0	5	20	0	1
May ....	80	0	5	50	0	12	40	0	3	14	0	2
June ....	10	0	2	300	0	31	1	0	0	1	0	0
July ....	22	0	6	80	0	13	40	0	3	5	0	1
Aug. ....	120	0	12	9000	0	1034	20	0	3	200	0	8
Sept. ....	200	1	22	3000	0	391	5	0	1	9	0	1
For Year .....	200	0	9	9000	0	127	120	0	1	200	0	1

\*Changed to 35°C on May 23, 1955.

**TABLE 16**  
**WATER PURIFICATION WORKS**  
**BACTERIOLOGICAL EXAMINATION OF WATER IN**  
**PROCESS OF FILTRATION**  
**YEAR ENDED SEPTEMBER 30, 1955**

B. COLI												
1954-1955	Raw Water			Settled Water			Filtered Water			Tap Water		
	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.
Oct. ....	50	41	.082	50	2	.004	50	0	.000	125	0	.000
Nov. ....	46	37	.080	46	1	.002	46	0	.000	115	0	.000
Dec. ....	52	45	.086	52	1	.002	52	0	.000	130	0	.000
Jan. ....	50	32	.064	50	0	.000	50	0	.000	125	0	.000
Feb. ....	46	2	.004	46	0	.000	46	0	.000	115	0	.000
Mar. ....	54	11	.020	54	2	.004	54	0	.000	135	0	.000
Apr. ....	52	9	.017	52	0	.000	52	0	.000	130	0	.000
May ....	48	3	.006	48	1	.002	48	0	.000	120	0	.000
June ....	52	0	.000	52	1	.002	52	1	.002	130	0	.000
July ....	50	2	.004	50	1	.002	50	0	.000	125	0	.000
Aug. ....	52	34	.065	52	14	.027	52	0	.000	130	0	.000
Sept. ....	50	50	.100	50	23	.046	50	0	.000	125	0	.000
For Year .....	602	266	.044	602	46	.008	602	1	.000	1505	0	.000

**TABLE 17**  
**WATER PURIFICATION WORKS**  
**BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS**  
**BROOKS AND RESERVOIRS ON SCITUATE WATERSHED**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Bacteria Per Ml. 48 Hours on Agar at 20°C</b>													
Coventry Brook ...	210	85	45	45	54	60	160	140	200	190	200	250	136
Wilbur Brook .....	450	340	90	50	64	2000	450	8000	3000	310	1100	320	1348
Westconnaug Res. ....	250	220	150	40	330	400	550	160	3500	230	460	160	537
Barden Reservoir .....	120	250	180	15	210	50	800	35	110	160	340	300	214
Cork Brook .....	80	80	60	65	80	55	450	1300	750	100	150	170	278
Rush Brook .....	800	170	135	55	200	6000	1500	110	140	220	540	1100	914
Huntinghouse Brook .....	35	900	170	130	130	75	280	10	110	240	410	1500	332
Harrisdale Brook .....	50	500	110	60	280	30	500	18	45	140	305	800	236
Blanchard Brook .....	160	160	50	35	120	20	850	210	60	**	4500	420	599
Moswansicut Pond .....	350	75	45	25	62	12000	300	130	90	250	220	150	1141
Regulating Reservoir .....	1600	190	90	70	280	8000	800	190	270	75	870	40	1039
Quonapaug Brook .....	900	150	6	250	138	3000	1100	35	800	**	530	190	645
Hemlock Brook .....	340	230	200	45	186	40	700	5	150	150	105	60	184
Betty Pond Stream .....	220	180	35	30	112	25	480	55	45	270	480	160	174
Spruce Brook .....	550	90	27	35	96	60	600	140	120	85	416	200	201
<b>Bacteria Per Ml. 24 Hours on Agar at 37°C***</b>													
Coventry Brook .....	4	170	13	6	9	6	15	60	70	55	240	110	63
Wilbur Brook .....	12	30	3	90	5	3	45	10000	5000	90	700	160	1345
Westconnaug Res. ....	8	25	10	0	12	2	60	550	2000	150	1200	45	338
Barden Reservoir .....	12	10	20	1	8	5	18	35	6000	120	440	120	566
Cork Brook .....	6	10	2	5	12	3	42	7500	1300	25	170	45	760
Rush Brook .....	38	18	4	1	5	4	55	220	240	70	600	250	125
Huntinghouse Brook .....	9	48	9	4	23	3	12	15	30	130	480	1200	163
Harrisdale Brook .....	10	60	8	4	17	4	8	11	35	170	308	1400	169
Blanchard Brook .....	25	15	32	8	23	5	50	130	130	**	1200	50	152
Moswansicut Pond .....	230	14	20	1	12	3	10	70	60	250	440	40	96
Regulating Reservoir .....	110	13	6	1	30	8	85	400	140	110	800	220	160
Quonapaug Brook .....	20	11	5	3	90	5	70	35	250	**	500	95	98
Hemlock Brook .....	15	22	15	1	30	5	40	65	5500	120	75	55	495
Betty Pond Stream .....	45	25	9	1	5	1	150	12	40	550	360	80	106
Spruce Brook .....	52	12	1	15	6	1	40	20	25	60	350	75	55
<b>B. Coll</b>													
<b>Index Per 100 Ml.</b>													
Coventry Brook .....	110†	0	25	0	13	0	25	6	70	110†	110†	110†	.....
Wilbur Brook .....	70	25	6	0	6	0	110†	6	13	70	110†	110†	.....
Westconnaug Res. ....	110†	70	25	0	6	0	6	25	13	70	110†	70	.....
Barden Reservoir .....	70	70	6	0	13	0	25	6	6	0	110†	70	.....
Cork Brook .....	13	70	70	0	0	0	110†	0	6	110†	110†	70	.....
Rush Brook .....	13	25	25	13	6	13	110†	25	13	110†	110†	110†	.....
Huntinghouse Brook .....	70	70	25	6	25	0	13	25	70	70	70	110†	.....
Harrisdale Brook .....	70	70	110†	6	6	0	6	25	70	25	110†	110†	.....
Blanchard Brook .....	110†	70	6	70	0	0	110†	25	20	**	6	110†	.....
Moswansicut Pond .....	13	70	6	6	25	13	5	6	25	70	110†	110†	.....
Regulating Reservoir .....	110†	70	6	25	6	0	70	70	110†	70	110†	70	.....
Quonapaug Brook .....	70	110†	6	0	25	0	70	6	13	**	70	70	.....
Hemlock Brook .....	25	110†	6	0	25	0	6	6	5	0	110†	110†	.....
Betty Pond Stream .....	25	25	6	0	6	0	25	6	6	70	25	13	.....
Spruce Brook .....	70	25	25	70	0	0	70	0	70	110†	110†	110†	.....

†Indicates Index of 110+.

\*\*No Sample Obtained—Brook Dry.

\*\*\*Changed to 35°C May, 1955.

**TABLE 18**  
**WATER PURIFICATION WORKS**  
**BACTERIOLOGICAL EXAMINATION OF WATER IN**  
**VARIOUS PARTS OF THE DISTRIBUTION SYSTEM**  
**YEAR ENDED SEPTEMBER 30, 1955**

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Bacteria Per Ml. 48 Hours on Agar at 20°C</b>													
Neutaconkanut Reservoir..	0	0	0	0	0	1	2	2	0	0	0	0	0
Wayland Ave., Cranston...	2	0	0	0	0	0	0	4	0	1	0	1	1
Westminster St., Olneyville	0	0	0	3	0	10	4	1	0	0	0	0	1
Budlong Road, Cranston...	0	0	0	0	0	1	1	2	1	0	0	0	0
Reservoir Ave., Cranston...	1	0	0	0	0	0	7	8	0	3	1	0	2
Post Road, Warwick.....	0	0	0	0	1	14	7	2	1	1	1	2	2
Biltmore Hotel .....	0	1	1	0	2	0	1	0	0	0	0	1	1
Crown Hotel .....	0	0	0	0	0	0	1	6	7	0	0	1	1
Sewer Maintenance Bldg...	0	0	1	0	0	0	2	4	6	0	0	0	1
Longview Reservoir .....	0	0	1	0	0	0	1	3	0	5	0	1	1
<b>Bacteria Per Ml. 24 Hours on Agar at 37°C*</b>													
Neutaconkanut Reservoir..	0	0	3	2	0	0	8	1	3	1	0	0	1
Wayland Ave., Cranston...	0	7	0	1	0	1	0	6	2	0	1	0	1
Westminster St., Olneyville	0	5	0	18	6	13	4	13	2	0	0	6	6
Budlong Road, Cranston...	0	9	0	4	0	0	1	1	0	3	2	0	2
Reservoir Ave., Cranston...	1	0	0	0	0	1	1	1	0	4	4	0	1
Post Road, Warwick.....	1	1	0	2	2	1	2	14	1	1	18	14	5
Biltmore Hotel .....	0	0	0	1	3	4	4	2	15	0	3	1	3
Crown Hotel .....	1	4	0	3	0	1	4	27	11	0	1	1	4
Sewer Maintenance Bldg...	4	9	0	3	0	0	6	2	1	2	1	2	2
Longview Reservoir .....	2	12	3	4	1	3	2	3	0	6	7	8	4
<b>B. Coli Index Per Ml.</b>													
Neutaconkanut Reservoir..	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wayland Ave., Cranston...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Westminster St., Olneyville	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Reservoir Ave., Cranston...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Post Road, Warwick.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Sewer Maintenance Bldg...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.000
Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Sewer Maintenance Bldg. sampling location changed to Room 337, State Office Bldg., on Sept. 9, 1955.  
Longview Reservoir sample obtained from a Mineral Spring Ave. residence adjacent to the Reservoir from Oct. 1, 1954 to July 31, 1955, and at Our Lady of Fatima Hospital from Aug. 1 to Sept. 30, 1955.  
\*Changed to 35°C on May 23, 1955.

**TABLE 19**  
**WATER PURIFICATION WORKS**  
**MINERAL ANALYSIS OF WATER—YEAR ENDED SEPT. 30, 1955**

Parts per Million	RAW WATER*					TAP WATER				
	1955				Avg.	1954				Avg.
	Jan.- Mar.	Apr.- June	July- Sept.	Oct.- Dec.		Jan.- Mar.	Apr.- June	July- Sept.		
Aluminum. . . . .	0.01	0.02	0.01	0.03	0.01	0.04	0.08	0.06	0.03	0.05
Arsenic. . . . .	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium. . . . .	2.62	2.49	2.60	9.27	2.56	10.34	8.88	9.08	9.27	9.39
Chloride. . . . .	2.57	2.33	2.37	2.49	2.37	2.70	2.70	2.73	2.60	2.68
Copper. . . . .	0.06	0.05	0.07	0.01	0.07	0.01	0.01	0.02	0.01	0.01
Fluoride. . . . .	0.20	0.21	0.18	1.07	0.21	1.15	1.11	0.97	1.07	1.07
Hardness. . . . .	9	8	9	27	8	28	28	28	28	28
Iron. . . . .	0.03	0.10	0.08	0.01	0.06	0.05	0.01	0.00	0.02	0.02
Lead. . . . .	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Magnesium. . . . .	0.36	0.40	0.56	0.30	0.45	0.56	0.54	0.60	0.30	0.50
Manganese. . . . .	0.03	0.03	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00
Phenolic Compounds. . . . .	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selenium. . . . .	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silica. . . . .	5.00	5.00	6.00	4.50	5.25	4.50	4.50	5.50	4.50	4.75
Sulphate. . . . .	7.0	8.0	8.0	7.5	7.5	15.0	16.0	13.0	14.7	14.7
Total Solids. . . . .	33	31	33	52	31	49	52	52	51	51
Loss On Ignition. . . . .	17	19	20	19	18	17	21	27	21	21
Total Alkalinity. . . . .	3.93	3.73	3.87	13.17	3.77	12.27	12.60	13.70	12.93	12.93
Total Phenolphthalein Alk. . . . .	0.00	0.00	0.00	6.80	0.00	6.40	6.33	6.87	6.60	6.60
Zinc. . . . .	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*Water from bottom of Scituate Reservoir as received at Purification Works.

TABLE 20

## WATER PURIFICATION WORKS

, SANITARY CHEMICAL ANALYSIS (P.P.M.)—YEAR ENDED SEPT. 30, 1955

RAW WATER*											TAP WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Ammonia			Dissolved Oxygen			Nitrates		Nitrates			Ammonia		Dissolved Oxygen			Nitrates		Nitrates			Chlorides		P.P.M.		Total Solids		Loss on Ignition																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
1954-1955			Free	Alb.	P.P.M.	% Sat.	Total Solids	Loss on Ignition	Free	Alb.	P.P.M.	% Sat.	Total Solids	Loss on Ignition	Free	Alb.	P.P.M.	% Sat.	Total Solids	Loss on Ignition	Free	Alb.	P.P.M.	% Sat.	Total Solids	Loss on Ignition	1954-1955																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

\*Water from bottom of Scituate Reservoir as received at Purification Works.

TABLE 21

## WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1955

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year					
		Chemical	Bacteriological	Microscopical	Sanitary Chemical	Mineral	Miscellaneous
<b>I</b> BROOKS AND STREAMS ON WATERSHED Eleven Brooks and Two Streams.....	Monthly.....	1,080	1,335	..	..	..	2,415
<b>II</b> SMALLER STORAGE RESERVOIRS ON WATERSHED Regulating Reservoir .....	Monthly.....	84	110	..	..	..	194
Westonauag Reservoir .....	Monthly.....	84	105	..	..	..	189
Barden Reservoir .....	Monthly.....	84	99	..	..	..	183
Moswansicut Pond .....	Monthly.....	84	100	..	..	..	184
<b>III</b> SCITUATE RESERVOIR Surface Water .....	Bi-Weekly .....	200	..	18	150	..	368
Subsurface Water (See Purif. Wks.—Raw Water).....	..	..	..	..	..	..	..
<b>IV</b> PAWTUXET RIVER—BELOW SCITUATE DAM Scituate Dam Meter Chamber.....	Bi-Weekly .....	175	..	..	150	..	325
Fiskeville, R. I. ....	Bi-Weekly .....	175	..	..	150	..	325
Twelve other locations on Pawtuxet River.....	Bi-Weekly .....	2,250	..	..	2,040	..	4,290
<b>V</b> WATER PURIFICATION WORKS Raw Water (from Bottom of Scit. Res.).....	Daily .....	3,333	1,479	..	1,436	..	6,248
Raw Water (from Bottom of Scit. Res.).....	Weekly .....	..	..	18	52*	..	70
Raw Water (from Bottom of Scit. Res.).....	Monthly .....	..	..	..	70**	..	70
***Raw Water (from Bottom of Scit. Res.).....	Every 13 weeks.....	..	..	..	..	34	34
Aerated Influent .....	Daily .....	718	..	..	..	..	718
Mixer .....	Daily .....	1,792	1,293	..	..	..	1,792
Settled .....	Weekly .....	2,816	..	18	52*	..	4,109
Settled .....	Monthly .....	..	..	..	46**	..	70
Filtered .....	Daily .....	1,077	..	..	..	..	46
Filtered .....	Monthly .....	3,179	1,213	..	46**	..	1,077
Unchlorinated Effluent .....	Daily .....	..	..	..	1,436	..	46
Unchlorinated Effluent .....	Weekly .....	..	..	18	52*	..	5,828
Unchlorinated Effluent .....	Monthly .....	..	..	..	22**	..	70
Chlorinated Effluent .....	Daily .....	1,506	1,757	..	1,255	..	22
Raw Water (from Bottom of Scituate Reservoir).....	Daily at 3:00 P.M. ....	992	1,201	..	992	..	4,518
Unchlorinated Effluent .....	Daily at 3:00 P.M. ....	992	999	..	992	..	3,185
							2,983

Table 21 (Continued)

## WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1955

SOURCE OF WATER TESTED		Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year						
			Chemical	Bacteriological	Microscopical	Sanitary Chemical	Mineral	Miscellaneous	Total
VI	NEUTACONKANUT DISTRIBUTION RESERVOIR								
	Sample from nearby Tap.....	Daily.....	1,506	1,759	18	1,004	..	..	4,269
	Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	18
VII	LONGVIEW DISTRIBUTION RESERVOIR								
	Sample from nearby Tap.....	Daily.....	1,506	1,764	18	1,004	..	..	4,274
	Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	18
VIII	DISTRIBUTION SYSTEM								
	Police and Fire Hdqrs. Bldg. Tap Water.....	Daily.....	2,408	2,109	18	903	..	..	5,420
	Police and Fire Hdqrs. Bldg. Tap Water.....	Bi-Weekly.....	..	..	..	84**	..	..	18
	Police and Fire Hdqrs. Bldg. Tap Water.....	Monthly.....	..	..	..	..	35	..	84
	***Police and Fire Hdqrs. Bldg. Tap Water.....	Every 13 Weeks.....	..	..	..	..	..	..	35
	****Sectional Tests.....	Monthly.....	528	434	..	288	..	..	1,250
	Consumers' Complaints (46 during the year).....	..	464	92	..	150	..	..	706
	Sterilization of Newly Laid Mains.....	..	..	1,128	..	152	..	..	1,280
	†Sectional Tests.....	Daily.....	10,416	12,273	..	6,944	..	..	29,633
IX	MISCELLANEOUS TESTS								
	Coagulation Tests to Determine Chemical Dosages.....	..	436	..	..	..	..	99	535
	Analysis of Ferri-Floc used for Treatment.....	..	63	..	..	..	..	21	84
	Analysis of Quicklime used for Treatment.....	..	16	..	..	..	..	32	48
	Analysis of Sodium Silicofluoride used for Treatment.....	..	6	..	..	..	..	..	6
	Samples from Plant Filters.....	Daily.....	7,376	9,335	..	7,388	..	1,990	26,089
	Water, Filter Sand and Other Materials.....	..	1,487	934	..	60	..	238	2,719
	Totals.....		46,833	39,519	126	26,918	69	2,380	115,845

\*For Oxygen Consumed only.

\*\*Exclusive of Oxygen Consumed.

\*\*\*Composite of 13 Weekly Samples.

\*\*\*\*Samples from 8 Random Dwellings (location changed monthly).

†Samples from seven fixed locations.

**TABLE 22**  
**WATER DISTRIBUTION SYSTEM**  
**NEUTACONKANUT HIGH SERVICE PUMPING STATION**  
**OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955**

1954- 1955	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMP										Fuel Oil Used For Heat- ing — Gals.
	No. 1—10" Pump 2700 GPM. TDH 90'			No. 2—12" Pump 3800 GPM. TDH 104'			Power Used*				No. 3—16" Pump 7500 GPM. TDH 80'						Total Water Pumped — Mil. Gals.				
	Operated			Operated			KWH	Cost	†Operated												
	Days	Hours and Minutes	Water Pumped — Mil. Gals.	Days	Hours and Minutes	Water Pumped — Mil. Gals.			Days	Hours and Minutes	Gasoline Used — Gals.	Oil Used — Qts.	For Month	Avg. Per Day							
Oct.	10	199-00	31.04	23	467-15	114.17	60,300	\$ 886.46							146.42	4.72					
Nov.	0	0	0	30	649-90	159.64	68,700	949.11							160.79	5.36					
Dec.	23	511-30	79.58	11	191-30	47.14	54,600	807.17							128.20	4.14					
Jan.	31	659-00	101.40	3	37-15	9.23	46,200	754.66							111.85	3.61					
Feb.	28	611-15	97.71	0	0	0	40,800	664.37							98.86	3.53					
Mar.	29	662-30	103.18	4	62-45	15.04	42,900	715.48							119.13	3.84					
Apr.	30	619-30	104.18	10	192-45	0	42,000	725.48							105.51	3.52					
May	23	494-30	77.99	0	0	48.63	42,600	728.43							127.90	4.15					
June	0	0	0	30	557-45	165.73	68,400	983.89							167.25	3.57					
July	3	45-45	6.60	30	625-45	166.49	77,400	1,069.96							174.45	5.63					
Aug.	0	0	0	31	679-30	172.73	68,100	985.98							174.39	5.62					
Sept.	0	0	0	30	632-30	169.80	74,400	1,044.96							171.40	5.71					
Totals	177	3,803-00	601.68	202	4,097-30	1,068.60	686,400	\$10,315.95							1686.15	4.62					
																4809					

\*Naragansett Electric Co. Power Rate G  
†Engine Test Run.

TABLE 23

WATER DISTRIBUTION SYSTEM  
BATH STREET HIGH SERVICE PUMPING STATION  
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955

1954- 1955	ELECTRICALLY-DRIVEN PUMPS							GASOLINE ENGINE-DRIVEN PUMPS										TOTAL WATER PUMPED		Fuel Oil Used for Heating Gals.	
	Pump No. 1 2000 GPM. TDH 98'			Pump No. 2 2000 GPM. TDH 98'			Power Used* KWH	Cost	Pump No. 3 2000 GPM. TDH 98'; 150 HP Sterling Engine				Pump No. 4 2000 GPM. TDH 98'; 150 HP Sterling Engine				Mil. Gals.				
	Operated			Operated					Water Pumped Mil. Gals.	Gasoline Used Gals.	Oil Used Qts.	†Operated		Water Pumped Mil. Gals.	Gasoline Used Gals.	Oil Used Qts.	For Month	Avg. per Day			
	Days	Hours and Minutes		Days	Hours and Minutes		Days	Hours and Minutes				Days	Hours and Minutes								
		Days	Minutes		Days	Minutes		Days					Minutes						Days		Minutes
Oct. . .	27	376-15	51.93	4	25-00	2.71	23,800	\$515.01	1	0-15	0.03	2	0	0	0	0	54.67	1.77	0		
Nov. . .	26	207-30	28.71	0	0	0	12,880	338.07	2	4-00	0.35	32	2.0	0	0	0	29.26	0.98	110		
Dec. . .	29	493-00	68.87	1	6-00	0.64	25,200	513.78	3	6-00	0.84	48	3.0	0	0	0	70.35	2.27	275		
Jan. . .	31	597-15	83.77	2	7-30	0.81	31,780	593.94	2	4-00	0.30	32	2.0	2	4-15	0.57	85.65	2.76	381		
Feb. . .	28	592-30	80.78	1	7-00	0.78	35,700	636.06	2	2-00	0.26	16	1.0	1	2-00	0.25	84.34	2.02	390		
Mar. . .	31	614-45	87.40	2	8-00	0.59	34,020	620.88	3	6-00	0.79	48	3.0	3	6-00	0.76	89.34	2.89	385		
Apr. . .	30	584-15	82.06	2	10-30	1.13	35,140	631.01	2	4-00	0.54	32	2.0	2	4-00	0.50	84.23	2.81	0		
May . .	31	616-00	86.71	10	74-30	7.60	36,400	645.92	1	2-00	0.27	16	1.0	1	2-00	0.26	94.34	3.06	0		
June . .	28	330-20	49.68	7	71-45	6.45	24,920	526.41	2	2-00	0.25	16	1.0	2	2-15	0.26	56.64	1.89	0		
July . .	26	385-15	52.74	19	214-45	25.10	37,520	653.81	1	1-00	0.13	8	0.5	1	1-00	0.13	78.10	2.52	0		
Aug. . .	12	163-15	22.72	10	107-30	13.22	17,500	429.11	2	2-00	0.22	16	1.0	2	2-00	0.22	36.38	1.17	0		
Sept. . .	0	0	0	15	99-30	14.99	5,600	216.24	2	2-00	0.16	16	1.0	2	2-00	0.25	15.50	0.52	0		
Totals	299	4980-20	697.84	73	632-00	74.02	320,460	\$6,320.24	22	35-15	4.64	282	17.5	16	25-30	3.20	779.70	2.14	1541		

\*Naragansett Electric Co. Power Rate G.

†Engine Test Run.

**TABLE 24**  
**WATER DISTRIBUTION SYSTEM**  
**NEUTACONKANUT DISTRIBUTION RESERVOIR\***

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955

1954- 1955	OPERATING CHARACTERISTICS DURING MONTH											
	7 A.M. Statistics on First Day of Month			Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.		
	Water Level	Storage Mil. Gals.		Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.	Avg.
Oct. ....	226.14	40.58		226.53	221.92	226.10	41.27	33.16	40.51	4.16	1.30	2.32
Nov. ....	226.10	40.51		226.51	222.34	226.15	41.23	33.90	40.60	3.90	1.34	2.44
Dec. ....	226.07	40.46		226.43	223.30	226.06	41.09	35.59	40.44	2.86	0.67	2.05
Jan. ....	226.30	40.86		226.37	222.77	225.99	40.98	34.66	40.32	3.35	1.59	2.22
Feb. ....	226.10	40.51		226.42	221.98	226.01	41.07	33.26	40.36	3.94	1.30	2.21
Mar. ....	226.00	40.34		226.43	222.70	226.03	41.09	34.53	40.39	3.39	1.18	2.23
Apr. ....	226.19	40.67		226.68	223.59	226.16	41.54	36.10	40.62	3.09	1.35	1.92
May ....	225.53	39.51		226.52	222.11	226.14	41.25	33.49	40.58	4.35	1.20	2.46
June ....	226.20	40.69		226.71	223.23	226.25	41.59	35.46	40.77	3.61	0.84	1.90
July ....	226.10	40.51		226.78	223.44	226.43	41.72	35.83	41.09	2.92	0.72	1.86
Aug. ....	226.68	41.54		226.84	223.60	226.40	41.82	36.12	41.04	2.73	0.85	1.64
Sept. ....	226.61	41.41		226.61	223.04	226.28	41.41	35.13	40.83	3.29	0.67	2.06
For Year .....	—	—		226.84	221.92	226.17	41.82	33.16	40.63	4.35	0.67	2.11
										7.65	1.18	3.69

\*Storage capacity at overflow elevation of 227.00=42,090,000 gallons. †Average of 7 A.M. statistics.

Note:—Water levels are elevations in feet above mean high water in Providence harbor.

TABLE 25

WATER DISTRIBUTION SYSTEM  
LONGVIEW DISTRIBUTION RESERVOIR\*

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1955

1954- 1955	OPERATING CHARACTERISTICS DURING MONTH														
	7 A.M. Statistics on First Day of Month		Water Level				Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg. †	Max.	Min.	Avg. †	Max.	Min.	Avg.	Max.	Min.	Avg.	
Oct. ....	304.35	11.63	305.31	302.40	304.34	12.08	10.73	11.63	2.46	1.26	1.90	1.14	0.59	0.88	
Nov. ....	304.96	11.92	305.33	302.70	304.55	12.09	10.87	11.73	2.25	1.34	1.79	1.07	0.62	0.83	
Dec. ....	304.72	11.81	305.27	302.07	304.53	12.06	10.58	11.72	2.93	0.94	1.83	1.36	0.44	0.85	
Jan. ....	304.90	11.89	305.22	302.03	304.59	12.04	10.56	11.75	3.05	1.30	1.88	1.18	0.42	0.84	
Feb. ....	304.55	11.73	304.92	302.49	304.50	11.90	10.78	11.71	2.41	1.38	1.72	1.11	0.64	0.80	
Mar. ....	304.30	11.61	305.33	301.90	304.60	12.09	10.50	11.75	3.28	1.14	1.94	1.52	0.53	0.88	
Apr. ....	305.00	11.94	305.40	302.41	304.74	12.12	10.74	11.82	2.17	0.95	1.61	1.00	0.44	0.75	
May ....	304.97	11.93	305.37	301.73	304.79	12.11	10.42	11.84	3.41	1.41	2.16	1.58	0.66	1.00	
June ....	304.68	11.79	305.67	300.49	304.74	12.25	9.85	11.82	4.77	1.26	2.33	2.21	0.59	1.08	
July ....	303.46	11.22	305.46	299.16	304.64	12.15	9.23	11.77	5.97	1.17	2.64	2.77	0.55	1.22	
Aug. ....	304.74	11.82	305.49	300.29	304.72	12.16	9.75	11.81	4.96	0.96	2.18	2.30	0.34	1.00	
Sept. ....	304.66	11.78	305.40	302.87	304.59	12.12	10.95	11.75	2.49	0.76	1.86	1.15	0.36	0.87	
For Year .....	—	—	305.67	299.16	304.61	12.25	9.23	11.76	5.97	0.76	1.99	2.77	0.34	0.92	

\*Storage capacity at overflow elevation of 306.00=12,400,000 gallons. †Average of 7 A.M. statistics.  
Note:—Water levels are elevations in feet above mean high water in Providence harbor.

**TABLE 26**  
**WATER PIPE LAID, REMOVED, ADDED AND REPLACED**  
**YEAR ENDED SEPTEMBER 30, 1955**

	PIPE LAID IN FEET (Including Pipe Replaced)					PIPE REMOVED IN FEET (Including Pipe Replaced)				
	6"	8"	12"	16"	24"	Totals	6"	8"	16"	Totals
Providence.....	6,910.81	1,465.20	0	0	0	8,376.01	2,647.92	0	0	2,647.92
Cranston.....	15,952.63	16,626.23	0	0	0	32,578.86	723.42	0	0	723.42
Johnston.....	3,469.78	2,874.90	73.82	59.81	30,786.04	37,264.35	399.42	1,012.00	883.44	2,294.86
North Providence..	6,192.87	3,580.95	0	0	0	9,773.82	0	0	0	0
Pawtucket.....	0	0	0	0	0	0	0	0	0	0
<b>Totals.....</b>	<b>32,526.09</b>	<b>24,547.28</b>	<b>73.82</b>	<b>59.81</b>	<b>30,786.04</b>	<b>87,993.04</b>	<b>3,770.76</b>	<b>1,012.00</b>	<b>883.44</b>	<b>5,666.20</b>

	NET LENGTH IN FEET ADDED TO DISTRIBUTION SYSTEM					PIPE REPLACED IN FEET				
	6"	8"	12"	16"	24"	Totals	6"	8"	16"	Totals
Providence.....	+ 4,262.89	+ 1,465.20	0	0	0	+ 5,728.09	*907.45	0	0	907.45
Cranston.....	+ 15,229.21	+ 16,626.23	0	0	0	+ 31,855.44	723.42	0	0	723.42
Johnston.....	+ 3,070.36	+ 1,862.90	+ 73.82	- 823.63	+ 30,786.04	+ 34,969.49	0	872.00	**883.44	1,755.44
North Providence..	+ 6,192.87	+ 3,580.95	0	0	0	+ 9,773.82	0	0	0	0
Pawtucket.....	0	0	0	0	0	0	0	0	0	0
<b>Totals.....</b>	<b>+ 28,755.33</b>	<b>+ 23,535.28</b>	<b>+ 73.82</b>	<b>- 823.63</b>	<b>+ 30,786.04</b>	<b>+ 82,326.84</b>	<b>1,630.87</b>	<b>872.00</b>	<b>883.44</b>	<b>3,386.31</b>

\*638.65' of 6-inch replaced with 8-inch.  
\*\*883.44' of 16-inch replaced with 24-inch.

TABLE 27

PUBLIC WATER MAINS IN USE ON SEPT. 30, 1955

PUBLIC WATER MAINS IN USE ON SEPT. 30, 1955														SPECIAL HIGH PRESSURE FIRE SERVICE	
Diameter of Pipe	Providence*		Cranston		Johnston		N. Providence		Pawtucket		Total*		Providence		
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	
6-inch.....	1,519,206.72	287.73	582,067.30	100.01	94,092.67	17.82	127,074.86	24.07	870.98	0.16	2,323,312.53	440.02	82.06	0.02	
8-inch.....	320,269.75	60.66	228,605.72	43.30	86,309.07	16.35	70,284.34	13.31	0	0	705,468.88	133.61	1,577.52	0.30	
10-inch.....	14,683.03	2.67	0	0	0	0	0	0	0	0	14,083.03	2.67	0	0	
12-inch.....	231,899.38	43.92	91,270.40	17.29	8,878.22	1.68	28,387.77	5.38	44.88	0.01	360,480.65	68.27	6,893.80	1.31	
16-inch.....	83,160.73	15.75	3,511.86	0.67	663.46	0.13	0	0	0	0	87,336.05	16.54	54,248.24	10.27	
20-inch.....	16,261.89	3.08	0	0	0	0	0	0	0	0	16,261.89	3.08	0	0	
24-inch.....	52,205.87	9.89	5,235.73	0.99	31,347.83	5.94	2,383.39	0.45	0	0	91,172.82	17.27	4,299.44	0.81	
30-inch.....	46,120.89	8.74	29,415.62	5.57	0	0	3,733.40	0.71	0	0	79,269.91	15.01	0	0	
36-inch.....	4,556.20	0.86	5,157.50	0.98	0	0	0	0	0	0	9,713.70	1.84	0	0	
42-inch.....	2,902.94	0.55	22,510.12	4.26	0	0	0	0	0	0	25,413.06	4.81	0	0	
48-inch.....	14,918.00	2.83	1,584.00	0.30	394.00	0.07	0	0	0	0	16,896.00	3.20	0	0	
60-inch.....	5,559.00	1.05	10,671.00	2.02	4,340.00	0.82	0	0	0	0	20,570.00	3.90	0	0	
66-inch.....	0	0	8,448.00	1.60	0	0	0	0	0	0	8,448.00	1.60	0	0	
Totals.....	2,311,144.40	437.72	988,477.25	187.21	226,035.25	42.81	231,863.76	43.91	915.86	0.17	3,758,426.52	711.82	67,101.06	12.71	

\*High Pressure Fire Service in Providence not included.

TABLE 28

GATES IN USE ON SEPT. 30, 1955

City or Town	Stop Gates											Gates on Public Fire Hydrants			Gates on Unwater- ing Hydrants			Gates on Blowoffs				Total Gates in use at end of year	
	6"	8"	10"	12"	16"	20"	24"	30"	36"	42"	48"	Total	4"	6"	8"	Total	6"	8"	12"	Total			
Providence .....	4871	1031	24	663	*262	23	68	34	8	1	10	*6995	0	480	1878	2358	2	14	1	4	*9373		
Cranston .....	1525	530	0	182	*10	0	11	14	6	10	3	*2291	1	616	0	617	3	5	0	3	5	*2921	
Johnston .....	241	155	0	22	8	0	4	0	0	0	1	431	0	197	13	210	3	0	0	2	2	646	
N. Providence ..	293	128	0	64	0	0	2	0	0	0	0	487	0	235	0	235	0	3	0	0	0	725	
Totals .....	6930	1844	24	931	280	23	85	48	14	11	14	*10204	1	1528	1891	3420	8	22	1	4	6	11	*13665

Note: Above table includes all gates in the special high pressure fire system in Providence (126) and gates on Neutaconkanut Conduit and Scituate Aqueduct east of the Siphon Chamber.

\*Totals include 5-16" Rotary Plug Valves in Providence, 5-16" Rotary Plug Valves in Cranston, and 5-16" Rotary Plug Valves in Johnston.

**TABLE 29**

SERVICE PIPES INSTALLED, REMOVED, ETC., FOR YEAR ENDED SEPT. 30, 1955

City or TOWN	INSTALLED			REMOVED - REPLACED OR ABANDONED			REPAIRED		
	General		Fire Supply	General		Fire Supply	General		Fire Supply
	Copper ¾"-2"	Cast Iron 4"-12"	Cast Iron 4"-6"	Lead or Copper ½"-1½"	Cast Iron 4"	Cast Iron 4"-6"	Lead or Copper ½"-2"	Cast Iron 4"-16"	Cast Iron 4"-6"
Providence .....	373	7	14	101	2	2	36	3	2
Cranston .....	497	1	1	17	1	0	21	0	0
Johnston .....	146	0	1	1	0	0	2	1	0
North Providence	166	0	0	7	0	0	6	0	0
Pawtucket . . . .	0	0	0	0	0	0	0	0	0
Totals .....	1182	8	16	126	3	2	65	4	2

Total number of services in the System as of Sept. 30, 1955--66,612.

**TABLE 30**  
**SERVICES IN USE ON SEPTEMBER 30, 1955**

CITY OR TOWN	METERED SERVICES			UNMETERED SERVICES			TOTAL SERVICES					
	GENERAL SUPPLIES		FIRE SUPPLIES	Total	GENERAL SUPPLIES		FIRE SUPPLIES	Total	GENERAL SUPPLIES	FIRE SUPPLIES	Total	
	Lead or Copper ½"-2"	Cast Iron 2"-12"	Cast Iron 4"-10"		Lead or Copper ½"-1½"	Cast Iron 2"-8"	Lead or Copper ½"-2"					Cast Iron 2"-12"
Providence .....	36,383	1,020	657	38,060	66	11	193	270	36,449	1,031	850	38,330
Cranston .....	13,543	145(a)	62	13,750	2	0	0	2	13,545	145	62	13,752
Johnston .....	2,343	19	6	2,368	2	0	0	2	2,345	19	6	2,370
North Providence.	2,700	32(b)	7	2,739	0	0	0	0	2,700	32	7	2,739
Pawtucket .....	7	0	0	7	0	0	0	0	7	0	0	7
Totals .....	54,976	1,216	732	56,924	70	11	193	274	55,046	1,227	925	57,198

(a) Includes 1-10" Protectus meter on 30" main supplying the City of Warwick.  
(a) Includes 2-6" Protectus meter on 12" services supplying the City of Warwick.  
(a) Includes 1-6" Compound meter on 6" service supplying the City of Warwick.  
(a) Includes 1-12" x 5.50" Venturi meter on 12" service supplying the State Institutions.  
(a) Includes 1-8" Protectus meter on 8" service supplying the State Institutions.  
(a) Includes 1-12" Crest meter on 12" service supplying the East Smithfield Water Company.  
(b) Includes 1-8" Crest meter on 8" service supplying the East Smithfield Water Company.

TABLE 31

## PUBLIC FIRE HYDRANTS

CITY OR TOWN	HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1935				Totals
	Providence	Cranston	Johnston	No. Prov.	
New Post Hydrant Installations.....	8	51	18	2	79
Flush Hydrants replaced with Post Hydrants.....	*90	0	3	0	93
Post Hydrants replaced.....	7	9	4	2	22
Flush Hydrants removed or abandoned.....	1	0	0	0	1

\*Includes 10 Hydrants in Special High Service Fire System.

TABLE 32

CITY OR TOWN	TOTAL PUBLIC HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1935**							
	Providence*		Cranston		Johnston		No. Prov.	
TYPE OF HYDRANT	Flush	Post	Post	Post	Flush	Post	Flush	Post
Number in System.....	2352	174	620	217	16	232	2363	1843
								4206*

\*Includes 88 Flush Hydrants and 77 Post Hydrants in Special High Pressure Fire Service in Providence.

\*\*Hydrant statistics in the City of Warwick and the East Smithfield Water District are not included, as those distribution systems are not owned or maintained by the Providence Water Works.

**TABLE 33**  
**NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES**  
**AS OF SEPTEMBER 30, 1955**

**PROVIDENCE**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	270	50	20	99	29	...	3	...	...	...	...	...	471
Empire .....	1,106	67	2	124	47	2	...	...	2	...	...	...	1,350
Hersey .....	...	...	...	3	4	3	14	74	9	...	...	...	107
Thomson .....	10,725	1044	441	38	143	...	...	...	...	...	...	...	12,391
Trident .....	19,128	1940	565	678	949	103	72	45	6	5	...	...	23,491
Venturi .....	...	...	...	...	...	...	...	...	...	...	...	2	2
<b>TOTALS</b> .....	<b>31,229</b>	<b>3101</b>	<b>1028</b>	<b>942</b>	<b>1172</b>	<b>108</b>	<b>89</b>	<b>119</b>	<b>17</b>	<b>5</b>	...	<b>2</b>	<b>37,812</b>

**\* CRANSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	16	2	3	4	...	...	...	...	...	...	...	...	25
Empire .....	213	5	3	10	5	...	...	...	...	...	...	...	236
Hersey .....	...	...	...	...	...	...	...	4	4	...	...	...	8
Thomson .....	3027	93	49	1	13	...	...	...	...	...	...	...	3,183
Trident .....	9466	405	116	104	104	3	8	11	3	1	1	...	10,222
Venturi .....	...	...	...	...	...	...	...	...	...	...	...	...	1
<b>TOTALS</b> .....	<b>12,722</b>	<b>505</b>	<b>171</b>	<b>119</b>	<b>122</b>	<b>3</b>	<b>8</b>	<b>15</b>	<b>7</b>	<b>1</b>	<b>2</b>	...	<b>*13,675</b>

\*Includes 1-6" Trident Compound Meter supplying City of Warwick.  
2-8" Trident Protectus Meter supplying City of Warwick.  
1-10" Trident Protectus Meter supplying City of Warwick.

**\* JOHNSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	...	...	...	2	...	...	...	...	...	...	...	...	2
Empire .....	1	...	...	2	...	...	...	...	...	...	...	...	3
Thomson .....	338	21	10	...	2	...	...	...	...	...	...	...	371
Trident .....	1,616	103	20	19	10	...	...	...	1	...	...	...	1,769
<b>TOTALS</b> .....	<b>1,955</b>	<b>124</b>	<b>30</b>	<b>23</b>	<b>12</b>	...	...	...	<b>1</b>	...	...	...	<b>*2,145</b>

\*Includes 1-8" Trident Crest Meter supplying East Smithfield Water Co.

**\* NORTH PROVIDENCE**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	...	...	1	...	...	...	...	...	...	...	...	...	1
Empire .....	5	...	...	...	1	...	...	...	...	...	...	...	6
Hersey .....	...	...	...	...	...	...	...	5	...	...	...	...	5
Thomson .....	502	14	9	1	1	...	...	...	...	...	...	...	527
Trident .....	1,976	121	35	16	10	2	2	1	...	...	1	...	2,165
<b>TOTALS</b> .....	<b>2,483</b>	<b>135</b>	<b>46</b>	<b>17</b>	<b>12</b>	<b>2</b>	<b>2</b>	<b>6</b>	...	...	<b>1</b>	...	<b>*2,704</b>

\*Includes 7-5/8" Trident Meter in Pawtucket.  
1-12" Trident Crest Meter supplying East Smithfield Water Co.

TABLE 34

## CONSUMPTION OF WATER — MILLION GALLONS

YEAR ENDED SEPTEMBER 30, 1955

1954- 1955	LOW SERVICE*				HIGH SERVICE†				TOTAL SERVICE*†				1954- 1955
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	
Oct.	43.41	23.64	33.36	1,034.09	7.11	5.81	6.48	200.81	50.25	29.44	39.84	1,234.90	Oct.
Nov.	36.83	23.61	31.48	944.42	6.87	5.86	6.34	190.16	43.37	29.47	37.82	1,134.58	Nov.
Dec.	35.68	20.10	30.77	953.97	6.94	5.80	6.40	198.47	43.30	25.91	37.17	1,152.44	Dec.
Jan.	36.12	20.95	30.86	956.78	6.80	5.78	6.38	197.66	42.64	26.73	37.24	1,154.44	Jan.
Feb.	36.17	23.45	31.87	892.34	7.08	5.93	6.58	183.32	42.93	29.69	38.42	1,075.86	Feb.
Mar.	35.53	22.06	31.13	964.90	7.20	6.23	6.72	208.33	42.51	28.39	37.85	1,173.23	Mar.
Apr.	35.77	21.95	30.68	920.27	6.92	5.65	6.32	189.75	42.69	27.74	37.00	1,110.02	Apr.
May	47.23	22.53	34.35	1,064.96	8.92	5.60	7.19	222.87	56.15	28.13	41.54	1,287.83	May
June	48.25	22.64	37.04	1,111.29	10.97	5.95	7.48	224.47	59.22	28.81	44.52	1,335.76	June
July	57.94	26.36	41.77	1,294.87	12.22	5.50	8.13	251.95	70.16	31.98	49.90	1,546.82	July
Aug.	55.29	26.46	40.28	1,248.78	10.75	5.17	6.80	210.81	68.00	31.67	47.08	1,459.59	Aug.
Sept.	41.60	23.98	36.02	1,080.66	7.23	5.19	6.23	- 186.86	48.61	29.17	42.23	1,267.52	Sept.
For Year	57.94(a)	20.10(b)	34.16	12,467.33	12.22(c)	5.17(d)	6.75	2,465.66	70.16(e)	25.91(f)	40.91	14,932.99	For Year

(a) July 22; (b) December 25

(c) July 22; (d) August 8

\*Includes water supplied to City of Warwick, Kent County Water Authority and to State Institutions.

†Includes water supplied to East Smithfield Water Co.

(e) July 22; (f) December 25

**TABLE 35**  
**WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK**  
**YEAR ENDED SEPTEMBER 30, 1955**

STATE INSTITUTIONS				CITY OF WARWICK															
1954-1955	SS24,215A East St. Cranston			Total Gallons per Month	Avg. Gallons per Day	S.S. 47,269 Petta- consett Cranston			S.S. 47,475 Rawtuxet Bridge Cranston			S.S. 61,515 Oaklawn Avenue Cranston			*S.S. 61,780 Dresden Street Cranston			Total Gallons per Month	Avg. Gallons per Day
	12"x4" Venturi Meter		Gallons per Month			10" Tri- Protectus Meter		Gallons per Month	6" Tri- Comp Meter		Gallons per Month	6" Tri- Protectus Meter		Gallons per Month	6" Tri- Protectus Meter		Gallons per Month		
	Gallons per Month					Gallons per Month			Gallons per Month			Gallons per Month			Gallons per Month				
Oct. . .	38,258,000		0	38,258,000	1,234,129	53,870,700		1,949,175	3,831,675	0	59,651,550		1,924,243						
Nov. . .	39,672,000		0	39,672,000	1,322,400	39,673,300		1,463,025	2,835,525		47,231,725		1,574,391						
Dec. . .	36,122,000		0	36,122,000	1,165,226	40,608,400		1,183,200	2,917,725		47,875,525		1,544,372						
Jan. . .	39,898,000		0	39,898,000	1,287,032	44,907,000		1,436,625	3,309,075		53,358,975		1,721,257						
Feb. . .	36,833,000		0	36,833,000	1,315,464	42,312,900		1,282,650	3,032,550		50,074,800		1,788,386						
Mar. . .	36,232,000		0	36,232,000	1,168,774	41,808,000		1,205,475	3,300,675		49,710,900		1,603,577						
Apr. . .	35,760,669		0	35,760,669	1,192,022	42,567,400		1,306,875	3,359,925		50,657,125		1,688,571						
May. . .	42,440,704		0	42,440,704	1,369,055	61,619,100		2,025,900	4,572,675		77,420,250		2,497,427						
June. . .	38,438,668		0	38,438,668	1,281,289	64,416,600		1,865,550	6,313,350		83,470,275		2,782,342						
July. . .	39,591,726		0	39,591,726	1,277,152	88,880,000		2,598,375	9,734,400		122,950,250		3,966,137						
Aug. . .	42,825,781		0	42,825,781	1,381,477	74,549,300		1,876,875	7,156,950		95,072,375		3,066,850						
Sept. . .	38,097,744		0	38,097,744	1,269,925	53,375,500		1,417,575	4,068,525		63,621,700		2,120,723						
For Year	464,170,292		0	464,170,292	1,271,699	648,588,200		19,611,300	54,433,050		801,095,450		2,194,782						

\*Opened Oct. 22, 1954.

**TABLE 36**  
**WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND**  
**KENT COUNTY WATER AUTHORITY**  
**FOR YEAR ENDED SEPT. 30, 1955**

1954- 1955	EAST SMITHFIELD WATER CO.				KENT COUNTY WATER AUTH.			
	S.S. 51,198 Waterman St. No. Prov.	S.S. 52,403 Dean Ave. Smithfield	Total Gallons per Month	Avg. Gallons per Day	S.S. 58,985 *Oaklawn Ave. Cranston	S.S. 60,757 Purification Works Scituate	Total Gallons per Month	Avg. Gallons per Day
	12" Tri-Crest Meter	8" Tri-Crest Meter			12" Tri-Crest Meter	12" Venturi Meter		
	Gallons per Month	Gallons per Month			Gallons per Month	Gallons per Month		
Oct. ..	6,956,250	600,750	7,557,000	243,774	4,393,500	3,692,000	8,085,500	260,822
Nov. ..	6,102,750	671,250	6,774,000	225,800	3,505,500	1,647,000	5,152,500	171,750
Dec. ..	6,747,000	825,750	7,572,750	244,282	4,184,250	2,591,000	6,775,250	218,556
Jan. ..	6,409,500	825,750	7,235,250	233,395	4,876,500	2,195,000	7,071,500	228,112
Feb. ..	6,351,000	†0	6,351,000	226,821	4,343,250	1,615,000	5,958,250	212,794
Mar. ..	6,057,750	660,000	6,717,750	216,701	1,010,250	3,826,000	4,836,250	156,008
Apr. ..	7,163,250	957,750	8,121,000	270,700	0	2,941,000	2,941,000	98,033
May ..	6,491,250	730,500	7,221,750	232,959	0	7,875,000	7,875,000	254,032
June ..	6,464,280	762,000	7,226,280	240,876	0	9,677,000	9,677,000	322,566
July ..	4,806,000	3,047,250	7,853,250	253,330	0	19,551,000	19,551,000	630,677
Aug. ..	4,839,000	3,739,500	8,578,500	276,725	0	18,711,000	18,711,000	603,580
Sept. ..	5,304,000	2,421,750	7,725,750	257,525	0	11,460,000	11,460,000	382,000
For Year	73,692,030	15,242,250	88,934,280	243,655	22,313,250	85,781,000	108,094,250	296,148

\*Temporary Supply opened on August 3, 1952. Closed March 8, 1955.

†Service Closed for Repairs.

**TABLE 37**  
**AVERAGE DAILY CONSUMPTION OF WATER PER MONTH**  
**IN MILLION GALLONS**

Year Ending Sept. 30	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg for Year
1877.....	.....	.....	.....	2.27	2.26	1.84	2.25	2.53	2.94	2.91	2.76	3.01	2.53†
1878.....	2.61	2.22	2.30	2.16	2.15	2.20	2.32	2.85	2.89	3.88	3.12	3.17	2.66
1879.....	2.84	2.39	2.38	2.82	2.93	2.59	2.38	3.22	3.48	3.78	3.52	3.32	2.97
1880.....	3.38	2.89	2.97	2.94	2.86	2.90	2.96	3.68	5.05	4.18	3.92	3.82	3.46
1881.....	3.67	3.35	3.22	3.54	4.07	3.13	2.98	3.54	3.81	4.05	4.46	4.16	3.66
1882.....	3.92	3.60	3.38	3.30	3.27	3.06	3.05	3.24	4.02	4.69	5.09	3.84	3.70
1883.....	3.40	3.33	3.65	3.94	3.74	3.91	3.43	3.82	4.64	5.24	5.18	4.70	4.08
1884.....	3.81	3.67	3.58	4.24	3.87	3.90	3.43	3.79	4.70	4.38	4.06	4.82	4.02
1885.....	4.24	3.67	3.99	4.48	4.73	4.80	4.10	4.10	5.44	5.56	5.01	4.92	4.59
1886.....	4.37	4.20	4.71	4.82	4.75	4.83	4.33	4.53	4.93	6.02	4.88	4.94	4.78
1887.....	4.62	4.24	4.94	5.06	4.90	4.84	4.41	4.90	5.16	5.58	5.00	5.08	4.89
1888.....	4.80	4.40	5.10	5.44	5.79	5.39	4.86	4.84	6.17	6.51	5.87	5.32	5.37
1889.....	5.34	5.18	5.51	5.72	7.34	5.80	5.27	5.75	6.14	5.69	5.59	5.52	5.74
1890.....	5.41	5.17	6.14	6.34	6.79	6.28	6.84	6.60	6.90	8.11	7.13	6.72	6.54
1891.....	6.28	6.08	6.83	6.35	6.53	6.72	6.67	7.53	7.75	7.73	7.78	7.57	6.99
1892.....	7.53	7.32	7.69	7.65	7.83	7.62	7.27	6.77	8.37	9.30	9.11	8.63	7.92
1893.....	8.00	7.65	8.48	9.30	8.85	8.74	8.07	8.58	9.92	10.78	10.50	9.48	9.03
1894.....	8.79	7.85	8.61	9.11	9.07	9.09	8.73	9.97	11.28	12.39	10.76	10.22	9.66
1895.....	10.20	8.86	9.08	9.02	9.82	8.60	7.70	8.78	9.49	8.99	9.50	9.10	9.10
1896.....	8.15	8.19	9.56	10.19	8.79	8.74	8.60	9.26	9.64	9.93	9.70	8.83	9.13
1897.....	8.49	8.05	8.98	8.83	8.52	8.44	8.06	8.27	8.90	9.13	8.70	9.07	8.62
1898.....	8.76	8.29	8.63	8.56	9.09	8.68	8.38	8.35	10.04	10.10	9.44	9.84	9.01
1899.....	8.94	8.75	9.64	9.45	9.53	8.91	8.52	9.18	11.18	10.21	10.12	9.70	9.51
1900.....	9.15	9.27	9.53	9.81	9.49	9.66	9.23	8.59	10.48	12.11	10.95	11.71	10.00
1901.....	9.99	9.54	9.95	10.09	10.52	10.20	8.92	10.05	11.50	12.02	11.69	11.15	10.47
1902.....	10.91	10.70	11.02	11.65	11.00	10.92	10.52	10.48	11.85	12.09	11.97	11.66	11.23
1903.....	11.89	11.81	12.85	12.84	12.62	11.92	12.35	13.92	13.02	13.54	12.91	13.76	12.78
1904.....	13.09	13.89	13.49	14.29	14.58	13.42	12.07	12.72	13.94	14.21	13.18	13.85	13.56
1905.....	14.57	14.88	14.60	14.20	14.65	13.88	13.85	14.77	15.06	16.34	14.30	13.99	14.59
1906.....	13.73	14.96	14.63	15.00	15.07	14.77	14.49	15.01	15.69	15.08	15.74	16.06	15.02
1907.....	15.02	14.37	14.25	15.74	16.24	16.26	15.62	16.29	17.18	18.50	18.00	15.02	16.04
1908.....	15.34	15.13	15.34	15.46	16.07	15.21	14.53	14.67	16.63	16.77	15.42	15.62	15.52
1909.....	15.83	15.80	15.44	15.16	14.87	14.88	13.94	14.04	15.54	17.71	16.15	14.80	15.35
1910.....	14.76	14.66	15.28	15.62	15.65	15.22	14.74	14.72	15.53	17.13	15.95	15.61	15.40
1911.....	15.56	14.98	16.11	16.39	16.27	16.00	15.30	16.19	17.09	19.36	17.09	16.08	16.37
1912.....	16.29	16.49	16.44	18.12	18.14	17.16	16.39	16.70	17.32	20.54	17.62	17.06	17.36
1913.....	17.36	16.72	17.17	17.49	17.98	17.59	17.06	17.12	18.95	19.55	18.40	17.12	17.71
1914.....	16.76	16.87	17.27	17.83	18.52	17.60	16.99	17.43	20.24	17.62	17.09	18.51	17.73
1915.....	17.29	16.43	17.27	17.07	17.60	17.44	16.80	16.68	18.04	16.49	16.76	17.80	17.14
1916.....	16.90	17.03	17.79	18.16	18.47	18.57	17.43	17.57	17.82	17.90	16.58	18.76	17.75
1917.....	18.51	18.08	18.50	19.73	20.62	19.31	18.09	17.67	18.28	19.61	20.03	18.76	18.93
1918.....	18.62	18.71	20.64	23.82	22.98	23.07	22.43	22.31	21.85	22.23	21.50	20.63	21.56
1919.....	20.42	20.31	21.04	21.72	20.94	19.35	19.45	19.60	21.77	20.70	20.40	20.68	20.53
1920.....	20.62	20.18	21.64	23.80	23.16	23.03	20.67	20.45	20.98	21.06	21.58	21.89	21.59
1921.....	21.41	20.46	20.97	21.64	21.43	20.77	20.21	20.92	22.84	21.18	21.63	22.86	21.36
1922.....	22.84	22.16	22.18	24.14	23.64	22.01	21.64	21.49	22.18	21.91	22.11	22.53	22.40
1923.....	22.78	23.23	23.08	23.66	24.96	23.84	22.95	24.12	24.49	23.90	24.08	24.31	23.78
1924.....	24.68	24.09	23.33	24.19	24.58	23.44	23.51	23.28	24.10	25.11	22.48	22.51	23.78
1925.....	22.84	23.70	23.76	24.22	23.61	22.70	23.13	23.03	24.82	23.54	23.20	23.81	23.53
1926.....	23.41	22.47	23.29	23.95	24.12	24.25	23.36	22.80	24.16	24.80	23.94	23.53	23.67
1927.....	21.76	22.60	23.24	22.92	22.41	22.57	22.32	22.68	23.62	23.27	22.27	23.27	22.74
1928.....	23.37	22.99	22.39	23.04	22.80	23.21	22.79	23.83	23.05	24.31	26.69	25.38	23.65
1929.....	26.82	25.54	26.17	26.84	27.01	25.42	23.05	22.91	25.73	26.53	24.94	24.24	25.43
1930.....	23.83	24.24	24.29	23.85	24.88	23.34	23.38	25.15	26.85	26.81	25.95	27.45	25.00
1931.....	26.30	24.04	23.80	23.71	24.36	23.64	23.11	23.76	25.35	26.20	26.22	26.31	24.73
1932.....	25.36	23.42	23.82	23.20	23.23	22.99	22.72	23.47	25.27	25.34	25.16	24.59	24.05
1933.....	24.15	23.65	23.51	24.00	24.25	24.01	23.41	25.32	26.92	28.77	27.65	26.00	25.14
1934.....	24.89	24.43	25.04	25.55	28.05	26.38	24.78	25.78	27.95	31.00	28.77	26.39	26.58
1935.....	26.50	25.39	25.16	26.35	27.06	26.31	25.71	27.02	27.47	29.47	31.14	28.23	27.15
1936.....	29.45	28.03	27.42	27.97	28.73	26.44	25.75	27.02	30.27	30.23	30.79	29.23	28.44
1937.....	27.94	26.72	27.05	25.77	26.13	27.16	25.73	25.93	28.45	31.43	31.85	29.18	29.79
1938.....	27.84	26.42	25.57	25.11	24.67	24.38	23.56	24.56	27.13	26.34	28.82	28.34	26.07
1939.....	27.90	27.21	26.85	27.07	27.62	27.16	26.25	27.48	30.84	32.81	33.62	30.31	28.77
1940.....	30.12	28.96	28.26	28.74	28.06	27.23	25.77	26.15	28.49	30.10	31.57	28.96	28.54
1941.....	29.55	27.86	28.36	28.67	29.02	28.78	29.07	29.91	31.74	32.87	32.66	33.78	30.19
1942.....	32.74	31.44	31.84	31.34	31.21	29.84	29.18	29.76	31.34	32.13	32.14	32.11	31.26
1943.....	29.88	29.27	30.40	29.93	30.67	30.35	30.05	29.65	35.13	36.35	35.47	33.71	31.74
1944.....	31.87	31.25	32.35	32.29	32.52	32.95	31.51	34.27	36.80	39.10	40.60	35.43	34.26
1945.....	33.77	32.77	33.33	34.89	34.57	33.78	33.37	33.23	35.44	35.73	36.34	34.67	34.12
1946.....	32.74	32.27	33.21	34.01	33.69	33.80	33.64	33.59	36.70	40.70	35.92	36.69	34.75
1947.....	36.37	35.34	35.58	35.95	35.83	35.01	33.27	33.94	35.72	37.15	39.34	39.21	36.88
1948.....	38.91	36.19	35.55	34.84	37.31	36.92	36.15	33.95	36.90	39.33	41.55	39.76	37.28
1949.....	36.27	35.34	35.11	33.98	34.00	33.88	33.12	35.12	46.65	44.56	40.18	35.77	37.01
1950.....	34.61	35.94	34.51	33.92	34.34	34.71	33.39	34.90	40.27	43.27	41.40	38.24	36.54
1951.....	39.96	36.91	34.80	36.10	35.92	34.81	34.21	37.21	39.31	43.49	39.98	38.20	37.59
1952.....	36.92	34.79	33.63	34.20	34.59	33.98	33.98	34.33	41.21	54.79	40.66	40.11	37.78
1953.....	37.09	35.75	35.27	34.59	33.95	34.20	34.61	35.63	50.68	46.76	43.63	43.95	38.86
1954.....	38.20	35.43	35.03	34.85	35.63	35.31	35.10	35.05	45.09	45.27	40.72	39.22	37.92
1955.....	39.84	37.82	37.17	37.24	38.42	37.85	37.00	41.54	44.52	49.90	47.08	42.25	40.91

†Average for 9 months

**TABLE 38**  
**FINANCIAL STATEMENT OF THE PROVIDENCE**  
**WATER SUPPLY BOARD FOR THE YEAR**  
**ENDED SEPT. 30, 1955**

**REVENUE**

Water Rents .....	†\$2,166,180.84
Hydrant Rental .....	73,676.23
Electric Power .....	40,855.82
Setting Meters .....	7,703.50
Repairing Meters .....	1,552.88
Rents from Non-Operating Property .....	1,073.16
Repairs to Water Services .....	689.69
Repairs to Distribution Mains .....	2,026.21
Repairs to Hydrants .....	848.46
Installation of New Fire Supplies .....	7,064.00
Installation of New Water Services .....	65,632.00
Installation of New Water Mains .....	150,715.90
Revolving Fund—Water Meters .....	14,850.93
Sale of Scrap Iron, Brass, Lead, Etc. ....	5,464.18
Sale of Lumber, Pulpwood, Etc. ....	1,118.24
Sale of Obsolete Equipment .....	50.00
Sundries. . . . .	5,688.93
Total Revenue .....	\$2,545,190.97

**DISBURSEMENTS**

Operating Expense:	
Salaries. . . . .	\$633,373.31
Services Other Than Personal .....	95,260.26
Materials and Supplies .....	183,531.91
Special Items .....	274.84
Capital Outlay .....	34,987.63
Land and Buildings .....	4,098.00
Other Structures and Improvements (Water Main Extensions) .....	227,817.25
Total Operating Expense .....	*\$1,179,343.20
Taxes. . . . .	225,345.26
Interest on Bonds .....	610,000.00
Employees' Retirement System .....	40,415.50
Depreciation and Extension Fund .....	180,000.00
Payable to Sinking Fund .....	** 310,087.01
Total Disbursements .....	\$2,545,190.97
Gross Water Rents .....	†\$2,236,255.38
Minus Refunds (Current Year) .....	70,071.30
Minus Refunds (Prior Year) .....	3.24
Net Water Rents .....	\$2,166,180.84

\*See Table 39 for detailed account of Operating Expense.

\*\*Subject to change due to anticipated discounts on Outstanding Commitments.

**TABLE 39**  
**WATER SUPPLY BOARD OPERATING EXPENSES**  
**FOR THE YEAR ENDED SEPT. 30, 1955**

<b>ADMINISTRATIVE</b>	
<b>Salaries:</b>	
001 Officials.....	\$18,547.56
Clerical—Chief Engineer's Office.....	3,275.55
Clerical—Accounting.....	34,114.64
Engineering.....	49,891.30
Labor—General.....	8,750.57
008 Sick Leave Payrolls.....	2,398.52
009 Vacation Payrolls.....	4,083.62
Total.....	\$121,061.76
<b>Services Other Than Personal:</b>	
109 Fees Not Otherwise Classified.....	\$ 15.50
111 Telephone and Telegraph.....	1,700.00
112 Postage, Freight and Express.....	341.60
115 Transportation of Persons—Conventions.....	8.95
117 Travel Subsistence—Conventions.....	98.82
118 Travel Subsistence—Other.....	3.85
121 Printing, Binding and Reproduction Services.....	1,600.63
122 Advertising.....	229.75
131 Light and Power.....	1,523.24
141 Repairs—Office Machinery.....	260.84
142 Repairs—Automobiles.....	330.70
149 Repairs—Other Equipment.....	5.00
151 Maintenance and Servicing.....	296.23
163 Rental of Other Equipment.....	5.00
181 Laundry and Cleaning.....	221.50
183 Dues and Subscriptions.....	59.60
199 Miscellaneous Services.....	7,577.50
Total.....	\$14,278.71
Outstanding Commitments.....	193.40
Total—Services Other Than Personal.....	\$ 14,472.11
<b>Materials and Supplies:</b>	
201 Stationery and Office Supplies.....	\$ 705.86
202 Small Tools and Shop Supplies.....	22.78
211 Motor Fuel.....	501.69
212 Lubricants.....	9.36
213 Tires and Tubes.....	55.96
214 Repair Parts and Supplies—Trucks and Autos.....	80.97
231 Medical, Chemical and Laboratory Supplies.....	.98
241 Fuel.....	98.11
244 Housekeeping Supplies.....	253.83
252 Seeds, Fertilizer, Trees and Shrubs.....	34.44
259 Other Agricultural, Horticultural and Land-scaping Supplies.....	77.62
265 Fabricated Metal Products.....	52.83
266 Lumber and Hardware.....	5.74
267 Paint and Painters' Supplies.....	21.56
268 Plumbing and Electrical Supplies.....	3.84
272 Valves and Fittings.....	15.88
279 Water System Materials and Supplies Not Otherwise Classified.....	14.72
299 Miscellaneous Materials and Supplies.....	183.66
Total.....	\$ 2,139.83
Outstanding Commitments.....	61.21
Total—Materials and Supplies.....	\$ 2,201.04
<b>Capital Outlay:</b>	
501 Office Furniture, Machinery and Equipment.....	178.20
502 Books, Maps and Charts.....	66.75
511 Automobiles.....	1,813.19
Total—Capital Outlay.....	\$ 2,058.14
Total—Administrative.....	\$139,793.05

## SOURCE OF SUPPLY

### Hydro Electric Station:

#### Salaries:

001 Labor—Operation. . . . .	\$ 7,160.21
Repairs—Machinery and Equipment. . . . .	31.35

Total. . . . . \$ 7,191.56

#### Services Other Than Personal:

111 Telephone and Telegraph. . . . .	\$ 148.54
142 Repairs—Trucks and Autos. . . . .	11.25
146 Repairs—Plant Equipment . . . . .	2.94
150 Repairs—Structures and Improvements. . . . .	97.00
199 Miscellaneous Services . . . . .	85.26

Total. . . . . \$ 344.99

#### Materials and Supplies:

201 Stationery and Office Supplies. . . . .	\$ 8.98
212 Lubricants. . . . .	34.85
241 Fuel. . . . .	86.00
268 Plumbing and Electrical Supplies. . . . .	132.05

Total. . . . . \$ 261.88

### Water Purification Plant:

#### Salaries:

001 Supervision. . . . .	\$14,614.15
Labor—Operation. . . . .	31,433.49
Technical. . . . .	19,352.80
Clerical—Laboratory. . . . .	1,220.70
Repairs—Structures and Improvements. . . . .	524.04
Repairs—Machinery and Equipment. . . . .	3,572.52
Repairs—Care of Grounds. . . . .	1,379.35

Total. . . . . \$ 72,097.05

#### Services Other Than Personal:

102 Expert Consultant and Other Service Fees. . . . .	\$ 18.00
109 Fees Not Otherwise Classified. . . . .	2.00
111 Telephone and Telegraph. . . . .	968.01
112 Postage, Freight and Express. . . . .	143.07
121 Printing and Binding. . . . .	2.48
141 Repairs—Office Machinery . . . . .	36.11
142 Repairs—Trucks and Autos. . . . .	183.40
146 Repairs—Plant Equipment . . . . .	629.94
149 Repairs—Other Equipment . . . . .	291.90
150 Repairs to Buildings. . . . .	1,827.86
151 Maintenance and Servicing. . . . .	490.48
181 Laundry and Cleaning. . . . .	211.78
183 Dues and Subscriptions. . . . .	.80
199 Miscellaneous Services . . . . .	805.03

Total. . . . . \$ 5,610.86

#### Materials and Supplies:

201 Stationery and Office Supplies. . . . .	\$ 378.27
202 Small Tools and Shop Supplies. . . . .	460.71
204 Wearing Apparel and Personal Supplies. . . . .	81.20
212 Lubricants. . . . .	44.98
213 Tires and Tubes. . . . .	56.50
214 Repair Parts and Supplies—Trucks and Autos . . . . .	73.18
222 Repair Parts and Supplies—Plant Equipment . . . . .	2,604.05
229 Repair Parts and Supplies—Other Equipment . . . . .	189.20
231 Ferric Sulphate . . . . .	39,187.93
231 Lime. . . . .	13,135.88
231 Chlorine. . . . .	4,396.87
231 Sodium Silico Fluoride. . . . .	11,395.20
231 Miscellaneous Chemical Supplies. . . . .	110.16
231 Miscellaneous Laboratory Supplies. . . . .	1,082.51
241 Fuel. . . . .	3,879.27
244 Housekeeping Supplies . . . . .	195.47

252	Seeds, Fertilizer, Trees and Shrubs.....	583.00	
259	Other Agricultural, Horticultural, and Land- scaping Supplies .....	104.65	
262	Cement, Plaster and Related Products.....	71.07	
265	Fabricated Metal Products.....	63.54	
266	Lumber and Hardware.....	469.79	
267	Paint and Painters' Supplies.....	175.49	
268	Plumbing and Electrical Supplies.....	908.93	
269	Construction and Maintenance Materials and Supplies Not Otherwise Classified.....	12.54	
271	Pipe .....	225.68	
272	Valves and Fittings.....	128.51	
299	Miscellaneous Materials and Supplies.....	473.30	
Total. . . . .		\$ 80,487.88	
<b>Special Items:</b>			
302	Liability Insurance .....	\$ 24.84	
Total. . . . .		\$ 24.84	
<b>Capital Outlay:</b>			
502	Books, Maps and Charts.....	\$ 9.11	
Total. . . . .		\$ 9.11	
<b>Land and Buildings:</b>			
612	Improvements to Buildings.....	\$ 4,098.00	
Total. . . . .		\$ 4,098.00	
<b>Scituate Reservoir:</b>			
<b>Salaries:</b>			
001	Labor—Operation. . . . .	\$ 3,064.23	
	Repairs—Care of Grounds.....	1,507.50	
Total. . . . .		\$ 4,571.73	
<b>Services Other Than Personal:</b>			
111	Telephone and Telegraph.....	\$ 174.00	
142	Repairs—Trucks and Autos.....	91.20	
Total. . . . .		\$ 265.20	
<b>Materials and Supplies:</b>			
213	Tires and Tubes.....	\$ 181.21	
214	Repair Parts and Supplies—Trucks and Autos	8.02	
Total. . . . .		\$ 189.23	
<b>Other Reservoirs:</b>			
<b>Salaries:</b>			
001	Labor—Operation. . . . .	\$ 3,068.95	
	Repairs—Structures and Improvements.....	23.67	
Total. . . . .		\$ 3,092.62	
<b>Services Other Than Personal:</b>			
102	Expert Consultant and Other Service Fees..	\$ 3.00	
142	Repairs—Trucks and Autos.....	59.08	
Total. . . . .		\$ 62.08	
<b>Materials and Supplies:</b>			
213	Tires and Tubes.....	\$ 174.88	
214	Repair Parts and Supplies—Trucks and Autos	16.95	
Total. . . . .		\$ 191.83	

**Reforestation:**

## Salaries:

001	Supervision. . . . .	\$ 4,625.00
	Labor—Operation. . . . .	760.58
	Repairs—Machinery and Equipment. . . . .	96.56
	Repairs—Care of Grounds. . . . .	9,876.44

Total. . . . . \$ 15,358.58

## Services Other Than Personal:

102	Expert Consultant and Other Service Fees. . .	\$ 6.00
111	Telephone and Telegraph. . . . .	329.47
142	Repairs—Trucks and Autos. . . . .	314.19
143	Repairs—Construction and Other Automotive	
	Equipment. . . . .	11.15
183	Dues and Subscriptions. . . . .	7.50
199	Miscellaneous Services. . . . .	52.45

Total. . . . . \$ 720.76

## Materials and Supplies:

202	Small Tools and Shop Supplies. . . . .	\$ 37.74
213	Tires and Tubes. . . . .	115.76
214	Repair Parts and Supplies—Trucks and Autos	105.88
229	Repair Parts and Supplies—Other Equipment	16.50
252	Seeds, Fertilizer, Trees and Shrubs. . . . .	475.00
259	Other Agricultural, Horticultural and Land-	
	scaping Supplies. . . . .	42.51
262	Cement, Plaster and Related Products. . . . .	64.92
299	Miscellaneous Materials and Supplies. . . . .	143.24

Total. . . . . \$ 1,001.55

## Capital Outlay:

502	Books, Maps and Charts. . . . .	\$ 7.16
572	Agricultural and Landscaping Equipment. . . . .	64.34

Total. . . . . \$ 71.50

**Real Estate:**

## Salaries:

001	Repairs—Structures and Improvements. . . . .	\$ 30.59
	Repairs—Care of Grounds. . . . .	252.20

Total. . . . . \$ 282.79

**General:**

## Salaries:

001	Clerical. . . . .	\$ 851.40
	Labor—Operation. . . . .	3,991.60
	Repairs—Structures and Improvements. . . . .	295.60
	Repairs—Machinery and Equipment. . . . .	446.18
	Repairs—Care of Grounds. . . . .	4,954.10
	Repairs—Highways. . . . .	38.40
	Repairs—Care of Grounds—Rockland Ceme-	
	tery. . . . .	650.68

Total. . . . . \$ 11,227.96

008	Sick Leave Payrolls. . . . .	3,724.98
009	Vacation Payrolls. . . . .	4,769.72

## Services Other Than Personal:

102	Expert Consultant and Other Service Fees. . .	\$ 15.00
109	Fees Not Otherwise Classified. . . . .	24.00
142	Repairs—Trucks and Autos. . . . .	202.59

Total. . . . . \$ 241.59

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 15.88
204	Wearing Apparel and Personal Supplies.....	2.45
211	Motor Fuel .....	1,146.56
212	Lubricants. . . . .	34.85
213	Tires and Tubes.....	114.08
214	Repair Parts and Supplies—Trucks and Autos	448.85
229	Repair Parts and Supplies—Other Equipment	97.05
241	Fuel. . . . .	437.20
259	Other Agricultural, Horticultural and Land- scaping Supplies .....	140.16
260	Loam. . . . .	220.50
261	Gravel, Sand and Stone.....	75.04
262	Cement, Piaster and Related Products.....	33.07
266	Lumber and Hardware.....	14.08
267	Paint and Painters' Supplies.....	26.46
269	Construction and Maintenance Materials and Supplies Not Otherwise Classified.....	58.11

Total. . . . . \$ 2,864.34

Capital Outlay:

511	Automobiles. . . . .	\$ 2,359.00
-----	----------------------	-------------

Total. . . . . \$ 2,359.00

Outstanding Commitments—Services Other Than Per-  
sonal. . . . . \$ 8,953.08

Outstanding Commitments—Materials and Supplies . 1,219.01

Outstanding Commitments—Capital Outlay..... 11,852.00

Total—Source of Supply .....\$243,145.72

TRANSMISSION AND DISTRIBUTION

Pumping Station:

Salaries:

001	Labor—Operation. . . . .	\$14,261.10
	Repairs—Machinery and Equipment.....	24.31

Total. . . . . \$ 14,285.41

Services Other Than Personal:

111	Telephone and Telegraph.....	\$ 380.90
131	Light and Power.....	16,636.19
146	Repairs—Plant Equipment .....	141.67
149	Repairs—Other Equipment .....	30.66
150	Repairs to Buildings.....	2,918.97
151	Maintenance and Servicing.....	9.50
181	Laundry and Cleaning.....	18.00
199	Miscellaneous Services .....	30.00

Total. . . . . \$ 20,165.89

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 80.54
211	Motor Fuel .....	240.84
212	Lubricants. . . . .	32.67
214	Repair Parts and Supplies—Trucks and Autos	54.02
222	Repair Parts and Supplies—Plant Equipment	445.94
241	Fuel. . . . .	689.54
244	Housekeeping Supplies .....	13.92
252	Seeds, Fertilizer, Trees and Shrubs.....	42.14
265	Fabricated Metal Products.....	8.23
268	Plumbing and Electrical Supplies.....	1.08
272	Valves and Fittings.....	12.96

Total. . . . . \$ 1,621.88

**Pipe Lines:**

**Salaries:**

001	Supervision. . . . .	\$ 6,691.20
	Clerical. . . . .	5,127.42
	Labor—Operation. . . . .	80,628.48
	Repairs—Structures and Improvements. . . . .	280.23
	Repairs—Trucks and Autos. . . . .	7,403.41
	Repairs—Care of Grounds. . . . .	7,479.59
	Repairs—Transmission Mains . . . . .	2,247.03
	Repairs—Distribution Mains . . . . .	11,145.01
	Repairs—Gates and Valves. . . . .	5,909.57
	Repairs—Hydrants. . . . .	7,252.68
	Repairs—Services. . . . .	11,022.85
	New Work—Distribution Mains. . . . .	3,675.81
	New Work—Gates and Valves. . . . .	1,677.45
	New Work—Hydrants . . . . .	12,005.89
	New Work—Services . . . . .	45,605.66
	New Work—Meters (Emergency). . . . .	2.80
	Retirement Work—Distribution Mains. . . . .	302.53
	Retirement Work—Gates and Valves. . . . .	228.72
	Retirement Work—Hydrants . . . . .	4,066.28
	Retirement Work—Services . . . . .	2,525.71
Total. . . . .		\$215,278.32

**Services Other Than Personal:**

102	Expert Consultant and Other Service Fees. . . . .	\$ 60.00
109	Fees Not Otherwise Classified. . . . .	37.00
111	Telephone and Telegraph. . . . .	2,942.87
112	Postage, Freight and Express. . . . .	90.23
118	Travel Subsistence—Other . . . . .	12.85
131	Light and Power. . . . .	401.79
141	Repairs—Office Machinery . . . . .	85.32
142	Repairs—Trucks and Autos. . . . .	1,334.29
143	Repairs—Construction and Other Automotive Equipment. . . . .	755.09
149	Repairs—Other Equipment . . . . .	11.06
150	Repairs to Buildings. . . . .	1,307.85
153	Repairs—Street Openings . . . . .	7,738.64
162	Rental of Automotive and Construction Equipment. . . . .	1,049.29
165	Rental of Land. . . . .	10.00
199	Miscellaneous Services . . . . .	1,091.61
Total. . . . .		\$ 15,927.89

**Materials and Supplies:**

201	Stationery and Office Supplies. . . . .	\$ 590.66
202	Small Tools and Shop Supplies. . . . .	1,859.14
204	Wearing Apparel and Personal Supplies. . . . .	204.04
211	Motor Fuel . . . . .	2,916.45
212	Lubricants. . . . .	327.11
213	Tires and Tubes. . . . .	706.42
214	Repair Parts and Supplies—Trucks and Autos . . . . .	2,143.68
229	Repair Parts and Supplies—Other Equipment . . . . .	57.84
231	Medical, Chemical and Laboratory Supplies . . . . .	124.07
241	Fuel. . . . .	2,258.85
244	Housekeeping Supplies and Minor Equipment . . . . .	31.05
252	Seeds, Fertilizer, Trees and Shrubs. . . . .	26.95
259	Other Agricultural, Horticultural and Land- scaping Supplies . . . . .	8.25
260	Loam. . . . .	\$ 392.00
261	Gravel, Sand and Stone. . . . .	208.23
262	Cement, Plaster and Related Products. . . . .	196.00
265	Fabricated Metal Products. . . . .	284.56
266	Lumber and Hardware . . . . .	371.05
267	Paint and Painters' Supplies. . . . .	197.59
268	Plumbing and Electrical Supplies. . . . .	2,409.31
271	Pipe—Cast Iron . . . . .	949.66
271	Pipe—Service. . . . .	7,791.98
271	Pipe—Other. . . . .	60.65

272	Hydrants, Valves and Fittings.....	45,072.26	
272	Gates and Valves.....	3,253.10	
279	Water System Materials and Supplies Not Otherwise Classified .....	10.11	
299	Miscellaneous Materials and Supplies.....	450.31	
	Total. . . . .	\$ 72,901.32	
Special Items:			
361	Expenses for Special Ceremonies.....	\$ 250.00	
	Total. . . . .	\$ 250.00	
Capital Outlay:			
512	Trucks and Tractors.....	\$ 9,832.44	
561	Shop and Plant Equipment.....	116.74	
591	Equipment Not Otherwise Classified.....	756.51	
	Total. . . . .	\$ 10,705.69	
Other Structures and Improvements:			
721	New Main Extensions.....	\$176,561.37	
	Total. . . . .	\$176,561.37	
Distribution Reservoirs:			
Services Other Than Personal:			
111	Telephone and Telegraph.....	\$ 176.23	
131	Light and Power.....	26.10	
	Total. . . . .	\$ 202.33	
General:			
Salaries:			
001	Labor—Operation. . . . .	\$ 6,862.09	
	Repairs—Structures and Improvements.....	688.77	
	Repairs—Trucks and Autos.....	1,959.73	
008	Sick Leave Payrolls.....	6,872.04	
009	Vacation Payrolls .....	7,941.10	
	Total. . . . .	\$ 24,323.73	
Services Other Than Personal:			
181	Laundry and Cleaning.....	\$ 75.00	
199	Miscellaneous. . . . .	83.89	
	Total. . . . .	\$ 158.89	
Materials and Supplies:			
244	Housekeeping Supplies and Minor Equipment \$	60.32	
252	Seeds, Fertilizer, Trees and Shrubs.....	19.45	
265	Fabricated Metal Products.....	190.10	
266	Lumber and Hardware.....	71.81	
268	Plumbing and Electrical Supplies.....	142.47	
	Total. . . . .	\$ 484.15	
	Outstanding Commitments—Services Other Than Per- sonal. . . . .	122.63	
	Outstanding Commitments—Materials and Supplies....	5,252.89	
	Outstanding Commitments—New Main Extensions.....	51,255.88	
	Total—Transmission and Distribution .....	\$610,498.27	

# METERING

## Salaries:

001	Supervision.....	\$10,841.26
	Clerical.....	38,720.25
	Labor—Operation.....	32,805.60
	Repairing Meters.....	12,175.14
	Removing and Setting Meters.....	15,184.45
	Testing Meters.....	3,407.28
	General Operation.....	12,185.82
008	Sick Leave Payrolls.....	5,730.98
009	Vacation Payrolls.....	5,056.32

Total .....\$136,107.10

## Services Other Than Personal:

102	Expert Consultant and Other Service Fees...	\$ 18.00
109	Fees Not Otherwise Classified.....	24.00
111	Telephone and Telegraph.....	2,200.00
112	Postage, Freight and Express.....	482.83
116	Transportation of Persons—Carfares.....	597.70
121	Printing, Binding and Reproduction Services	32.50
131	Light and Power.....	1,506.61
141	Repairs—Office Machinery, Furniture and Furnishings.....	829.46
142	Repairs—Trucks and Autos.....	440.40
151	Maintenance and Servicing.....	43.28
199	Miscellaneous Services.....	20,837.18

Total.....\$ 27,011.96

## Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 2,294.13
202	Small Tools and Shop Supplies.....	288.99
204	Wearing Apparel and Personal Supplies.....	123.30
211	Motor Fuel.....	1,076.68
212	Lubricants.....	163.05
213	Tires and Tubes.....	28.04
214	Repair Parts and Supplies—Trucks and Autos	154.17
221	Repair Parts and Supplies—Office Machinery	41.16
231	Medical, Chemical and Laboratory Supplies..	60.20
241	Fuel.....	102.88
266	Lumber and Hardware.....	4.51
267	Paint and Painters' Supplies.....	11.51
268	Plumbing and Electrical Supplies.....	299.50
272	Valves and Fittings.....	1,932.40
274	Meter Parts.....	7,765.90
299	Miscellaneous Materials and Supplies.....	379.46

Total.....\$ 14,725.88

## Capital Outlay:

511	Automobiles.....	\$ 1,813.19
512	Trucks and Tractors.....	6,094.00

Total.....\$ 7,907.19

Outstanding Commitments — Materials and Supplies.....	129.03
Outstanding Commitments—Capital Outlay.....	25.00

Total—Metering .....\$185,906.16

TOTAL—OPERATING EXPENSE.....\$1,179,343.20

**TABLE 40**  
STATEMENT OF REVENUE—ESTIMATED AND ACTUAL  
FOR THE YEAR ENDED SEPTEMBER 30, 1955

Account	Estimated Revenue	Actual Revenue
Water Rents .....	\$2,100,000.00	\$2,166,180.84
Hydrant Rental .....	71,000.00	73,676.23
Electricity. . . . .	22,000.00	40,855.82
Stores Account (Meters).....	3,500.00	14,850.93
Repairing and Setting Meters.....	6,500.00	9,256.38
Fire Supplies and Miscellaneous Repairs	5,000.00	10,628.36
New Service Installations.....	50,000.00	65,632.00
New Main Extensions.....	125,000.00	150,715.90
Rentals. . . . .	1,500.00	1,073.16
Other miscellaneous Receipts.....	12,000.00	12,321.35
Total.....	\$2,396,500.00	\$2,545,190.97

**TABLE 41**  
SUMMARY OF ANNUAL WATER WORKS REVENUES  
1930-1955

Fiscal Years Ended Sept. 30	Receipts From Sale of Water	Misc. Receipts	Total
1930.....	\$1,384,369.54	\$218,844.87	\$1,603,214.41
1931.....	1,414,836.00	237,172.64	1,652,008.64
1932.....	1,375,450.77	223,058.31	1,598,509.08
1933.....	1,345,444.69	212,066.79	1,557,511.48
1934.....	1,387,876.73	184,133.47	1,572,010.20
1935.....	1,409,269.47	237,518.68	1,646,788.15
1936.....	1,427,881.10	265,357.71	1,693,238.81
1937.....	1,429,107.08	229,317.39	1,721,424.47
1938.....	1,426,986.49	106,359.70	1,533,346.19
1939.....	1,491,918.63	124,901.37	1,616,820.00
1940.....	1,551,917.24	115,540.98	1,667,458.22
1941.....	1,615,351.79	114,960.58	1,730,312.37
1942.....	1,679,058.50	103,368.22	1,782,426.72
1943.....	1,629,268.35	86,580.98	1,715,849.33
1944.....	1,761,016.12	87,946.71	1,848,962.83
1945.....	1,812,311.82	99,271.44	1,911,583.26
1946.....	1,808,993.17	123,247.90	1,932,241.07
1947.....	1,877,471.18	124,372.47	2,001,843.65
1948.....	2,005,242.58	222,419.41	2,227,661.99
1949.....	2,031,633.37	229,317.72	2,260,951.09
1950.....	2,082,814.82	199,061.80	2,281,876.62
1951.....	2,078,209.84	214,868.70	2,293,078.54
1952.....	2,053,427.76	322,761.07	2,376,188.83
1953.....	2,093,625.85	343,477.23	2,437,103.08
1954.....	2,146,947.18	302,707.38	2,449,654.56
1955.....	2,166,180.84	379,010.13	2,545,190.97

**TABLE 42**

STATEMENT OF WATER WORKS  
DEPRECIATION AND EXTENSION FUND

	Investment	Cash	Due From Other Funds	Total
Balance Sept. 30, 1954.....	\$301,000.00	\$ 8,031.15	\$250,000.00	\$559,031.15
Increase During Year Ended Sept. 30, 1955.....	303,533.49	303,325.96		
Disbursements During Year Ended Sept. 30, 1955.....	30,000.00	303,533.49	250,000.00	
Accounts Receivable Year Ended Sept. 30, 1955.....			362,567.23	
Balance Sept. 30, 1955.....	\$574,533.49	\$ 7,823.62	\$362,567.23	\$944,924.34

**TABLE 43**

STATEMENT OF WATER WORKS  
DEPOSIT AND REFUND ACCOUNT

Cash Balance Sept. 30, 1954.....	\$44,073.86
Receipts for Year Ended Sept. 30, 1955.....	NIL
Total Available .....	\$44,073.86
Disbursements for Year Ended Sept. 30, 1955.....	\$ 4,205.86
Accounts Payable for Year Ended Sept. 30, 1955.....	NIL
Total Deductions .....	4,205.86
Cash Balance Sept. 30, 1955.....	\$ 39,868.00

**TABLE 44**

**STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING  
AND SINKING FUND REQUIREMENTS ON A 3% BASIS  
AS OF SEPTEMBER 30, 1955**

Bonds Payable from Sinking Fund	Rate of Int. %	Year of		Bonds		Sinking Fund Requirements On a 3% Basis
		Issue	Maturity	Issued	Outstanding	
Water Supply .....	4	1916	1956	\$1,000,000.00	\$1,000,000.00	\$ 965,182.82
" " .....	4½	1922	1962	1,000,000.00	1,000,000.00	745,072.53
" " .....	4	1922	1962	2,000,000.00	2,000,000.00	1,479,188.10
" " .....	4	1932	1962	1,000,000.00	1,000,000.00	687,251.62
" " .....	4	1922	1962	2,500,000.00	2,500,000.00	1,784,298.31
" " .....	4¾	1924	1964	2,000,000.00	2,000,000.00	1,352,835.22
" " .....	4	1924	1964	1,500,000.00	1,500,000.00	974,838.21
" " .....	4	1925	1965	2,500,000.00	2,500,000.00	1,589,240.09
" " .....	4	1928	1968	1,500,000.00	1,500,000.00	827,942.69
Total Water Supply Debt and Sinking Fund Requirement .....					\$15,000,000.00	\$10,405,849.59
Sinking Fund Assets Allocated to Water Supply debt per City Controller's Report on Sinking Fund Sept. 30, 1955 (Includes \$310,087.01* Water Operating Balance For Year Ended Sept. 30, 1955, Plus Prior Year Adjustment of \$217.83 or a total of \$310,304.84) .....						\$10,468,027.11
Amount in Excess of Requirements on 3% Basis .....						\$ 62,177.52

\*Subject to change due to anticipated discounts on Outstanding Commitments, See Table No. (39).

**TABLE 45**

**A SUMMARY OF INVENTORIES OF PERSONAL PROPERTY  
AT SEPTEMBER 30, 1955**

REMOVABLE PROPERTY INVENTORY: .....	\$122,518.07
SOURCE OF SUPPLY:	
Hydro Electric Station .....	\$ 6,951.95
Purification Works .....	18,360.64
Laboratory. . . . .	3,277.68
General. . . . .	1,566.34
	30,156.61
TRANSMISSION AND DISTRIBUTION:	
Pipe Lines .....	\$102,520.56
Pumping Stations .....	214.64
Distribution Reservoirs .....	3.32
Garage. . . . .	6,423.25
	109,161.77
METERING: .....	42,670.60
SUPPLIES: .....	1,105.83
Total Personal Property Inventory .....	\$305,612.88

**TABLE 46**  
**STATEMENT OF NORTHWESTERLY FORCE MAIN**  
**CONSTRUCTION ACCOUNT**

FOR THE YEAR ENDED SEPT. 30, 1955

Transferred from Depreciation and Extension Fund.....	\$730,000.00
Disbursements Sept. 30, 1955.....	\$547,533.49
Outstanding Commitments Sept. 30, 1955.....	NIL
Transferred to Depreciation and Extension Fund.....	182,466.51
Total Disbursements .....	730,000.00
Cash Balance Sept. 30, 1955 (Account Closed).....	NIL

**TABLE 47**  
**STATEMENT OF STORES REVOLVING FUND**  
**FOR THE YEAR ENDED SEPT. 30, 1955**

Cash Balance Sept. 30, 1954.....	\$ 10,000.00
Outstanding Commitments Sept. 30, 1954.....	30,470.57
Receipts—Oct. 1, 1954 to Sept. 30, 1955.....	56,670.50
Total Available .....	\$ 97,141.07
Disbursements Sept. 30, 1955.....	\$ 57,005.74
Outstanding Commitments Sept. 30, 1955.....	15,284.40
Transferred as Income to General Fund.....	14,850.93
Total Disbursements .....	\$ 87,141.07
Cash Balance Sept. 30, 1955.....	\$ 10,000.00

**TABLE 48**  
**STATEMENT OF ACADEMY AVENUE BUILDING**  
**ACCOUNT**

FOR THE YEAR ENDED SEPT. 30, 1955

Transferred from Depreciation and Extension Fund.....	\$400,000.00
Disbursements Sept. 30, 1955.....	\$395,806.44
Outstanding Commitments Sept. 30, 1955.....	NIL
Transferred to Depreciation and Extension Fund.....	4,193.56
Total Disbursements .....	400,000.00
Cash Balance Sept. 30, 1955 (Account Closed).....	NIL

**TABLE 49**  
**REBUILDING FILTERS AND METERING FACILI-**  
**TIES AT THE WATER PURIFICATION WORKS**

FOR THE YEAR ENDED SEPT. 30, 1955

Transferred from Depreciation and Extension Fund.....	\$110,000.00
Disbursements Sept. 30, 1955.....	\$107,315.76
Outstanding Commitments Sept. 30, 1955.....	2,583.52
Transferred to Depreciation and Extension Fund.....	100.72
Total Disbursements .....	110,000.00
Cash Balance Sept. 30, 1955 (Account Closed).....	NIL

TABLE 50

WATER WORKS PROPERTY IN THE VARIOUS CITIES AND TOWNS  
(VALUATIONS AS OF DECEMBER 31, 1954)

LOCATION OF PROPERTY	LAND AREA (Acres)	VALUATIONS						Tax
		DECLARED		ASSESSED		Total	Total	
		Land	Bldgs. & Imp.	Total	Land			
City of Providence.....	3.05	.....	.....	\$ 344,040.00(a)	\$ 19,840.00	\$ 324,200.00	\$ 344,040.00	.....3.70
City of Warwick.....	0.06	\$ 160.00	.....	160.00	.....	0	160.00	\$ 29,384.32
City of Cranston.....	79.43	12,630.00	\$885,000.00(b)	897,630.00(b)	20,920.00	1,028,520.00(b)	1,049,440.00(b)	2,234.50
Town of Foster.....	1,936.04	30,560.00	2,600.00	33,160.00	109,000.00	0	109,000.00	312.97
Town of Glocester.....	73.30	11,020.00	0	11,020.00	11,020.00	0	11,020.00	15,564.76
Town of Johnston.....	103.13	35,310.00	268,500.00	303,810.00	76,990.00	585,340.00	662,330.00	4,795.00
Town of North Providence.....	8.58	.....	.....	175,000.00(c)	175,000.00	0	175,000.00(c)	183,330.00
Town of Scituate.....	13,182.24	.....	.....	6,790,000.00(d)	607,000.00	6,183,000.00(e)	6,790,000.00(d)	.....
Total Real Estate.....	15,385.83	.....	.....	\$ 8,554,020.00	\$1,019,930.00	\$8,121,060.00	\$9,140,990.00	\$235,625.25
Water Distribution System.....	.....	.....	.....	8,295,409.79	.....	.....	.....	.....
Total.....	15,385.83	.....	.....	\$16,850,229.79	\$1,019,930.00	\$8,121,060.00	\$9,140,990.00	\$235,625.25

(a) Providence—Assessed Valuation

(b) Cranston—Net Valuation (\$150,000.00 exemption not included).

(c) North Providence—Valuation as per agreement dated March 3, 1953.

(d) Scituate—Valuation as per agreement dated June 9, 1951.

(e) Scituate—Buildings and Improvements \$6,176,000.00, Tangible Personal Property \$7,000.00.

**TABLE 51**  
**SUMMARY OF STATISTICS**  
**PROVIDENCE WATER SUPPLY BOARD**  
**FOR THE YEAR ENDED SEPT. 30, 1955**

In form recommended by the New England Water Works Association

PROVIDENCE*	PROVIDENCE	RHODE ISLAND
(City or Town)	(County)	(State)

**GENERAL STATISTICS**

Population of Providence (1950 Federal Census).....	248,674
Estimated population supplied in suburbs.....	**123,300
Total population supplied.....	371,974
Date of Construction.....	1870-76; 1913-28; 1935; 1938-40; 1954
By whom owned.....	City of Providence
Source of Supply.....	Surface water collected in Scituate Reservoir and five smaller reservoirs on north branch of Pawtuxet River.
Available Storage Capacity of six impounding reservoirs.....	39,746 m. g.
Mode of supply.....	83.5% by gravity; 16.5% by pumping

**STATISTICS OF CONSUMPTION OF WATER**

1. Estimated total population to date	.....
2. Estimated population on lines of pipe	.....
3. Estimated population supplied	371,974
4. Total consumption for the year, gallons	14,932,990,000
5. Passed through meters, gallons	13,618,854,750
6. Percentage of consumption metered	91.20%
7. Average daily consumption, gallons	40,910,000
8. Gallons per day to each inhabitant	.....
9. Gallons per day to each consumer	110.0
10. Gallons per day to each tap	715
11. Cost of supplying water, per million gallons, based on total maintenance	\$78.98
12. Cost of supplying water, per million gallons, total maintenance plus fixed charges	\$149.68

**FILTRATION**

1. Type of filters	Rapid Sand
2. Number of filter units	14
3. Capacity of filter plant	14 units @ 7.5=105 m.g.d.
4. Chemicals used	Ferri-Floc, Quicklime, Chlorine and Sod. Silicofluoride
5. Total water filtered during the year, gallons	15,047,287,000
6. Average quantity filtered per day, gallons	41,225,000
7. Total filtered water delivered to the distribution system during the year, gallons	14,993,813,000

\*Supplying Providence and portions of Cranston, Johnston, North Providence, Warwick, and Smithfield.

\*\*Does not include population supplied through Kent County Water Authority.

**TABLE 51—Continued**  
**SUMMARY OF STATISTICS**  
**PROVIDENCE WATER SUPPLY BOARD**  
**FOR THE YEAR ENDED SEPT. 30, 1955**  
**STATISTICS RELATING TO DISTRIBUTING SYSTEM**  
**MAINS\***

1. Kind of Pipe	Cement Asbestos, Cast Iron, Steel and Concrete
2. Sizes	From 6 to 66 inches
3. Extended during year (net)	82,326.84 feet
4. Discontinued during year	1,779.89 feet
5. Total now in use	711.82 miles
6. Cost of repairs per mile	.....
7. Number of leaks per mile	0.12
8. Length of pipes less than 6 inches in diameter	0
9. Number of hydrants added during year	78
10. Number of hydrants now in use	4,206
11. Number of stop gates added during year	149
12. Number of stop gates now in use	10,204
13. Number of stop gates smaller than 6 inches	0
14. Number of blow-offs	.....
15. Range of pressure on mains	14 to 95 pounds

**HIGH PRESSURE FIRE SERVICE**

Kind of Pipe	Cast Iron
Sizes	6, 8, 12, 16 and 24 inches
Extended during year	0
Discontinued during year	0
Total now in use	12.71 miles
Hydrants added during year	0
Hydrants now in use	159
Stop gates added	0
Stop gates now in use	126
Number of blow-offs	0
Range of pressure on mains	94 to 130 pounds

**SERVICES**

16. Kind of pipe	lead, copper and cast iron
17. Size	½ in. to 16 inches
18. Extended, feet	.....
19. Discontinued, feet	.....
20. Total now in use, miles	.....
21. Number of service taps added during year	1,105
22. Number now in use	57,198
23. Average length of services, feet	.....
24. Average cost of service for year	.....
25. Number of meters added	786
26. Number of meters now in use	56,336
27. Percentage of services metered	99.5
28. Percentage of receipts from metered water	.....
29. Number of motors and elevators added	0
30. Number of elevators now in use	.....

\*Not including high pressure fire service.