



ANNUAL REPORT
of the
WATER SUPPLY BOARD
of the
CITY OF PROVIDENCE

For the Year Ended September 30, 1956

APPENDIX

LIST OF TABLES

TABLE

1. SCITUATE WATERSHED—Monthly Rainfall in Inches for Year Ended Sept. 30, 1956.
2. SCITUATE WATERSHED—Monthly and Yearly Rainfall in Inches for 41 Years, 1916-1956.
3. SCITUATE WATERSHED—Monthly and Yearly Runoff in Inches for 41 Years, 1916-1956.
4. SCITUATE WATERSHED—Monthly and Yearly Percent of Rainfall Collected, 1916-1956.
5. SCITUATE WATERSHED—Statistics of Storage, for Year Ended September 30, 1956.
6. SCITUATE WATERSHED—Statistics of Draft and Yield for Year Ended Sept. 30, 1956.
7. SCITUATE WATERSHED—Reforestation, Number and Kinds of Trees Planted in Various Years.
8. GAINER DAM—Hydro-Electric Power Generation Statistics.
9. WATER PURIFICATION WORKS—Operating Statistics.
10. WATER PURIFICATION WORKS—Chemicals Used and their Cost.
11. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in Process of Filtration.
12. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in Various Brooks and Reservoirs on Scituate Watershed.
13. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in the Distribution System.
14. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—48 Hours on Agar at 20° C.
15. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—24 Hours on Agar at 35° C.
16. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—B. Coli.
17. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Various Brooks and Reservoirs on Scituate Watershed.
18. WATER PURIFICATION WORKS—Bacteriological Examination of Water in the Distribution System.
19. WATER PURIFICATION WORKS—Mineral Analysis of Water.
20. WATER PURIFICATION WORKS—Sanitary Chemical Analysis of Water.
21. WATER PURIFICATION WORKS—List of Laboratory Tests and Examinations.
22. WATER DISTRIBUTION SYSTEM—Neutaconkanut Pumping Station Operating Statistics.
23. WATER DISTRIBUTION SYSTEM—Bath Street Pumping Station Operating Statistics.

TABLE

24. WATER DISTRIBUTION SYSTEM — Neutaconkanut Distribution Reservoir Statistics.
25. WATER DISTRIBUTION SYSTEM—Longview Distribution Reservoir Statistics.
26. WATER DISTRIBUTION SYSTEM—Water Mains Laid, Removed, Replaced, etc.
27. WATER DISTRIBUTION SYSTEM—Public Water Mains in Use at end of Year.
28. WATER DISTRIBUTION SYSTEM—Gates in Use at End of Year.
29. WATER DISTRIBUTION SYSTEM—Services Installed, Removed, Repaired, etc.
30. WATER DISTRIBUTION SYSTEM—Services in Use on September 30, 1956.
31. WATER DISTRIBUTION SYSTEM—Fire Hydrants Installed, Removed, etc.
32. WATER DISTRIBUTION SYSTEM—Number of Fire Hydrants in System.
33. WATER METERS—Number, Make and Size of Meters in System.
34. WATER CONSUMPTION—Low Service, High Service and Total Consumption for Year.
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 1877-1956.
38. FINANCIAL STATEMENT OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1956.
39. OPERATING EXPENSES OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1956.
40. STATEMENT OF REVENUE—Estimated and Actual for Year Ended Sept. 30, 1956.
41. ANNUAL WATER WORKS REVENUES—Summary, 1930-1956.
42. WATER WORKS DEPRECIATION AND EXTENSION FUND.
43. WATER WORKS DEPOSIT AND REFUND ACCOUNT.
44. BONDED INDEBTEDNESS AND SINKING FUND REQUIREMENTS.
45. PERSONAL PROPERTY INVENTORIES as of Sept. 30, 1956.
46. STORES REVOLVING FUND.
47. WATER WORKS PROPERTY—Valuations and Taxes.
48. SUMMARY OF WATER WORKS STATISTICS—For Year Ended Sept. 30, 1956.

TABLE 1
MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED

STATIONS ON WATERSHED		YEAR ENDED SEPTEMBER 30, 1956													
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Total	Monthly Avg.
	Rocky Hill, . . .	11.61	5.42	0.83	5.61	4.46	6.88	3.96	3.25	2.03	4.35	1.94	4.69	55.03	4.59
	Hopkins Mills, . .	11.37	4.99	0.78	5.57	4.41	9.08	4.08	2.61	2.34	3.96	1.28	4.84	55.31	4.61
	North Scituate, . .	11.98	5.06	0.75	5.28	4.93	8.13	3.72	2.25	1.73	3.80	1.46	3.19	52.28	4.36
	Westcott,	10.73	5.14	0.61	5.29	3.41	8.33	3.78	1.83	2.02	3.80	1.51	3.21	49.66	4.14
	Gainer Dam	11.69	5.54	0.64	5.22	4.72	7.11	3.64	2.17	2.38	4.72	1.62	3.97	53.42	4.45
	AVERAGE.	11.48	5.23	0.72	5.39	4.39	7.91	3.84	2.42	2.10	4.13	1.56	3.98	53.15*	4.43

*Total of monthly averages.

*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	2.67	2.70	4.15	4.84	1.51	6.13	2.66	40.99	1917
1917-1918.....	6.71	0.48	3.23	3.56	3.73	2.15	4.50	3.12	4.99	5.15	4.12	8.79	50.99	1918
1918-1919.....	1.07	2.60	3.75	4.89	3.42	6.05	4.31	5.99	3.65	5.47	6.55	6.07	53.92	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	53.43	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	5.72	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	1.72	2.55	2.15	39.38	1923
1923-1924.....	5.67	5.68	5.10	4.49	2.92	4.80	6.12	5.66	1.49	2.78	3.85	5.28	50.78	1924
1924-1925.....	0.21	2.23	2.38	4.11	2.22	3.76	2.85	2.72	2.46	6.14	1.70	2.66	34.94	1925
1925-1926.....	4.32	4.83	5.18	3.66	6.10	3.73	2.46	2.27	1.74	3.80	3.94	1.89	43.52	1926
1926-1927.....	5.04	5.33	3.53	2.98	3.31	1.59	2.56	3.41	3.36	3.99	8.55	2.61	46.50	1927
1927-1928.....	3.64	9.22	5.63	2.12	4.32	2.70	5.43	1.45	3.91	5.06	5.30	4.80	55.98	1928
1928-1929.....	3.99	2.50	3.21	5.40	4.89	3.92	7.36	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	3.03	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.....	3.23	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.....	5.86	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.....	1.00	1.25	9.83	5.02	2.45	4.09	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	8.35	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	3.68	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	5.05	4.11	1.35	3.75	1.74	2.01	11.03	44.36	1944
1944-1945.....	2.71	8.45	4.33	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	5.07	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	9.64	5.53	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	52.91	1953
1953-1954.....	5.57	6.22	5.56	2.91	3.16	4.36	5.37	4.91	1.55	2.76	9.10	7.63	59.10	1954
1954-1955.....	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	1955
1955-1956.....	11.48	5.23	0.72	5.39	4.39	7.91	3.84	2.42	2.10	4.13	1.56	3.98	53.15	1956
Average.....	3.45	4.71	3.95	4.11	3.73	4.44	4.16	3.60	3.74	3.78	4.67	4.02	48.36*	Avg.
Maximum.....	11.48	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	0.72	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;

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	1.51	1.91	4.29	3.03	2.70	2.18	0.70	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	3.66	1.77	1.35	0.91	3.33	30.97	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	3.59	0.25	33.32	1922
1922-1923.....	1.66	1.26	1.37	4.16	2.46	6.10	4.06	2.68	1.35	0.64	0.40	0.25	26.10	1923
1923-1924.....	1.27	2.01	4.57	4.52	1.88	3.43	5.70	3.38	1.95	0.70	0.56	0.68	29.25	1924
1924-1925.....	0.49	0.45	0.97	0.91	3.65	3.41	2.46	1.46	0.32	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	0.32	0.17	0.42	0.17	21.37	1926
1926-1927.....	0.76	2.15	2.09	3.34	2.64	3.05	3.00	2.03	1.44	0.32	1.59	0.64	21.76	1927
1927-1928.....	1.95	6.73	4.70	3.62	3.76	2.86	3.18	2.05	1.15	1.08	1.17	0.80	32.05	1928
1928-1929.....	1.21	1.16	1.99	4.02	3.65	5.56	6.09	3.56	0.48	0.06	0.07	-0.09	27.76	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	12.02	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	0.35	3.27	19.25	1932
1932-1933.....	3.48	6.29	2.26	2.24	2.70	6.28	6.88	1.93	1.37	0.17	0.23	1.55	55.57	1933
1933-1934.....	0.95	0.82	1.82	3.78	1.18	5.48	6.08	2.88	1.47	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	0.20	56.56	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	0.37	26.40	1936
1936-1937.....	0.46	0.43	6.06	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	1.66	55.00	1937
1937-1938.....	0.79	4.17	3.25	4.15	2.99	2.99	2.29	1.84	2.85	6.93	1.32	1.84	55.23	1938
1938-1939.....	1.22	1.90	3.62	2.11	4.12	5.24	4.90	1.08	0.31	-0.24	0.22	0.09	54.57	1939
1939-1940.....	0.63	1.35	1.54	2.03	1.51	4.86	6.89	3.17	1.63	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	0.52	0.86	1.87	2.54	7.14	1.75	1.06	0.39	0.86	0.26	-0.17	17.13	1942
1942-1943.....	0.45	1.86	4.56	2.45	3.46	4.40	2.68	3.01	0.36	0.02	-0.16	-0.22	22.87	1943
1943-1944.....	0.60	0.95	0.42	0.73	1.23	3.24	3.53	1.08	0.43	-0.26	-0.31	1.73	13.37	1944
1944-1945.....	0.50	3.16	3.55	2.91	2.58	5.61	2.15	3.10	1.26	0.15	-0.12	-0.15	24.40	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	2.98	4.01	3.31	2.86	1.09	0	0.12	0.31	17.89	1947
1947-1948.....	0.23	2.94	1.39	1.55	3.15	7.16	3.76	5.25	3.12	0.56	0.15	-0.21	29.05	1948
1948-1949.....	0.35	2.24	2.00	3.57	3.22	2.92	3.20	1.78	-0.02	-0.26	0.02	0.09	19.11	1949
1949-1950.....	0.05	0.57	1.26	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	3.30	5.02	2.97	2.46	0.98	0.14	0.53	-0.20	28.21	1952
1952-1953.....	-0.20	0.37	1.15	4.61	4.35	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	0.30	-0.01	0.93	3.96	27.83	1954
1954-1955.....	1.33	3.65	5.90	2.46	3.61	4.26	2.76	1.62	0.89	0.02	4.04	1.19	31.73	1955
1955-1956.....	7.22	5.56	1.50	3.27	4.09	4.57	6.57	1.98	0.96	0.37	-0.22	0.05	35.82	1956
Average.....	0.85	1.92	2.49	2.78	2.76	4.74	3.79	2.47	1.27	0.67	0.60	0.73	25.07*	Avg.
Maximum.....	7.22	6.73	6.06	4.78	4.95	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.82	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.

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

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.	
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	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	66.4
1916-1917	19.5	24.8	29.4	48.2	59.6	87.4	113.0	113.0	48.0	52.3	11.6	23.7	48.1	51.9
1917-1918	26.7	33.2	42.7	51.4	108.3	147.4	74.6	71.8	27.6	9.2	19.8	20.6	47.5	50.4
1918-1919	93.3	31.5	63.2	77.9	66.4	82.8	102.8	64.4	34.8	24.7	13.7	54.8	57.4	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	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	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	50.8	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	69.3	61.3
1923-1924	22.4	35.4	89.6	100.7	64.4	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.9	59.5
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	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	7.0	49.1	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	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	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	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	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	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	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	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	56.9
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	52.8
1935-1936	-12.5	18.6	85.2	44.7	46.4	123.6	117.1	80.3	14.8	11.1	-0.6	10.6	50.3	54.2
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	53.7
1937-1938	20.2	51.5	112.5	78.4	102.7	110.7	88.1	44.1	33.1	60.3	42.1	24.6	56.3	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	48.3
1939-1940	10.9	96.4	45.3	72.0	23.3	120.3	114.8	55.0	67.3	19.0	-7.0	-1.5	52.1	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	32.8
1941-1942	-8.6	15.5	22.8	37.8	177.0	85.5	196.6	37.8	15.2	16.0	6.0	-8.8	38.3	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	34.5	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	15.7	30.1	38.1
1944-1945	18.4	37.4	82.0	84.3	44.6	263.4	64.0	63.4	24.4	5.5	20.8	-3.3	30.5	46.0
1945-1946	2.7	20.8	60.6	102.9	78.2	260.6	60.3	50.8	49.8	0.3	20.8	15.2	45.7	49.0
1946-1947	102.1	22.7	30.5	72.5	58.5	168.1	61.3	84.9	26.6	10.9	4.1	7.7	45.0	42.9
1947-1948	7.0	45.8	35.5	21.7	122.6	104.2	94.7	56.1	74.3	15.0	4.8	-13.2	54.2	52.2
1948-1949	7.2	30.1	58.0	81.5	82.0	118.2	68.8	44.2	-20.0	-21.0	0.3	2.6	41.7	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	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	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	-0.0	50.9	44.8
1952-1953	-10.3	12.2	27.4	62.5	93.8	77.6	84.4	98.8	12.0	1.4	-1.7	4.7	51.4	53.0
1953-1954	6.8	29.9	77.7	72.8	84.2	81.6	74.7	78.6	21.3	-0.4	10.2	51.9	47.1	56.0
1954-1955	42.5	64.6	85.4	246.0	72.8	102.2	66.3	91.0	19.6	0.8	37.7	26.3	56.7	60.8
1955-1956	62.9	122.7	208.3	60.7	93.2	57.8	171.1	81.8	43.7	8.9	-14.1	1.2	67.4	52.7
Average	24.6	40.8	63.0	67.6	74.0	106.8	91.1	68.6	33.9	17.7	12.8	18.2	51.8	51.7
Maximum	233.3	331.2	208.3	246.0	177.4	263.4	198.0	181.1	74.3	60.3	82.0	82.0	68.1	66.4
Minimum	-12.5	12.2	22.8	20.6	25.3	57.8	58.6	32.1	-20.0	-29.2	-15.4	-205.0	30.1	32.8

(e) Estimated.

TABLE 5
SCITUATE WATERSHED
(92.8 Square Miles)

STATISTICS OF STORAGE FOR YEAR ENDED SEPTEMBER 30, 1956

	1 REGULATING RESERVOIR		2 WESTCONNAUG RESERVOIR		3 BARDEN RESERVOIR		4 MOSWANSICUT RESERVOIR		5 PONAGANSET RESERVOIR		6 SCITUATE RESERVOIR		TOTAL 1-6	
	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Avail. Storage M. G.	% of Total Avail.
1955- 1956														
Oct.	285.58	427	451.87	330	345.40	877	301.95	730	633.83	753	279.97	32,348	35,455	89.2
Nov.	285.75	441	452.32	363	345.85	913	302.12	737	634.28	788	285.21	37,951	41,193	103.6
Dec.	285.63	431	452.72	373	345.12	855	301.98	723	633.98	764	284.60	37,272	40,418	101.7
Jan.	285.59	428	452.17	346	339.10	434	301.96	721	633.74	746	281.10	33,497	36,172	91.0
Feb.	285.65	433	454.29	459	345.40	877	302.05	730	633.99	765	282.20	34,674	37,938	95.5
Mar.	285.67	435	453.22	399	345.33	871	302.06	731	634.18	780	282.41	34,899	38,115	95.9
Apr.	285.72	439	452.52	363	345.45	881	302.04	729	634.38	796	282.18	34,653	37,861	95.3
May	285.69	436	453.27	402	345.37	875	301.99	724	634.08	772	283.06	37,786	40,995	103.1
June	285.72	439	453.57	419	345.31	870	302.01	726	633.78	749	283.80	36,386	39,589	99.6
July	285.51	422	452.67	370	344.60	813	301.92	717	633.41	721	282.87	35,391	38,434	96.7
Aug.	285.45	417	451.57	315	344.10	774	301.90	715	633.23	707	281.39	33,807	36,733	92.4
Sept.	284.40	338	449.87	232	340.60	526	301.25	650	632.68	666	278.96	31,260	33,672	84.7
Max. For Year	286.48	503	454.57	476	347.10	1,017	302.40	767	634.73	823	286.03	38,879	42,111	106.0
Min. For Year	283.65	286	449.77	227	339.10	434	301.10	636	632.66	665	276.83	29,130	31,676	79.7
	Oct. 15		Oct. 15		Oct. 15		Oct. 15		Oct. 15		Nov. 6		Nov. 5	
	Sept. 22 & 29		Sept. 1		Dec. 31		Sept. 15		Sept. 1		Sept. 30		Sept. 29	

1. Regulating Reservoir—Spillway Elev.	285.50;	Total Storage	428 M.G.;	Dead Storage	7 M.G.;	Total Available Storage	421 M.G.
2. Westconnaug "	454.17;	"	453 "	"	0 "	"	453 "
3. Barden "	345.10;	"	853 "	"	0 "	"	853 "
4. Moswansicut "	301.90;	"	1,781 "	"	1,068 "	"	715 "
5. Ponaganset "	633.05;	"	742 "	"	49 "	"	693 "
Total 1-5		Total Storage 4,257 M.G.;	Dead Storage	1,122 M.G.;	Total Available Storage	"	*3,135 M.G.
6. Scituate Reservoir—Spillway Elev.	284.01;	"	37,011	"	400	"	36,611
Total 1-6		Total Storage 41,268 M.G.;	Dead Storage	1,522 M.G.;	Total Available Storage	"	*39,746 M.G.

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, 1956

DRAFT FROM SCITUATE RESERVOIR Million Gallons				WATERSHED YIELD Million Gallons			
1955- 1956	To River Below Gainer Dam			To Water Purification Works	Total		Avg. per Day
	Over Spillway	Through Gatehouse	Total		For Month	Avg Per Day	
Oct.	197.99	4,358.57	4,556.56	1,341.70	5,898.26	11,636.26	375.36
Nov.	2,400.14	6,069.46	8,469.60	1,276.04	9,745.64	8,970.64	290.02
Dec.	12.05	5,391.78	5,403.83	1,270.90	6,674.73	2,428.73	78.35
Jan.	0	2,233.14	2,233.14	1,281.78	3,514.92	5,280.92	170.35
Feb.	0	5,221.15	5,221.15	1,192.76	6,414.31	6,591.31	227.29
Mar.	0	6,375.13	6,375.13	1,246.02	7,621.15	7,367.15	237.05
Apr.	488.01	5,769.88	6,257.89	1,219.11	7,477.00	10,611.00	342.29
May	138.47	3,117.46	3,255.93	1,325.08	4,581.01	3,197.01	103.13
June	9.53	1,095.99	1,105.52	1,604.74	2,710.26	1,555.26	51.84
July	0	794.76	794.76	1,502.28	2,297.04	598.04	19.29
Aug.	0	1,068.27	1,068.27	1,637.12	2,705.39	-357.61	-11.54
Sept.	0	783.87	783.87	1,337.78	2,121.65	84.65	2.82
For Yr.	3,246.19†	42,279.46	45,525.65	16,235.31	61,761.36	57,963.36	158.80
							110.70

†Includes 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	130,000	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	4,000	0	0	0	0	4,000
1934 & 1935	0	755,000	255,000	0	36,000	136,000	0	503,000	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
1956	0	0	5,000	0	4,500	0	0	0	0	0	0	9,500
TOTALS	2,000	2,635,187	2,787,791	14,000	100,816	136,000	121,750	817,550	219,000	29,000	21,000	6,884,094

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
July 1955—June 1956.....	9,521,700	480,300	8,747,900	52,487.40

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

CITY DOCUMENT

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

For the Year Ended September 30, 1956



REPORT

ADMINISTRATIVE OFFICE
WATER SUPPLY BOARD
CITY OF PROVIDENCE
OCTOBER 1, 1956

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 fifteenth annual report of the Water Supply Board for the year ended September 30, 1956.

Thomas H. Driscoll, a member of this Board since its organization in February 1941 and its chairman since May 7, 1945, passed away on December 9, 1955 and the following minute is included in the records of the Board.

"Thomas H. Driscoll, Chairman of the Water Supply Board of the City of Providence, was born in County Cork, Ireland, in 1882, son of the late John and Ellen (Barry) Driscoll. He came to the United States at an early age and made his home for many years in New Hampshire where he received his education. As a young man he set out to learn the textile business and while so employed specialized in dyeing and the use of dyestuffs in the textile field. He was associated with textile mills in Burlington, Vermont, Trenton, New Jersey, Phila-

delphia, Pennsylvania and Holyoke, Massachusetts, before coming to Providence in 1918 to establish his own business. He caused to be incorporated the "Ricco Co." and headed the firm, which dealt in dyestuffs, as president and treasurer until his decease.

On February 6, 1941, he was appointed by the Mayor of Providence as an original member of the Water Supply Board which came into existence just prior thereto upon the adoption of a new city charter by the citizens of Providence and on May 7, 1945, he became chairman of the board. As a member of the board he distinguished himself by his faithfulness to duty and will ever be remembered for his fixed determination to see that the business of the board was conducted efficiently and economically, his consideration and respect for the opinions of others even though he disagreed, the humaneness with which he considered personnel problems coming before the board for consideration and last but not least, his graciousness while conducting the meetings of the Water Supply Board.

"Tom," as he was affectionately known by his friends, gave unsparingly of his time and energy in the interest of his adopted and beloved city and in his demise the citizens of Providence have lost an outstanding public servant. Words cannot express the high esteem and deep affection in which he was held by the members of the board and the personnel of the department. Let it suffice to say that to know him was to love him. His decease culminates a full life of devotion to his God, his family and his community and the members of the board extend their most heartfelt sympathy to his family in this their hour of bereavement."

On December 21, 1955 John A. Doherty was appointed acting chairman of the Water Supply Board.

On January 5, 1956 John J. Tierney was appointed a member of the Board to fill the unexpired term ending on the first Monday in January 1957 to fill the vacancy caused by the

death of Thomas H. Driscoll, and Ugo Riccio was reappointed a member for the ensuing term ending on the first Monday in January, 1960.

At the re-organization meeting of the Board held on January 6, 1956, John A. Doherty was elected Chairman and John J. Deary was reappointed 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

IN CITY COUNCIL
FEB 7 - 1957

JOHN A. DOHERTY, *Chairman*

EARL H. ASHLEY

READ:

WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

UGO RICCIO

JOHN J. TIERNEY

Deverett Whelan
CLERK

MICHAEL N. CARDARELLI, Ex-Officio

John A. Doherty
Chairman

REPORT OF THE CHIEF ENGINEER

Providence R. I.
October 1, 1956

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, 1956.

Under the provisions of Chapter 3727 of the Public Laws of the State of Rhode Island, Approved April 26, 1956, entitled "An Act Authorizing the City of Providence to Condemn for Reservoir and Water Supply Purposes a Certain Tract of Land in the City of Cranston," and under the enabling City Council Resolution No. 353, approved June 8, 1956, the city acquired by condemnation proceedings, 30.756 acres of land located on the southerly side of Scituate Avenue in Cranston, for the purpose of constructing additional reservoir storage in the low service distribution system. A statement, description, and record maps of the land and property taken was filed in the office of the City Clerk of the City of Cranston on June 19, 1956 at 11:25 A. M., and is recorded in Book 321, page 109 of the records of deeds of the City of Cranston. Engineering surveys were started soon after the taking for the purpose of developing topographic maps for layout and soil investigation purposes. This area has been under consideration as a possible reservoir site since the year 1940, and acquisition of the land now will permit the preparation of final plans and construction schedules. Under consideration at this time is the construction of eight separate prestressed concrete tanks for a total ultimate storage in this location of

eighty million gallons of treated water. Present plans anticipate the erection in the near future of a single unit, together with necessary conduit connections to the Scituate Aqueduct, drainage facilities, and required site improvements, with additional units to be added at two year intervals up to a total of four units. The remaining four units will then be constructed at intervals proportionate to the demands of the distribution system. The progress of detailed design, specifications and construction drawings has been unavoidably delayed due to the shortage of engineering personnel and the additional load imposed on the reduced staff to handle the normal work schedule.

To obtain necessary data in regards to flow characteristics and carrying capacities of trunk mains in the distribution system, a contract was awarded to the Pitometer Associates of New York City, to conduct numerous flow gaugings and loss of head tests at several predetermined points. The locations of these tests were selected with due consideration given to the conclusions of the earlier trunk main survey of 1944 and to areas of increasing consumption. Nine separate flow tests were conducted on the largest trunk mains, and six loss of head tests were run to determine the Williams and Hazen flow coefficient "C" at all points where the rate of flow was sufficiently high to guarantee accurate results. In addition, one special flow analysis was conducted at the Siphon Chamber to determine flow levels for future distribution reservoir storage. An interesting comparison in the 1944 and 1955 tests showed that the off peak, November and December flows for 1955, were approximately equal to the summer flows for the year 1944. The results of loss of head tests were very satisfactory inasmuch as several locations showed the same W. and H. roughness coefficient "C" as the 1944 report. This indicates quite conclusively that the present method of water treatment, with a pH of 9.3, has retarded progressive tuberculation or deterioration of the unlined cast iron mains.

The program of replacement of worn and obsolete filter control valves at the Purification Works continued during the year with a contract award to Builders Providence Inc., in the amount of \$13,192.00 for eight additional 12 inch, electric motor operated, butterfly control valves. These units will be installed on the

filter effluent piping, acting dually as control and positive shut off valves, and brings the total number of replacements, ordered or installed, to 20 units, with 8 additional units contemplated for the coming year which are necessary to complete this portion of the replacement program. Incidental to new control valve installations, cast iron pipe, pipe fittings, and electrical equipment was contracted for and ordered in the amount of \$6,441.36. Motor operated butterfly control valves purchased in the 1954-55 year were installed in the Spring of 1956 on filters numbered 5, 6, 7 and 8. Improved filter control operation has been experienced on all completed units.

The construction of new extensions to the distribution system and replacement of existing mains required the installation of 62,319 ft. of various size pipe. The greater part of this footage was installed by private contractors under competitive bidding. Four contracts, involving 51,156 ft. of main extensions and replacements, were awarded during the year; one to Fanning & Doorley Construction Co. Inc. for 8,008 ft., one to John Ambrose for 12,471 ft., one to A. E. Bragger Construction Co. for 13,788 ft., and one to Capaldi Brothers Construction Co. for 16,889 ft. In connection with highway construction, 4,189 ft. of water main was installed, this work being done by our own forces and M. A. Gammino Construction Co. Main extensions were laid in 228 different streets, with approximately 1,465 ft. remaining to be done at the end of the year.

Capital improvements in the distribution system, including the regular main extensions, new services, gate valves and hydrants, amounted to \$428,440.29. This program was financed out of income without resort to bond issues.

Applications for water service totalled 1,248, or 22 less than in the previous year. Of this number, 184 required extensions to the distribution system. A total of 1,224 new services was installed, an increase of 18 over the previous year.

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, 1956, the gross sewer rental collection totalled \$156,653.73.

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 34,674 truck hours at a cost of 55.9 cents per hour including depreciation, compressors 3,730 hours at 41.8 cents per hour, and passenger cars were driven a total of 199,942 miles at a cost of 5.1 cents per mile.

No progress can be reported on the comprehensive study of overall requirements at the Purification Works due to the shortage of engineering personnel.

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, 1956, a total of 53.15 inches was recorded which is 4.79 inches above the 41-year (1915-1956) average of 48.36 inches. The rainfall for the year was 110% of the long term average.

The longest period of rainfall occurred between October 13 and 19, 1955 when a total of 7.48 inches was recorded, with a maximum of 4.35 inches measured at the North Scituate station on October 15, and a minimum of 0.02 inches on October 18 at the Hopkins Mills station. There were two equally long periods of no rainfall which occurred between December 23 and 28, 1955, and April 9 to 14, 1956.

During the months of October and November 1955, and January, February, March and July 1956 the monthly rainfall exceeded the 41-year averages for those respective months; the maximum monthly rainfall occurred in October 1955 when 11.48 inches was recorded. This figure is a new maximum for October exceeding the old maximum of 6.71 by 4.77 inches and the average for October by 8.03 inches. The maximum day's rainfall for the year was on October 15 when 3.76 inches was recorded, with the station at North Scituate measuring 4.35 inches. The minimum monthly rainfall 0.72 inches was measured in December 1955, which was 3.23 inches below the 41-year average for that month.

The runoff on the Scituate Watershed for the year ended September 30, was a new maximum for the 41 years of record, of 35.92 inches, exceeding the old maximum of 33.76 inches for the year ended September 30, 1939 by 2.16 inches. Similarly,

October set a new maximum month of 7.22 inches which was more than double the previous maximum for October of 3.48 inches. The months of October, November, January, February and April all exceeded the long term averages for those respective months, while the figure for August was a new low minimum for that month.

Statistical rainfall and runoff data for the year ending September 30, 1956 and the 41 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, 1955, the water in Scituate Reservoir was at elevation 279.97, or 4.04 feet below the spillway level; the total storage then amounting to 32,748,000,000 gallons, or 88.5% of reservoir capacity. At the end of the year, October 1, 1956, the reservoir was at elevation 276.87 or 7.14 feet below the spillway, with a storage of 29,570,000,000 gallons, or 79.9% of capacity. From October 1, 1955, the elevation rose rapidly, reaching spillway elevation 284.01 on October 17, and continuing upward to the high elevation for the year of 286.02, 106.1% of capacity, on November 26 with a storage of 39,268,000,000 gallons. The elevation then dropped to 280.38 on January 7, and then rose fairly steadily, with some fluctuations to elevation 285.56 on April 19. From that date the elevation fluctuated downward steadily to 276.87, with a storage of 29,570,000,000 gallons, at the end of the year October 1, 1956, which was the lowest point for the entire year.

The combined storage on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponagansett and Scituate Reservoirs on October 1, 1955 amounted to 36,977,000,000 gallons or 89.6% of combined total capacity; and at the end of the year September 30, 1956, the combined storage was 33,198,000,000 gallons or 80.4% of capacity, which was the mini-

mum amount in storage for the entire year. The maximum combined storage was on November 5, when 43,633,000,000 gallons which is 105.7% of capacity, was impounded.

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

The total draft from the Scituate Watershed for the year was 61,761,360,000 gallons or an average of 168,746,880 gallons per day. The draft for water supply purposes was 16,235,310,000 gallons or an average of 44,358,770 gallons per day. The discharge into the north branch of the Pawtuxet River totalled 45,526,050,000 gallons equal to 124,388,110 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 Gainer Dam.

The yield from the Scituate Watershed for the year was 58,678,580,000 gallons or an average of 160,323,990 gallons per day, which is 8,422,890 gallons per day, less than the total draft, and 49,533,990 gallons per day in excess of the 41-year average (1915-1956).

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

SCITUATE WATERSHED FORESTRY OPERATIONS—1956

Forestry operations during the year 1956 have resulted in further expansion of roadside brush control areas, plantation pruning, thinning of natural pine stands and plantations, reforestation and other related operations.

As dictated by stand conditions on the watershed, the forestry program has been directed toward:

- (1) Plantation thinning.
- (2) Thinning of natural white pine-pitch 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. Older plantations which have not been thinned are exhibiting a decreasing rate of growth due to the existence of a greater number of trees per acre than the physical and mineral carrying capacities of the soil can support. 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 early age. As trees grow older their crowns and roots expand. By 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. Trees to be removed are marked by the Forester on the basis of tree form, vigor and spacing. Volume removal is limited to 1/3 of the total volume and leaves from 400-450 trees per acre after the first thinning. By making a light cut in the first thinning it is possible to return in five years for a second 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 procedures 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 1,000 per acre. With natural seeding, the number of trees may rise to 2,000

per acre with resulting stand stagnation at an early age. It is fortunate that the majority of natural white pine stands contain an appreciable amount of pitch pine. Pitch pine is an excellent pulpwood species, but 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 liberate a good understory of white 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 1956 for the following purposes:

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

Thinning operations in white pine necessitate the pruning of all dead branches from ground level to a height of 6 feet above ground. This is due to the white pine's habit of retaining dead branches indefinitely, thus making it impossible to approach the bole of the tree to mark or cut it.

The reduction of roadside fire hazard calls for the removal of the lower limbs of all conifers 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 roadside brush control program was expanded during 1956. We now have 12 miles of our primary road network un-

der a program of annual brush control. This represents an area of approximately 112 acres. Work was completed on the Tunk Hill Road near Gainer Dam Spillway and at Plainfield Pike and Dorr Road. The emphasis on brush control is now being directed toward the major roads on the westerly side of the Scituate Reservoir.

The planting program was continued with the planting of 4,500 Austrian pine and 5,000 white pine seedlings during the Spring of 1956.

The fire control record for the past year was excellent. Three fires were detected and brought under control with approximately 7.1 acres being burned over. The most serious fire of 7 acres was discovered on the afternoon of May 9, 1956 in the Trimtown Road area. This fire burned on a very high hazard day with wind gusts up to 25 m.p.h. and could have resulted in a serious conflagration were it not for the prompt and effective action on the part of the local fire companies.

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

1956 FORESTRY OPERATIONS—AREA AND YIELD

PULPWOOD

Pine ...41 Acres...	523.9 Tons...	12.8 Tons/acre...	\$9.58/acre..	\$392.96
Oak ... 4 Acres...	35.7 Cords...	8.9 Cords/acre..	\$8.94/acre..	\$ 35.75

MISCELLANEOUS INCOME

Lumber	1,633 f.b.m. — Oak	\$16.33
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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 293 days for a total of 5,217.0 hours. Power generated from the discharge of 42,279,860,000 gallons of water through the 1875 KVA Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 8,466,200 kilowatt hours, or an average of 4,993.96 gallons per kilowatt hour. Of the power gen-

erated, 7,742,100 kilowatt hours or 91.4% was sold to the Narragansett Electric Company, and 308,950 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 194.50 million gallons per day. On the basis of the contract year, July 1, 1955 to June 30, 1956, the total power generated, 9,521,700 K.W.H., and the power sold to the Narragansett Electric Company, 8,747,900 K.W.H., which were new maximum amounts for the 26 years of record. 1930 to 1956.

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, with the exception of the period from October 6 to 24, 1955 when it was drawn from between elevations 235 and 240. The amount totalled 16,235,310,000 gallons, or on an average of 44,360,000 gallons per day; the maximum for any one day being 79,260,000 gallons on June 15, 1956 and the minimum 25,260,000 gallons on October 30, 1955.

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 1,772,312 pounds, or an average of 4,842 pounds daily; with a maximum for any one day of 8,425 pounds on June 15, 1956 and a minimum of 2,180 pounds on October 15, 1955. The dosage averaged 0.76 grains per gallon, the maximum for any one day being 1.02 grains per gallon and the minimum 0.54 grains per gallon.

Quicklime used during the year totalled 1,620,539 pounds or an average of 4,428 pounds daily; with a maximum for any one day of 7,588 pounds on June 15, 1956 and a minimum of 2,422 pounds on October 15, 1955. The lime dosage averaged 0.70 grains per gallon, the maximum for any one day being 0.88 grains per gallon and the minimum 0.55 grains per gallon.

Filters were operated a total of 71,187.34 hours during the year, at an average of 194.50 filter hours per day; the average length of filter runs being 83.27 hours which is 6.27 hours, or 8.14 per cent more than the average of 77.00 hours for the previous year. The maximum daily average of filter runs was 154.36 hours on October 11, 1955 as compared to a maximum of 189.00 hours during the previous year; and the minimum was 49.49 hours on June 2, 1956 as compared to a minimum of 43.81 hours during the previous year.

Wash water rates varied from 14 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 22 to 31 inches rise per minute and an average sand expansion of 34%. 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 32 to 34 inches per minute rise and an average sand expansion of 33%. Filters 11, 12, 13 and 14 which have 0.46 millimeter sand were washed at rates varying from 14 to 23 inches rise per minute and an average sand expansion of 39%. A total of 98 tests were made during the year to determine the sand expansion and rate of rise. The total wash water used was 108,932,000 gallons, an average of 298,000 gallons per day, or 126,518 gallons per wash. The 108,932,000 gallons of wash water used was 4.00% less than the 113,474,000 gallons for the previous year.

The total water filtered for the year amounted to 15,252,543,000 gallons, an average of 41,674,000 gallons daily; the maximum day being 69,435,000 gallons on June 15, 1956 and the minimum 28,338,000 gallons on April 29, 1956. The average rate of filtration per filter was 5,140,000 gallons per day and the average amount of water filtered per filter per run was 17,830,000 gallons, or 12.07% more than the 15,910,000 gallons for the previous year.

The total plant effluent, or pure water delivered to the Scituate Aqueduct and the Kent County Water Authority, totalled 15,143,611,000 gallons, an average of 41,376,000 gallons per day; with a maximum of 68,461,000 gallons on June 15, 1956 and a minimum of 28,225,000 gallons on April 29, 1956.

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, 1955 to May 31, 1956 and 1.0 part per million from June 1, 1956 to September 30, 1956.

Plant effluent delivered to the Scituate Aqueduct, and treated with sodium silicofluoride amounted to 14,719,561,000 gallons, an average of 40,217,000 gallons per day. Sodium silicofluoride used during the year totalled 204,829 pounds, or an average of 560 pounds per day; with a maximum for any one day of 855 pounds on June 15, 1956 and a minimum of 220 pounds on February 24, 1956. The actual dosage of fluoride ion averaged 1.00 parts per million, the maximum and minimum dosages being 1.14 and 0.83 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 14,974,831,000 gallons, an average of 40,915,000 gallons per day. Water delivered to Kent County is chlorinated separately by their facilities.

Chlorine used during the year totalled 63,417 pounds, or an average of 173 pounds per day. Of this total, 11,937 pounds were used to treat the water after influent aeration from October 1 to November 29, 1955. The maximum and minimum amounts used to treat the influent water were 298 and 54 pounds on November 11 and 29, respectively. The dosage of the influent averaged 0.56 parts per million, the maximum and minimum dosages being 0.64 and 0.46 parts per million. The maximum and minimum amounts used to treat the plant effluent delivered to the Scituate Aqueduct were 229 pounds on June 14, 1956 and 95 pounds on both November 27, 1955 and February

19, 1956. The dosage of the effluent averaged 0.41 parts per million, the maximum and minimum dosages being 0.50 and 0.35 parts per million. Chlorine residual of the water at a point adjacent to the main Aqueduct averaged 0.040 parts per million, and of the tap water at the Water Supply Board Building 0.014 parts per million.

The following statistics show that the chemical cost of treatment for the year ended September 30, 1956 was \$5.16 per million gallons. This is 12.42% more than the figure of \$4.59 last year. The price per ton of Ferri-Floc increased from \$49.38 per ton last year to \$50.55 this year, an increase of \$1.17 per ton, or 2.37%. The price per ton of quicklime increased from a low of \$18.93 last year to a high of \$20.51 this year, an increase of \$1.58 per ton, or 8.35%. The price per ton of sodium silicofluoride increased from a low of \$144.08 last year to a high of \$212.00 this year, an increase of \$67.92 per ton, or 47.14%. The price of chlorine has remained the same for the two years, —\$0.0875 per pound.

Chemicals Used, etc.	Year Ended Sept. 30, 1953	Year Ended Sept. 30, 1954	Year Ended Sept. 30, 1955	Year Ended Sept. 30, 1956
Chlorine	0.34 P.P.M.	0.32 P.P.M.	0.33 P.P.M.	0.41 P.P.M.
Ferri-Floc	0.64 G.P.G.	0.62 G.P.G.	0.68 G.P.G.	0.76 G.P.G.
Quicklime	0.69 G.P.G.	0.65 G.P.G.	0.66 G.P.G.	0.70 G.P.G.
Sodium Silicofluo- ride	1.07*	1.01*	1.01*	1.00*
Length of Filter Runs	81.55 Hrs.	86.16 Hrs.	77.00 Hrs.	83.27 Hrs.
Tap Water—Color	6 P.P.M.	7 P.P.M.	7 P.P.M.	7 P.P.M.
Tap Water—Iron	0.02 P.P.M.	0.01 P.P.M.	0.02 P.P.M.	0.02 P.P.M.
Cost of Chemicals per M.G. of Wa- ter Treated	\$4.34	\$4.28	\$4.59	\$5.16

*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, 1955 to April 23, 1956 at \$49.38 per ton, and for the

period April 24 to September 30, 1956 at \$50.55 per ton. Specifications for Ferri-Floc read as follows: "The material furnished shall be ferric 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 of 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 0.818% which is 0.682% 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 eighteen deliveries received was 70.288% or 1.288% more than the minimum of 69% demanded by specification requirements. The average amount of material passing a 20 mesh per inch screen was 35.2% 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.

Date Received	Percent Ferrous Iron	Percent water soluble Ferric Sulphate	Percent passing a 20 mesh per inch screen
November 23, 1955.....	1.44	69.94	31.7
December 2, 1955.....	0.94	71.58	36.9
December 7, 1955.....	0.21	72.46	43.7
January 13, 1956.....	1.08	70.06	32.1
January 20, 1956.....	0.32	70.06	30.6
January 30, 1956.....	1.18	66.98	48.3
February 17, 1956.....	1.06	69.18	16.0
March 2, 1956.....	0.94	69.20	31.4
March 2, 1956.....	0.85	69.95	31.8
April 24, 1956.....	1.11	71.25	39.4
April 26, 1956.....	0.91	70.45	25.2
May 2, 1956.....	0.39	70.58	23.6
May 31, 1956.....	1.54	68.74	28.7
June 7, 1956.....	0.82	70.53	48.1
June 18, 1956.....	1.12	70.78	44.5
July 25, 1956.....	0.32	72.10	30.0
July 30, 1956.....	0.28	70.56	47.0
August 3, 1956.....	0.22	70.78	45.3

The table shows that out of 18 deliveries received, 2 failed to meet specifications on the water soluble ferric sulphate content, and 8 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 F. D. McKendall Lumber Company, Providence, from October 1, 1955 to March 25, 1956 at \$19.43 per ton, and from March 26 to September 30, 1956 at \$20.51 per ton. Specifications for the quicklime 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 showed an average available calcium oxide (CaO) content of 94.0% which is 4.0% 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 98.4%. 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 :

Date Received	Percent Available Calcium Oxide	Percent Retained on a 100 mesh per inch screen
October 3, 1955.....	94.5.....	98.8
October 24, 1955.....	95.3.....	98.6
November 4, 1955.....	95.3.....	96.5
November 11, 1955.....	95.1.....	98.7
November 21, 1955.....	94.2.....	97.7
December 30, 1955.....	94.7.....	98.9
January 9, 1956.....	94.7.....	98.5
January 10, 1956.....	93.3.....	96.3
March 26, 1956.....	94.1.....	98.8
April 2, 1956.....	94.7.....	98.6
April 6, 1956.....	94.7.....	99.1
May 8, 1956.....	91.9.....	98.9
May 14, 1956.....	94.8.....	99.3
May 22, 1956.....	94.3.....	98.7
July 5, 1956.....	91.9.....	98.5
July 12, 1956.....	94.2.....	97.9
July 20, 1956.....	93.1.....	98.6
September 21, 1956.....	92.0.....	98.7

The table shows that all eighteen 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 equip-

ment 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, 1955 to September 30, 1956 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 Henry Sundheimer Company, New York, from October 1, 1955 to June 11, 1956 at a price of \$152.80 per ton. Due to a critical shortage of domestic material we were unable to secure bids for the next contract year. After testing several samples of foreign made material it was decided to purchase twenty tons of Danish sodium silicofluoride from the Henry Sundheimer Company at a price of \$212.00 per ton, in accordance with their proposal approved by the Board of Contract and Supply on June 18, 1956. Delivery of this material was received on August 17, 1956. A further proposal made by the Sundheimer Company and approved on August 27, 1956 will assure us of a supply of domestic material until June 1957 at a price of \$173.00 per ton. The specifications covering sodium silicofluoride call for an available fluoride ion content not less than 59.4% in addition to a requirement that the material possess free-flowing properties. All shipments showed fluoride ion contents higher than the permissible minimum. However, it was necessary to reject 27,600 pounds of the 36,000-pound May 8th shipment due to the lack of free-flowing properties. A replacement shipment was received on June 11, 1956. The following table shows the date of delivery, together with the percent of available fluoride ion. The average fluoride ion content was 60.43%.

Date Received	Percent Available Fluoride Ion
October 29, 1955.....	60.60
December 15, 1955.....	60.48
February 27, 1956.....	60.60
May 8, 1956.....	60.54
May 22, 1956.....	60.04
June 11, 1956.....	60.45
August 17, 1956..... (Danish material).....	60.28

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 1955 to May 1956 inclusive, and during September 1956, and totalled 72,082 gallons, an average of 6,007 gallons per month. Number 2 fuel oil was used during the entire year for heating water and amounted to 5,664 gallons, an average of 472 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 Water Supply Board 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. Comparative examinations were made of four plant filters: number 2, having sand of an effective size of 0.65 millimeters; number 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 2.00 to 2.80 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 was 3,268, which is 21.3% of the total number of samples obtained from all sources. Tests made on these samples totalled 17,740, or 16.2% 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 15,361 which, based on a forty-hour work week, means that one sample or another was obtained every 8.1 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 109,603 which, based on a forty-hour work week, means that the water was receiving one test or another every 68 seconds. Each delivery of Ferri-Floc and of 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 con-

centration 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:

Population Served	Minimum Number of Samples per Month
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 is approximately 395,660. 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 200. The actual number of bacteriological samples obtained in the distribution system for the year amounted to a total of 3,137, or an average of 261 per month, a figure 30.5% 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 portion 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 throughout the year.

Water pumped into the high service area totalled 2,396,896,000 gallons or an average of 6,548,896 gallons per day. Neutaconkanut station pumped 955,310,000 gallons through the east Venturi and 653,269,000 gallons through the west Venturi meter for a total of 1,608,579,000 gallons or 4,395,024 gallons per day, and Bath Street Station pumped 788,317,000 gallons or 2,153,872 gallons per day.

The total power required for pumping at both stations amounted to 925,280 kilowatt-hours. Neutaconkanut Station required 609,300 kilowatt-hours, and Bath Street Station 315,980 kilowatt-hours. The cost of power at both stations was \$16,105.73 or \$6.72 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 53 hours and 30 minutes and pumping

18,844,000 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 37 hours and 15 minutes, pumping 4,845,000 gallons for the year.

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 62,319.22 feet including 6,328.72 feet which replaced existing

mains. Included in this amount, 58,658.07 feet was laid with cement asbestos pipe, 3,661.15 feet with cement mortar lined cast iron pipe.

A total of 13,375.49 feet of pipe was removed or abandoned, resulting in a net increase to the distribution system of 48,943.73 feet. In the City of Providence, the net increase amounted to 6,033.19 feet, in the City of Cranston 17,653.82 feet, in the Town of North Providence 11,194.07 feet, in the Town of Johnston 13,916.65 feet and in the Town of Smithfield 146.00 feet.

At the end of the year the total length of mains in the distribution system aggregated 733.80 miles, including 12.83 miles in the special high service system in the City of Providence. Cement asbestos pipe in the system totalled 607,703.98 feet, consisting of 395,139.86 feet of 6-inch, 199,419.63 feet of 8-inch, 12,642.46 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 150 stop gates were added to the system during the year, 114 six-inch, 29 eight-inch, 4 twelve-inch, and 3 sixteen-inch. Twenty-three six-inch gates were removed and 3 stop gates were replaced, 2 eight-inch and 1 sixteen inch. At the end of the year there was a total of 10,354 stop gates in the system ranging from 6-inch to 48-inch including 15 sixteen-inch rotary plug valves. A total of 62 hydrant gates, all six-inch, were added

and eleven 8-inch hydrant gates were removed. Hydrant gates at the end of the year totalled 3,471. Gates on unwatering hydrants remained the same, 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 13,866, an increase of 201 over the previous year.

Details of gates in use on September 30, 1956 are shown in Table 28 of the Appendix.

The number of private pipes connected to the system at the end of the year totalled 332, a reduction of 14 over the previous year. In the City of Providence there was a total of 190, in Cranston 88, in Johnston 25, and 29 in North Providence.

A total of 1,224 new services, general and fire supplies, were installed during the year; 437 in Providence, 444 in Cranston, 169 in Johnston, and 174 in North Providence. Services removed, replaced or abandoned totalled 281 during the year; 243 in Providence, 19 in Cranston, 10 in Johnston, and 9 in North Providence. One hundred and thirty-four services were repaired. The number of services in the system at the end of the year was 67,555 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 57,904, the number of metered services totalling 57,809, and the unmetered services totalling 95. Metered services at the end of the year constituted 99.84% 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 4,246, an increase over the previous year of 40. Flush hydrants totalled 2,273 and post hydrants 1,973. Seventy-two flush hydrants in Providence and eight flush hydrants in Johnston were replaced with post hydrants. Since the adoption in March 1947 of the New York Pattern Post Hydrant, 651 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 774 to 866 and reduced the flush hydrants from 2,352 to 2,265. In Johnston the number of post hydrants have increased from 217 to 225, and flush hydrants have decreased from 16 to 8. In Cranston the number of post hydrants have increased from 620 to 647, and in North Providence from 232 to 235.

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 113 during the year, 35 occurring at joints and 78 as a result of ruptured mains. Leaks at joints averaged 1 for every 20.96 miles of main, while total leaks averaged 1 for every 6.49 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 8,637, while those receiving attention in the field numbered 200, making a total of 8,837. The number repaired last year in shop and field was 9,297. The cost of meter repairs in the shop averaged \$2.48 per meter as against \$2.65 last year. Meters requiring servicing in the field involved an average expenditure of \$2.29 per meter during the current year as compared with \$2.28 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, 1956, amounted to 15,145,161,000 gallons or an average of 41,380,221 gallons per day. This average was 470,221 gallons per day greater than the average for the previous year. With the exception of the months of May, July and September, the consumption exceeded the same month of the previous year, ranging from 450,000 gallons per day in October to 4,980,000 gallons per day in June.

The maximum daily consumption occurred on June 14, 1956 when 68,792,000 gallons were consumed which is 1,368,000 gallons less than the all time maximum of 70,160,000 gallons of July 22, 1955.

The maximum months consumption was in August 1956 when 1,514,750,000 gallons were used, and the minimum month was February 1956 when 1,139,990,000 gallons were consumed.

Water consumption statistics will be found in Tables 34, 35, 36, and 37 of the Appendix.

FINANCIAL SUMMARY

The gross income for the year ended September 30, 1956, totalled \$2,608,047.47, an increase of \$62,856.50, or 2.46% over the previous year. Revenue from the sale of water alone was \$2,236,331.86, an increase over the previous year of \$70,151.02. The remaining income of \$371,715.61 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 a decrease of \$7,294.52.

During the year total payments for water main extensions amounted to \$131,354.98, a decrease over the previous year of \$19,360.92.

Income from service connection charges amounted to \$70,234.00, a decrease over the previous year of \$2,462.00.

At the end of the year unpaid water bills totalled \$152,268.98, as compared with \$131,391.58, at the beginning of the year or 6.57% of the total net billing.

Miscellaneous accounts receivable amounted to \$16,787.24 at the end of the year as compared with \$14,827.29 at the beginning of the year.

Operating expenses totalled \$1,277,919.88, an increase over the previous year of \$98,576.68. This is due chiefly to the increase of Water Main Extensions during the present fiscal year.

Fixed charges totalled \$1,086,672.08, or 41.66% 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 23.38 cents per dollar of the gross income.

The aggregate of all expenditures of the Board during the year totalled \$2,364,591.96, which deducted from the gross revenue of \$2,608,047.47 leaves a net balance of \$243,455.51. According to law this reverts to the Sinking Fund for the retirement of Water Bonds.

In July, 1956, \$1,000,000 in bonds matured, thereby reducing the net indebtedness of the Water Supply Board to \$14,000,000. There will be no further reduction in the bonded indebtedness until 1962. At the end of the year, the Sinking Fund balance totalled \$9,929,446.65, or \$8,727.64 in excess of the amortization requirements on that date.

The net bonded debt at the end of the present year was \$4,070,553.35, and at the end of the previous year \$4,531,972.89, showing a reduction of \$461,419.54.

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 47 of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1956, as recommended by the New England Water Works Association, may be found in Table 48, of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.
Chief Engineer

TABLE 9
WATER PURIFICATION WORKS
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1956

1955-1956	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 MGD
		Total	Avg. Per Day	Total	Avg. per day	Total	Avg. per Day	Total	Avg. per Day		Max.	Min.	Avg.	
Oct.	745.0	1,341.70	43.28	1,258.492	40.596	10.603	0.342	1,247.889	40.254	745.0	14.0	4.5	8.7	4.68
Nov.	718.2	1,276.04	42.53	1,160.312	38.677	10.787	0.359	1,149.525	38.317	720.0	13.0	4.0	8.3	4.65
Dec.	744.0	1,270.90	41.00	1,191.852	38.447	9.438	0.304	1,182.414	38.142	744.0	14.0	3.0	8.3	4.60
Jan.	744.0	1,281.78	41.35	1,201.268	38.750	9.005	0.290	1,192.263	38.460	744.0	13.0	4.0	8.4	4.62
Feb.	696.0	1,192.76	41.13	1,148.830	39.615	8.701	0.300	1,140.129	39.315	696.0	13.0	4.0	8.3	4.77
Mar.	744.0	1,246.02	40.19	1,197.220	38.620	8.179	0.264	1,189.041	38.356	744.0	13.0	3.0	8.2	4.71
Apr.	719.0	1,219.11	40.64	1,163.886	38.796	7.094	0.236	1,156.792	38.560	719.0	12.5	4.5	8.4	4.64
May	744.0	1,325.08	42.74	1,250.153	40.328	9.586	0.309	1,240.577	40.019	744.0	13.5	4.5	8.6	4.70
June	720.0	1,604.74	53.49	1,499.105	49.970	12.473	0.416	1,486.632	49.554	720.0	14.0	3.0	8.1	6.16
July	744.0	1,502.28	48.46	1,400.200	45.168	7.220	0.233	1,392.980	44.935	744.0	14.0	3.0	6.8	6.63
Aug.	744.0	1,637.12	52.81	1,523.847	49.156	9.187	0.306	1,514.660	48.860	744.0	13.5	2.0	7.4	6.64
Sept.	720.0	1,337.78	44.59	1,257.368	41.912	6.659	0.222	1,250.709	41.690	720.0	14.0	4.0	7.8	5.40
Totals	8,782.2	16,235.31	.....	15,252.543	.....	108.932	.....	15,143.611	.....	8,784.0	.....	.....	.....	.....
Average ...	731.8	.....	44.36	.....	41.674	.....	0.298	.....	41.376	732.0	.....	.....	8.1	5.14

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 all year, and after Influent Aeration during the period Oct. 1 to Nov. 29, 1955.
Sodium Silicofluoride added to water after filtration.
Raw water drawn from lower intake at Gainer Memorial Dam all year, with the exception of the period from Oct. 6 to 24, 1955 when it was drawn from the intermediate intake.

Table 9 (Continued)
WATER PURIFICATION WORKS
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1956

1955- 1956	Number of Filters Washed			Ferri-Floc Used			Quicklime Used			Chlorine Used			Sodium Silicofluoride Used			Fuel Oil Used for Heating—Gals.	
	Total	Avg. Per Day	Hours Per Filter	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. ...	76	2.4	88.29	112,710	3,636	0.59	126,023	4,065	0.66	10,894	351	0.45**	17,531	584	1.07	209	5,540
Nov. ...	79	2.6	76.21	153,693	5,123	0.84	142,621	4,754	0.78	9,917	330	0.44**	16,886	563	1.07	162	10,196
Dec. ...	78	2.5	85.62	172,493	5,564	0.95	139,393	4,496	0.77	3,976	128	0.41	16,612	536	1.06	809	13,339
Jan. ...	78	2.5	78.84	183,075	5,906	1.00	139,834	4,511	0.76	3,933	127	0.40	17,400	561	1.06	656	10,714
Feb. ...	76	2.6	75.26	171,026	5,897	1.00	126,223	4,352	0.74	3,729	128	0.40	16,133	556	1.05	609	9,734
Mar. ...	71	2.3	85.75	174,743	5,637	0.98	137,299	4,429	0.77	4,016	129	0.41	16,675	538	1.04	243	9,215
Apr. ...	62	2.1	99.12	129,014	4,300	0.74	124,678	4,156	0.71	3,944	131	0.41	16,360	545	1.05	328	9,258
May ...	76	2.4	87.97	120,256	3,879	0.63	121,150	3,908	0.64	4,198	135	0.41	17,725	572	1.05	408	2,943
June ...	93	3.1	63.21	167,613	5,387	0.73	130,973	5,032	0.66	4,948	165	0.40	17,872	596	0.90	638	0
July ...	55	1.8	89.28	140,397	4,529	0.65	140,282	4,525	0.65	4,666	150	0.41	17,277	557	0.91	554	0
Aug. ...	68	2.2	81.12	138,263	4,460	0.59	145,570	4,696	0.62	5,003	161	0.40	18,716	604	0.90	579	0
Sept. ...	49	1.6	106.87	109,029	3,634	0.57	126,493	4,216	0.66	4,193	140	0.41	15,642	521	0.91	467	1,443
Totals	861	2.3	83.27	1,772,312	4,842	0.76	1,620,539	4,428	0.70	63,417	173	0.41**	204,839	560	1.00	5,664	72,082
Average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	472	6,907

Total filter hours for year, 71,187.34; average per day, 194.50.

Average quantity of water filtered per filter per run, 17.83 m. g.

*Dosage expressed as p.p.m. of Fluoride ion.

**Dosage applied to plant effluent delivered to Scituate Aqueduct. In addition, chlorine was also applied after Influent Aeration from Oct 1 to Nov. 29, 1955 at an average dosage of 0.56 p.p.m.

TABLE 10
WATER PURIFICATION WORKS
CHEMICALS USED DURING THE FISCAL YEAR ENDED
SEPTEMBER 30, 1956

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.	1,772,312	4,842	16,233,240,000	\$44,108.83	109.18	\$2.72
Quicklime	1,620,539	4,428	16,233,240,000	16,163.90	99.83	0.99
Chlorine	63,417	173	14,974,831,000	5,548.99	4.23	0.37
Sod. Silicofluoride.	204,829	560	14,719,561,000	15,891.45	13.91	1.08
Totals	3,661,097	.....	.....	\$81,713.17	.....	\$5.16

Price of Ferri-Floc—From Oct. 1, 1955 to Apr. 23, 1956—\$49.38 per ton; from Apr. 24 to Sept. 30, 1956—\$50.55 per ton.
Price of Quicklime—From Oct. 1, 1955 to Mar. 25, 1956—\$19.43 per ton; from Mar. 26 to Sept. 30, 1956—\$20.51 per ton.
Price of Chlorine—From Oct. 1, 1955 to Sept. 30, 1956—\$0.0875 per pound.
Price of Sodium Silicofluoride—From Oct. 1, 1955 to Aug. 16, 1956—\$152.80 per ton; from Aug. 17 to Sept. 30, 1956—\$212.00 per ton.

TABLE 11
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1956

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Raw	3.8	3.7	3.8	3.6	3.9	3.9	3.9	3.7	4.1	4.2	4.0	4.2	3.9
Effluent	15.5	15.7	15.9	15.0	15.0	15.2	15.7	16.0	15.8	16.0	15.9	16.3	15.7
Tap	13.2	13.5	14.0	12.8	12.7	12.7	13.5	13.7	14.0	14.0	13.9	14.1	13.5
Hardness													
Raw	8	9	9	9	8	10	9	8	8	8	8	8	8
Effluent	27	29	29	29	29	30	28	27	27	26	26	26	28
Tap	27	29	30	30	29	30	28	27	27	26	26	26	28
Hydrogen Ion Concentration													
Raw	6.1	6.2	6.3	6.1	6.1	6.1	6.1	6.2	6.2	6.1	6.0	6.0	6.1
Aerated Influent	4.2	4.0	4.1	4.0	3.9	3.9	4.1	4.2	4.1	4.1	4.1	4.3	4.1
Treated	9.6	9.7	9.7	9.6	9.6	9.6	9.7	9.6	9.6	9.6	9.5	9.5	9.6
Settled	9.5	9.5	9.6	9.6	9.5	9.5	9.6	9.5	9.6	9.5	9.5	9.5	9.5
Filtered	9.5	9.5	9.6	9.6	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Effluent	9.4	9.5	9.6	9.6	9.6	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Tap	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.2	9.3
Free CO₂													
Raw	3.2	1.9	1.7	2.0	2.1	2.0	1.8	1.5	2.4	4.6	5.0	6.5	2.9
Aerated Influent	5.9	8.6	9.1	9.9	10.0	10.2	8.5	6.5	6.8	6.9	6.9	6.8	8.0
Phenolphthalein Alkalinity													
Treated	10.4	11.1	10.7	10.0	9.7	10.1	10.4	10.4	10.3	10.3	10.1	10.3	10.3
Settled	9.4	10.0	10.1	9.1	9.1	8.9	9.5	9.7	9.6	9.7	9.6	9.6	9.5
Filtered	9.3	9.7	10.0	9.1	9.1	9.0	9.5	9.7	9.6	9.6	9.5	9.5	9.5
Effluent	9.1	9.7	10.0	9.1	9.0	9.0	9.4	9.6	9.6	9.6	9.4	9.5	9.4
Tap	6.6	6.8	7.3	6.6	6.5	6.5	6.9	6.8	7.0	7.1	7.0	6.9	6.8
Color													
Raw	16	21	18	18	18	17	15	13	12	12	12	14	15
Effluent	8	10	8	7	8	7	7	7	6	6	6	6	7
Tap	7	8	8	7	7	7	7	6	6	6	6	6	7
Turbidity													
Raw	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Settled	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	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	0.1	0.0
Iron													
Raw .....	.11	.10	.09	.09	.09	.06	.04	.03	.04	.07	.10	.20	0.08
Settled .....	.51	.76	.57	.58	.62	.53	.44	.40	.34	.31	.34	.30	.47
Effluent .....	.03	.05	.02	.02	.02	.01	.00	.00	.00	.00	.00	.00	.01
Tap .....	.02	.06	.03	.03	.03	.02	.02	.02	.02	.01	.02	.02	.02
Manganese													
Raw .....	.05	.02	.00	.00	.00	.00	.00	.00	.00	.01	.02	.09	0.02
Settled .....	.03	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.01
Effluent .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tap .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Fluoride													
Raw	0.21	0.22	0.23	0.23	0.25	0.23	0.25	0.22	0.20	0.19	0.20	0.20	0.22
Effluent	0.17	0.18	0.19	0.16	0.17	0.17	0.18	0.15	0.15	0.14	0.15	0.14	.16
Tap	1.14	1.17	1.15	1.14	1.15	1.08	1.12	1.10	0.98	0.96	0.99	1.01	1.08
Temperature (°F.)													
Air (av. of daily max.)	53	48	33	38	39	40	52	63	76	76	77	69	56
Air (av. of daily min.)	45	34	18	23	23	26	35	43	56	59	59	49	39
Raw water	59	51	38	35	35	36	40	52	56	56	56	56	47
Water on filters	58	49	37	35	34	35	42	51	59	61	60	58	48
Tap	62	53	44	41	40	40	44	55	64	66	65	65	53

*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, 1956

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Coventry Brook	25	18	12	16	15	14	16	40	33	47	27	17	23
Wilbur Brook	65	37	22	31	23	22	30	65	80	92	47	35	46
Westconnaug Res.....	24	16	13	12	11	8	13	35	13	12	10	17	15
Barden Reservoir ...	50	32	17	22	17	18	17	30	36	49	37	35	30
Cork Brook	29	15	9	11	12	9	15	30	11	10	**	7	14
Rush Brook	46	20	10	11	17	12	21	50	37	65	39	30	30
Huntinghouse Brook	36	17	9	17	11	9	12	45	23	32	24	12	21
Harrisdale Brook ...	40	17	10	12	14	8	15	33	33	36	27	17	22
Blanchard Brook ...	215	45	74	53	48	37	65	135	325	320	**	**	132
Moswansicut Pond ...	18	11	9	23	12	7	15	15	92	96	13	15	27
Regulating Reservoir	39	18	12	18	13	7	18	25	37	76	23	17	25
Quonapaug Brook ...	96	39	40	40	37	31	56	150	125	92	77	40	68
Hemlock Brook	76	32	22	25	22	7	16	60	62	33	50	35	37
Betty Pond Stream...	26	10	8	12	7	17	13	15	90	32	30	30	24
Spruce Brook	56	26	16	22	22	28	22	55	16	75	43	33	34
Brandy Brook	64	31	12	23	25	17	35	35	38	78	**	33	35
Moswansicut—South.	24	22	22	25	26	18	12	13	17	15	**	40	21
Turbidity													
Coventry Brook	0.2	0.2	0.2	0.1	0.2	0.2	0.0	0.2	0.1	0.1	0.3	0.1	0.1
Wilbur Brook	0.5	0.2	0.2	0.1	0.2	0.1	0.1	0.4	0.2	0.1	0.4	0.2	0.2
Westconnaug Res.....	0.3	0.2	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.1	0.3	0.2	0.2
Barden Reservoir ...	0.4	0.1	0.2	0.1	0.1	0.3	0.0	0.2	0.2	0.3	0.6	0.1	0.2
Cork Brook	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	**	0.2	0.1
Rush Brook	0.3	0.1	0.1	0.0	0.2	0.1	0.0	0.2	0.5	0.2	0.4	0.1	0.2
Huntinghouse Brook	0.6	0.1	0.3	0.0	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.2
Harrisdale Brook ...	0.4	0.1	0.2	0.0	0.1	0.1	0.1	0.2	0.4	0.4	0.3	0.1	0.2
Blanchard Brook ...	1.1	0.3	0.2	0.4	0.2	0.0	0.1	0.0	0.2	0.1	**	**	0.3
Moswansicut Pond ...	0.8	0.4	0.1	0.5	0.1	0.1	0.1	0.7	2.0	0.3	0.2	0.1	0.4
Regulating Reservoir	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.1	0.0	0.2
Quonapaug Brook ...	0.5	0.2	0.5	0.0	0.1	0.2	0.1	0.2	0.7	0.1	0.4	0.1	0.2
Hemlock Brook	0.3	0.1	0.3	0.0	0.1	0.3	0.2	0.3	0.2	0.3	0.2	0.0	0.2
Betty Pond Stream...	0.3	0.2	0.2	0.0	0.0	0.1	0.2	0.4	0.3	0.1	0.1	0.1	0.2
Spruce Brook	0.2	0.0	0.2	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.4	0.0	0.1
Brandy Brook	0.4	0.3	0.1	0.0	0.1	0.0	0.1	0.1	0.3	0.1	**	0.2	0.1
Moswansicut—South.	0.5	0.2	0.6	0.0	0.2	0.0	0.2	0.2	0.1	0.1	**	0.2	0.2
Iron													
Coventry Brook	0.01	0.01	0.18	0.01	0.04	0.02	0.00	0.03	0.06	0.10	0.06	0.18	0.06
Wilbur Brook .....	.18	.03	.08	.04	.01	.03	.04	.30	.90	.31	.63	.32	.24
Westconnaug Res.....	.01	.02	.06	.04	.01	.02	.03	.07	.30	.08	.10	.02	.06
Barden Reservoir ...	.10	.03	.07	.06	.01	.03	.01	.05	.52	.53	.72	.43	.21
Cork Brook .....	.03	.01	.03	.01	.00	.01	.00	.03	.05	.02	**	.02	.02
Rush Brook .....	.15	.11	.07	.03	.03	.04	.03	.15	1.80	.58	.90	.40	.36
Huntinghouse Brook	.20	.10	.07	.05	.02	.10	.00	.12	.67	.50	.20	.03	.17
Harrisdale Brook ...	.15	.08	.07	.04	.12	.05	.01	.30	.68	.62	.32	.01	.20
Blanchard Brook ...	.70	.39	.45	.31	.00	.15	.03	.70	1.80	.68	**	**	.52
Moswansicut Pond ...	.40	.34	.19	.11	.10	.15	.12	.10	1.90	.80	.03	.06	.36
Regulating Reservoir	.25	.43	.09	.07	.03	.04	.01	.38	4.64	.44	.32	.01	.56
Quonapaug Brook ...	.30	.15	.10	.12	.05	.08	.06	.10	1.16	.51	1.15	1.55	.44
Hemlock Brook .....	.10	.01	.07	.02	.02	.03	.01	.05	.38	.15	.20	.03	.09
Betty Pond Stream...	.04	.03	.03	.04	.02	.05	.03	.06	.59	.17	.32	.03	.12
Spruce Brook .....	.03	.05	.03	.02	.01	.02	.02	.12	.10	.14	.35	.05	.08
Brandy Brook .....	.18	.04	.07	.06	.01	.12	.05	.12	.60	.26	**	.05	.14
Moswansicut—South.	.03	.04	.08	.03	.05	.03	.01	.03	.12	.12	**	.10	.06
Manganese													
Coventry Brook	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wilbur Brook .....	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
Westconnaug Res.....	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.01	.00	.00
Barden Reservoir ...	.02	.00	.00	.03	.00	.00	.00	.00	.01	.00	.01	.00	.01
Cork Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	**	.00	.00
Rush Brook .....	.00	.00	.00	.03	.00	.00	.00	.00	.01	.00	.01	.05	.01
Huntinghouse Brook	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.01	.00	.00
Harrisdale Brook ...	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.02	.18	.02

*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, 1956

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Blanchard Brook ...	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	**	**	.00
Moswansicut Pond ..	.01	.00	.00	.02	.00	.00	.01	.00	.00	.02	.01	.01	.01
Regulating Reservoir	.00	.00	.00	.02	.00	.01	.00	.00	.01	.00	.00	.00	.00
Quonapaug Brook ...	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
Hemlock Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
Betty Pond Stream..	.03	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00
Spruce Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Brandy Brook .....	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	**	.00	.00
Moswansicut—South.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	**	.15	.01
Hydrogen Ion Concentration													
Coventry Brook	6.0	6.3	6.1	6.1	6.0	6.1	6.2	6.3	6.5	6.3	6.3	6.4	6.2
Wilbur Brook	5.7	6.0	5.7	6.1	5.7	5.7	6.1	6.1	6.5	6.2	6.3	6.2	6.0
Westconnaug Res. ...	6.0	6.1	6.1	6.3	6.1	6.0	6.1	6.4	6.4	6.7	6.5	6.4	6.2
Barden Reservoir ...	5.9	6.0	5.7	5.8	5.7	5.9	6.7	6.3	6.5	6.5	6.3	6.1	6.1
Cork Brook	6.1	6.1	5.7	6.0	5.9	5.8	6.0	6.3	6.3	6.5	**	6.4	6.1
Rush Brook	6.0	6.1	6.0	6.1	5.8	5.9	6.4	6.4	6.4	6.1	6.1	6.0	6.1
Huntinghouse Brook.	6.3	6.5	6.3	6.1	6.1	6.1	6.4	6.5	6.2	6.5	6.3	6.4	6.3
Harrisdale Brook ...	6.6	6.7	6.4	6.1	6.1	6.1	6.3	6.7	6.4	6.7	6.7	6.6	6.4
Blanchard Brook	5.5	5.6	5.3	5.3	5.7	5.5	5.7	5.9	5.9	5.9	**	**	5.6
Moswansicut Pond ..	6.2	6.0	6.1	6.0	6.1	6.1	6.5	6.5	5.9	6.1	6.5	6.2	6.2
Regulating Reservoir	6.3	6.1	5.9	6.0	5.7	5.9	6.1	6.3	6.1	6.1	6.3	6.2	6.1
Quonapaug Brook ...	5.7	5.7	5.5	5.3	5.6	5.5	5.7	5.8	6.0	6.0	6.1	6.0	5.7
Hemlock Brook	5.8	6.1	6.1	6.1	5.7	5.9	6.1	6.2	6.3	6.3	6.7	6.4	6.1
Betty Pond Stream..	5.7	5.8	5.7	5.5	5.7	5.7	5.7	6.1	6.3	5.9	6.0	6.0	5.8
Spruce Brook	5.9	6.1	6.0	6.0	5.7	5.9	5.7	6.3	6.3	6.3	6.2	6.2	6.0
Brandy Brook	6.8	6.5	6.3	6.5	6.3	6.2	6.3	6.5	6.3	6.9	**	6.6	6.5
Moswansicut—South.	6.7	6.7	6.5	6.4	6.3	6.3	6.5	6.8	6.3	6.9	**	6.2	6.5
Free CO₂													
Coventry Brook	2.5	2.0	2.5	4.0	2.0	2.5	2.0	2.5	2.5	4.5	3.0	1.5	2.6
Wilbur Brook	7.0	4.0	9.0	5.5	3.5	6.0	3.0	7.0	3.0	6.0	3.0	1.5	4.9
Westconnaug Res. ...	2.0	2.5	2.0	2.0	2.0	2.5	2.0	2.0	1.5	2.0	1.5	1.0	1.9
Barden Reservoir ...	3.0	3.0	6.0	5.0	2.5	4.0	2.0	1.0	4.5	3.0	2.0	1.5	3.1
Cork Brook	2.5	2.5	8.5	3.0	2.5	3.0	2.0	3.0	2.5	1.5	**	1.5	2.9
Rush Brook	3.5	2.5	4.5	5.0	3.0	4.5	1.0	2.0	6.5	9.0	7.5	1.0	4.2
Huntinghouse Brook.	1.5	0.5	1.5	3.5	2.0	2.5	1.0	2.5	2.0	5.0	6.5	1.0	2.4
Harrisdale Brook ...	1.0	0.5	1.5	3.5	1.5	2.5	2.0	2.0	2.5	4.0	2.0	1.0	2.0
Blanchard Brook	14.0	7.5	25.0	18.0	5.5	11.0	4.5	7.0	11.0	9.5	**	**	11.3
Moswansicut Pond ..	2.5	6.5	3.0	4.0	2.5	2.5	1.0	3.0	7.5	12.0	3.0	1.0	4.0
Regulating Reservoir	1.5	3.0	8.0	5.5	2.5	6.0	2.5	3.0	5.5	8.0	4.0	2.5	4.3
Quonapaug Brook ...	10.0	6.5	22.0	17.5	7.5	12.0	4.0	10.0	10.0	14.0	10.5	1.5	10.4
Hemlock Brook	4.5	2.5	2.5	3.0	2.5	4.5	1.5	3.0	3.5	3.0	2.0	1.5	2.8
Betty Pond Stream..	5.0	6.0	10.5	15.0	5.5	8.5	3.0	3.5	5.0	9.0	4.0	6.5	6.8
Spruce Brook	3.0	2.0	2.5	3.5	3.0	3.0	2.5	2.5	3.5	4.0	4.0	1.5	2.9
Brandy Brook	1.0	1.5	1.5	2.0	2.0	2.0	1.5	2.0	3.0	3.0	**	1.0	1.9
Moswansicut—South.	1.0	0.5	1.0	1.5	1.5	1.5	1.0	1.0	3.0	1.5	**	1.5	1.4
Alkalinity													
Coventry Brook	4.5	4.0	6.5	6.0	5.0	6.0	4.5	5.0	8.0	7.0	8.0	6.0	5.9
Wilbur Brook	6.0	4.0	5.0	9.0	4.5	5.0	4.5	6.5	10.0	8.5	9.5	6.0	6.5
Westconnaug Res. ...	3.5	4.0	4.0	5.5	3.5	4.5	4.0	5.0	5.5	6.0	5.0	6.0	4.7
Barden Reservoir ...	4.0	4.0	3.5	4.0	3.0	3.5	3.0	5.0	5.0	11.5	5.5	4.5	4.7
Cork Brook	3.5	4.5	4.0	4.0	3.5	4.5	3.5	4.5	4.5	5.0	**	4.5	4.2
Rush Brook	5.5	4.0	7.5	6.0	6.0	6.0	6.5	5.5	8.0	8.0	9.0	9.0	6.7
Huntinghouse Brook.	7.0	6.0	10.0	8.0	5.5	6.0	6.5	9.0	12.0	11.0	12.5	10.0	8.6
Harrisdale Brook ...	7.5	7.5	10.0	7.0	6.5	7.0	7.5	9.5	13.0	12.0	11.0	9.5	9.0
Blanchard Brook	5.0	4.5	2.0	4.0	4.5	4.0	4.0	4.5	6.5	4.5	**	**	4.3
Moswansicut Pond ..	11.0	10.0	7.0	8.5	6.0	6.0	8.0	10.0	14.0	17.0	7.5	6.0	9.2
Regulating Reservoir	6.0	5.0	7.0	6.5	5.0	5.5	6.5	6.5	9.0	9.5	8.5	9.5	7.0
Quonapaug Brook ...	4.5	5.5	5.5	4.5	4.5	4.5	4.0	6.5	11.0	10.0	13.0	6.0	6.6
Hemlock Brook	4.0	5.0	5.0	5.5	3.5	3.5	4.0	4.0	5.0	5.0	6.5	5.0	4.7
Betty Pond Stream..	4.0	4.5	7.5	7.0	4.5	4.5	4.0	4.5	5.0	7.0	4.5	4.0	5.1
Spruce Brook	3.5	5.0	4.5	4.5	4.0	2.5	3.5	4.0	5.0	5.0	7.5	4.5	4.4
Brandy Brook	6.5	8.0	8.0	8.0	6.5	6.0	6.0	7.0	10.0	9.0	**	8.0	7.5
Moswansicut—South.	8.0	7.0	7.0	7.0	7.0	6.0	6.0	7.0	8.0	7.5	**	8.0	7.1

*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, 1956

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Neutaconkanut Reservoir..	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
*Wayland Ave., Cranston..	9.2	9.3	9.4	9.3	9.3	9.2	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Westminster St., Olneyville	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Budlong Road, Cranston...	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Reservoir Ave., Cranston..	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
**Post Road, Warwick....	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Biltmore Hotel	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Crown Hotel	9.2	9.3	9.4	9.3	9.3	9.2	9.3	9.3	9.3	9.3	9.3	9.3	9.3
State Office Bldg.	9.2	9.3	9.4	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
***Longview Reservoir ...	9.4	9.3	9.5	9.4	9.3	9.3	9.4	9.3	9.4	9.4	9.4	9.4	9.4
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir..	6.7	6.9	7.2	6.6	6.5	6.3	6.9	6.9	7.2	7.1	7.2	7.0	6.9
*Wayland Ave., Cranston..	6.7	6.8	7.3	6.5	6.3	6.3	6.7	6.7	7.2	7.2	7.1	6.9	6.8
Westminster St., Olneyville	6.6	7.1	7.5	6.4	6.3	6.4	6.8	6.9	7.2	7.1	7.1	7.0	6.9
Budlong Road, Cranston...	6.8	7.2	7.5	6.5	6.4	6.4	7.0	7.0	7.5	7.2	7.3	7.0	7.0
Reservoir Ave., Cranston..	6.9	7.0	7.7	6.5	6.4	6.5	6.8	7.0	7.4	7.2	7.1	7.0	6.9
**Post Road, Warwick....	7.0	7.3	7.7	6.6	6.5	6.6	6.9	7.0	7.4	7.3	7.1	7.0	7.0
Biltmore Hotel	6.9	7.2	7.5	6.5	6.5	6.5	6.9	7.0	7.4	7.2	7.1	7.0	7.0
Crown Hotel	6.9	7.2	7.5	6.5	6.5	6.5	7.0	7.1	7.4	7.3	7.2	7.0	7.0
State Office Bldg.	6.9	7.2	7.7	6.6	6.6	6.6	7.1	7.2	7.4	7.4	7.2	7.1	7.1
***Longview Reservoir ...	8.9	8.1	8.4	7.7	7.2	7.0	7.6	7.7	7.9	8.1	8.2	8.3	7.9
Methyl Orange Alkalinity													
Neutaconkanut Reservoir..	13.2	13.6	13.9	12.7	12.5	12.4	13.6	13.7	14.2	14.0	14.1	14.0	13.5
*Wayland Ave., Cranston..	13.1	13.4	13.9	12.6	12.4	12.6	13.3	13.4	14.0	14.3	14.1	14.1	13.4
Westminster St., Olneyville	13.1	13.8	13.9	12.5	12.3	12.5	13.5	13.6	14.2	14.1	14.1	14.2	13.5
Budlong Road, Cranston...	13.2	13.8	14.0	12.4	12.4	12.7	13.8	13.7	14.3	14.1	14.4	14.2	13.6
Reservoir Ave., Cranston..	13.2	13.6	14.1	12.5	12.5	12.7	13.6	13.8	14.3	14.1	14.1	14.2	13.5
**Post Road, Warwick....	13.4	13.9	14.1	12.5	12.5	12.9	13.6	13.7	14.2	14.3	14.2	14.3	13.6
Biltmore Hotel	13.3	13.7	14.0	12.6	12.6	12.8	13.5	13.8	14.3	14.1	14.1	14.3	13.6
Crown Hotel	13.3	13.7	13.8	12.7	12.7	12.8	13.8	13.8	14.4	14.4	14.3	14.2	13.6
State Office Bldg.	13.4	13.8	14.2	12.7	12.8	13.0	13.8	14.1	14.3	14.4	14.4	14.4	13.8
***Longview Reservoir ...	16.2	15.6	15.6	14.6	14.2	13.8	14.7	15.3	15.6	15.9	16.4	16.2	15.3
Color													
Neutaconkanut Reservoir..	7	8	8	8	7	7	6	6	5	5	5	6	6
*Wayland Ave., Cranston..	7	8	7	7	7	7	6	5	5	5	5	6	6
Westminster St., Olneyville	7	9	7	7	7	7	6	6	5	5	5	6	6
Budlong Road, Cranston...	7	9	7	7	7	7	6	5	6	5	5	6	6
Reservoir Ave., Cranston..	7	9	7	7	7	7	6	5	5	5	5	6	6
**Post Road, Warwick....	8	9	7	7	7	7	6	6	5	5	5	6	6
Biltmore Hotel	7	9	7	7	7	7	6	6	5	5	5	6	6
Crown Hotel	7	9	7	7	7	7	6	6	5	5	5	6	6
State Office Bldg.	7	8	7	7	7	7	6	6	5	5	5	6	6
***Longview Reservoir ...	9	10	9	8	8	8	7	7	7	8	8	8	8
Iron													
Neutaconkanut Reservoir..	0.01	0.03	0.04	0.03	0.03	0.02	0.01	0.00	0.00	0.01	0.01	0.01	0.02
*Wayland Ave., Cranston..	.02	.07	.03	.02	.02	.02	.01	.00	.00	.01	.01	.01	.02
Westminster St., Olneyville	.02	.07	.03	.03	.03	.02	.01	.00	.00	.00	.00	.01	.02
Budlong Road, Cranston...	.02	.07	.03	.03	.02	.02	.01	.00	.02	.01	.00	.01	.02
Reservoir Ave., Cranston..	.04	.07	.04	.03	.03	.03	.02	.01	.00	.01	.00	.01	.02
**Post Road, Warwick....	.01	.06	.03	.02	.03	.02	.02	.01	.00	.01	.00	.01	.02
Biltmore Hotel .....	.03	.06	.03	.03	.03	.02	.02	.01	.00	.00	.00	.01	.02
Crown Hotel .....	.03	.06	.02	.03	.03	.02	.01	.01	.01	.01	.01	.01	.02
State Office Bldg. ....	.02	.06	.02	.02	.02	.02	.01	.00	.00	.00	.00	.01	.01
***Longview Reservoir ...	.10	.12	.09	.05	.10	.08	.08	.05	.08	.11	.10	.12	.09

*Wayland Ave. sampling location changed to Phenix Ave., Cranston, on July 6, 1956.

**Post Road sampling location changed to T. F. Green Airport, Warwick, on Oct. 27, 1955.

***Sample obtained at Our Lady of Fatima Hospital.

TABLE 13 (Continued)
WATER PURIFICATION WORKS
CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1956

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Chlorides													
Neutaconkanut Reservoir..	3.5	3.8	3.5	3.3	3.2	3.0	2.9	3.0	3.1	2.8	2.9	3.0	3.2
*Wayland Ave., Cranston..	3.5	3.9	3.4	3.3	3.2	2.9	2.7	2.7	2.9	2.9	2.9	2.9	3.1
Westminster St., Olneyville	3.7	3.8	3.4	3.3	3.2	3.0	2.7	2.7	2.9	2.8	2.9	2.9	3.1
Budlong Road, Cranston...	3.5	3.9	3.3	3.3	3.0	3.0	2.7	2.6	2.9	2.8	2.8	3.0	3.1
Reservoir Ave., Cranston...	3.5	3.9	3.4	3.3	3.2	2.9	2.8	2.6	2.8	3.0	2.9	3.0	3.1
**Post Road, Warwick....	3.5	3.9	3.4	3.3	3.2	2.8	2.6	2.8	2.9	2.9	2.8	3.1	3.1
Biltmore Hotel	3.5	3.9	3.4	3.3	3.3	2.9	2.8	2.7	2.9	2.9	2.8	3.0	3.1
Crown Hotel	3.5	4.0	3.4	3.3	3.3	3.0	2.7	2.6	2.9	2.9	2.8	3.0	3.1
State Office Bldg.	3.4	3.9	3.4	3.5	3.3	3.0	2.7	2.8	2.9	2.9	2.8	3.0	3.1
***Longview Reservoir ...	3.2	3.9	3.7	3.5	3.4	3.1	3.0	3.0	3.1	3.1	3.0	3.1	3.2
Nitrites													
Neutaconkanut Reservoir..	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
*Wayland Ave., Cranston..	.002	.002	.001	.002	.002	.001	.001	.002	.001	.002	.001	.001	.001
Westminster St., Olneyville	.001	.001	.001	.002	.002	.001	.001	.001	.001	.002	.001	.001	.001
Budlong Road, Cranston...	.001	.001	.001	.001	.002	.001	.001	.002	.001	.002	.001	.001	.001
Reservoir Ave., Cranston...	.001	.001	.001	.001	.001	.001	.001	.002	.002	.002	.001	.002	.001
**Post Road, Warwick....	.001	.001	.001	.002	.002	.001	.001	.002	.001	.001	.001	.001	.001
Biltmore Hotel .....	.001	.001	.001	.002	.002	.001	.001	.001	.001	.001	.001	.001	.001
Crown Hotel .....	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
State Office Bldg. ....	.002	.001	.001	.002	.002	.001	.001	.002	.002	.001	.001	.002	.001
***Longview Reservoir ...	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001
Taste													
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
State Office 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
Odor													
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	C	0	0	0	0	0	0	0
State Office 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
Fluoride													
Neutaconkanut Reservoir..	1.10	1.17	1.14	1.14	1.18	1.14	1.15	1.13	0.97	0.97	0.94	1.01	1.09
*Wayland Ave., Cranston..	1.08	1.16	1.07	1.11	1.18	1.11	1.09	1.13	0.92	0.95	0.94	1.00	1.06
Westminster St., Olneyville	1.08	1.15	1.08	1.14	1.21	1.13	1.16	1.13	0.94	0.95	0.96	1.02	1.08
Budlong Road, Cranston...	1.07	1.17	1.07	1.13	1.18	1.16	1.15	1.12	0.92	1.00	0.96	1.01	1.08
Reservoir Ave., Cranston...	1.10	1.15	1.10	1.13	1.16	1.12	1.19	1.12	0.94	0.98	1.00	1.02	1.08
**Post Road, Warwick....	1.12	1.16	1.10	1.15	1.18	1.11	1.16	1.13	0.95	0.96	0.95	1.01	1.08
Biltmore Hotel	1.15	1.16	1.12	1.15	1.20	1.14	1.15	1.13	0.93	0.97	0.95	1.03	1.09
Crown Hotel	1.14	1.17	1.12	1.15	1.18	1.14	1.15	1.12	0.93	0.98	0.97	1.03	1.09
State Office Bldg.	1.15	1.16	1.12	1.14	1.17	1.13	1.17	1.13	0.93	0.98	0.97	1.02	1.09
***Longview Reservoir ...	1.06	1.15	1.14	1.12	1.14	1.12	1.13	1.09	0.96	0.94	0.92	1.00	1.06

*Wayland Ave. sampling location changed to Phenix Ave., Cranston, on July 6, 1956.
 **Post Road sampling location changed to T. F. Green Airport, Warwick, on Oct. 27, 1955.
 ***Sample obtained at Our Lady of Fatima Hospital.

TABLE 14

WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1956

1955-56	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.	200	18	48	1050	21	195	600	0	73	1	0	0
Nov.	300	18	51	1100	13	240	200	1	52	30	0	1
Dec.	25	3	13	300	0	61	25	0	3	75	0	3
Jan.	400	0	41	110	0	10	45	0	3	15	0	1
Feb.	90	25	48	75	0	7	5	0	0	1	0	0
Mar.	50	1	21	45	0	5	6	0	1	2	0	0
Apr.	65	11	35	250	0	28	40	0	8	2	0	0
May	40	2	14	1200	0	70	100	0	6	2	0	0
June	55	1	10	70	0	11	7	0	1	1	0	0
July	70	0	7	180	0	17	16	0	1	3	0	0
Aug.	130	0	21	75	0	14	30	0	6	2	0	0
Sept.	160	1	37	150	0	21	22	0	5	2	0	0
For Year	400	0	29	1200	0	56	600	0	13	30	0	0

TABLE 15
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1956

1955-56	BACTERIA per ml. (24 HOURS ON AGAR AT 35°C)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Oct.	75	3	18	350	0	30	2	0	0	3	0	0
Nov.	25	1	9	70	0	10	6	0	1	4	0	0
Dec.	105	0	10	1700	0	80	3	0	0	5	0	0
Jan.	80	0	10	60	0	7	25	0	2	220	0	17
Feb.	800	2	91	160	0	11	50	0	2	80	0	4
Mar.	130	0	17	140	0	9	110	0	5	4	0	0
Apr.	500	0	30	1500	0	87	800	0	46	150	0	14
May	450	0	24	140	0	11	110	0	11	350	0	17
June	15	0	5	18	0	2	3	0	0	300	0	17
July	80	0	10	25	0	5	30	0	3	150	0	13
Aug.	25	0	4	100	0	9	180	0	14	100	0	6
Sept.	250	0	17	60	0	7	400	0	29	70	0	5
For Year	800	0	20	1700	0	22	800	0	9	350	0	8

TABLE 16
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1956

1955-1956	B. COLI											
	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	49	.098	50	5	.010	50	0	.000	125	0	.000
Nov.	48	48	.100	48	1	.002	48	0	.000	120	0	.000
Dec.	57	41	.072	52	1	.002	52	0	.000	130	0	.000
Jan.	50	26	.052	50	0	.000	50	0	.000	125	0	.000
Feb.	72	26	.036	48	1	.002	48	0	.000	120	0	.000
Mar.	81	13	.016	54	1	.000	54	1	.002	130	3	.002
Apr.	75	19	.025	50	1	.002	50	0	.000	125	0	.000
May	75	9	.012	50	1	.002	50	0	.000	125	0	.000
June	78	4	.005	52	2	.004	52	1	.002	130	0	.000
July	75	4	.005	50	5	.010	50	0	.000	125	0	.000
Aug.	78	8	.010	52	1	.002	52	1	.002	130	0	.000
Sept.	72	24	.033	48	1	.002	48	0	.000	120	0	.000
For Year	811	271	.033	604	20	.003	604	3	.000	1505	3	.000

TABLE 17
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS
BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1956

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria Per Mi. 48 Hours on Agar at 20°C													
Coventry Brook	130	160	32	130	20	35	170	280	450	350	300	200	188
Wilbur Brook	140	30	160	60	200	13	350	320	700	450	400	500	277
Westconnaug Res. . . .	70	4000	120	1800	150	90	600	250	3500	500	200	300	965
Barden Reservoir	400	95	50	400	290	100	150	90	140	150	70	80	168
Cork Brook	70	120	7	150	4	50	90	250	90	160	**	120	101
Rush Brook	1500	130	90	2500	350	80	1000	450	600	4000	120	800	968
Huntinghouse Brook . . .	300	150	130	220	400	120	500	160	160	400	35	110	224
Harrisdale Brook	700	200	80	400	320	70	250	50	270	350	400	200	274
Blanchard Brook	1200	35	60	190	50	45	130	200	1500	480	**	**	389
Moswansicut Pond . . .	450	35	9	300	120	500	900	50	400	500	250	150	305
Regulating Reservoir . .	900	170	120	3000	900	140	600	170	900	2500	900	600	908
Quonapaug Brook	350	190	45	170	90	18	220	300	2000	800	1500	400	507
Hemlock Brook	180	80	150	400	150	90	120	250	100	80	150	80	152
Betty Pond Stream . . .	600	95	310	250	300	80	180	140	280	450	800	700	349
Spruce Brook	120	320	70	550	80	200	140	270	300	500	1200	500	354
Brandy Brook	1100	650	290	1200	250	400	300	190	1200	8000	**	1200	1344
Moswansicut—South . .	1400	500	160	350	1200	65	250	350	600	33000	**	900	3525
Bacteria Per Mi. 24 Hours on Agar at 35°C													
Coventry Brook	25	25	18	15	6	100	20	60	50	100	350	90	71
Wilbur Brook	75	15	15	50	11	18	35	250	300	300	400	110	131
Westconnaug Res. . . .	7	100	20	20	2	4	7	5	2500	250	70	200	265
Barden Reservoir	35	80	35	40	10	5	18	30	30	55	45	60	37
Cork Brook	4	13	7	15	2	8	6	50	40	30	**	18	17
Rush Brook	25	15	22	160	1200	12	22	80	1100	1500	200	170	375
Huntinghouse Brook . . .	30	18	4	15	25	5	25	140	20	290	150	90	68
Harrisdale Brook	120	12	50	18	15	3	19	28	50	380	220	65	82
Blanchard Brook	80	110	70	15	10	22	17	100	450	300	**	**	117
Moswansicut Pond . . .	190	5	15	13	16	80	7	40	70	130	180	100	70
Regulating Reservoir . .	35	20	12	150	170	12	40	110	700	600	1600	350	316
Quonapaug Brook	40	13	20	10	70	14	20	90	800	250	170	160	138
Hemlock Brook	15	18	17	12	90	8	18	40	220	55	150	75	60
Betty Pond Stream . . .	130	21	25	8	4	30	35	300	200	400	1100	150	200
Spruce Brook	20	40	15	10	3	16	7	45	20	70	200	90	45
Brandy Brook	110	175	180	45	22	22	18	200	900	1800	**	125	327
Moswansicut—South . .	65	125	13	30	60	30	30	250	250	20000	**	200	1914
B. Coll													
Index Per 100 Mi.													
Coventry Brook	70	6	6	70	6	6	110†	25	110†	110†	110†	13	.....
Wilbur Brook	70	0	6	10	70	0	25	110†	110†	110†	110†	70	.....
Westconnaug Res. . . .	110†	70	25	0	25	6	25	25	25	70	70	70	.....
Barden Reservoir	13	70	6	25	70	25	6	25	13	70	6	6	.....
Cork Brook	25	13	6	25	25	6	0	25	25	110†	**	110†	.....
Rush Brook	110†	6	6	110†	13	13	0	70	70	110†	110†	25	.....
Huntinghouse Brook . . .	110†	70	6	25	70	70	13	110†	70	110†	70	70	.....
Harrisdale Brook	110†	70	25	110†	20	13	25	70	25	25	110†	70	.....
Blanchard Brook	110†	6	25	6	70	25	13	70	110†	70	**	**	.....
Moswansicut Pond . . .	25	110†	6	70	25	25	6	25	110†	70	110†	25	.....
Regulating Reservoir . .	110†	25	6	70	25	0	25	25	70	110†	110†	25	.....
Quonapaug Brook	70	25	6	13	6	13	25	70	110†	25	110†	110†	.....
Hemlock Brook	25	25	25	13	13	6	6	70	25	70	110†	70	.....
Betty Pond Stream . . .	70	13	0	70	6	6	0	25	70	70	25	110†	.....
Spruce Brook	70	110†	25	6	6	6	25	110†	70	110†	70	110†	.....
Brandy Brook	70	70	25	70	6	0	70	70	110†	110†	**	110†	.....
Moswansicut—South . .	25	25	6	25	25	13	25	70	110†	110†	**	110†	.....

†Indicates Index of 110+
 **No Sample Obtained—Brook Dry.

TABLE 18
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1956

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria Per Mi. 48 Hours on Agar at 20°C													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
*Wayland Ave., Cranston..	0	0	3	0	0	0	0	0	1	0	1	1	0
Westminster St., Olneyville	0	0	0	0	0	2	0	0	0	0	0	0	0
Budlong Road, Cranston..	0	0	2	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston..	0	3	1	3	0	1	0	0	0	0	0	0	1
**Post Road, Warwick....	0	0	0	0	0	0	24	0	0	0	0	0	2
Biltmore Hotel	0	0	1	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	1	0	0	0	0	0	0	0	0	0	0
State Office Bldg.....	0	0	0	0	0	0	0	0	0	0	1	0	0
***Longview Reservoir ...	0	0	1	0	0	0	0	0	0	0	0	0	0
Bacteria Per Mi. 24 Hours on Agar at 35°C													
Neutaconkanut Reservoir..	2	1	1	41	11	12	5	8	3	16	23	3	10
*Wayland Ave., Cranston..	0	6	1	3	5	2	80	8	4	17	24	8	13
Westminster St., Olneyville	14	1	1	1	53	4	71	1	2	4	13	11	15
Budlong Road, Cranston..	0	2	1	0	10	27	8	2	5	23	2	3	7
Reservoir Ave., Cranston..	0	2	2	5	3	15	5	24	8	0	4	2	6
**Post Road, Warwick....	0	2	3	20	37	18	71	7	3	13	16	21	17
Biltmore Hotel	0	0	1	16	33	11	6	5	6	5	8	30	10
Crown Hotel	0	1	2	15	3	37	18	32	4	1	35	15	13
State Office Bldg.....	0	1	2	5	0	12	2	4	4	9	3	5	4
***Longview Reservoir ...	0	0	6	4	3	6	14	3	1	1	7	15	5
B. Coli Index Per Mi.													
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	.005	.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....	.014	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001
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
State Office Bldg.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
***Longview Reservoir ...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*Wayland Ave. sampling location changed to Phenix Ave., Cranston, on July 6, 1956.

**Post Road sampling location changed to T. F. Green Airport, Warwick, on Oct. 27, 1955.

***Sample obtained at Our Lady of Fatima Hospital.

TABLE 19
WATER PURIFICATION WORKS
 MINERAL ANALYSIS OF WATER—YEAR ENDED SEPT. 30, 1956

Parts per Million	RAW WATER*					TAP WATER				
	1956				Avg.	1955				Avg.
	Oct.- Dec.	Jan.- Mar.	Apr.- June	July- Sept.		Oct.- Dec.	Jan.- Mar.	Apr.- June	July- Sept.	
Aluminum.	0.01	0.01	0.03	0.01	0.01	0.03	0.03	0.06	0.04	0.04
Arsenic.	0.00	....	0.00	....	0.00	0.00	....	0.00	....	0.00
Calcium.	2.24	2.62	2.38	2.41	2.41	9.22	10.60	8.84	10.16	9.70
Chloride.	3.03	2.87	2.57	2.47	2.73	3.60	3.17	2.80	2.90	3.12
Copper.	0.10	0.07	0.07	0.08	0.08	0.03	0.02	0.02	0.01	0.02
Fluoride.	0.22	0.24	0.22	0.20	0.22	1.15	1.12	1.07	0.99	1.08
Hardness.	9	9	8	8	8	29	30	27	26	28
Iron.	0.10	0.08	0.04	0.12	0.08	0.04	0.03	0.02	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.	0.50	0.50	0.40	0.65	0.51	0.45	0.50	0.40	0.65	0.50
Manganese.	0.02	0.00	0.00	0.04	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
Selenium.	5.50	6.00	5.50	6.00	5.75	4.50	5.00	5.50	5.50	5.10
Silica.	7.00	7.50	7.10	6.90	7.10	16.00	15.00	13.00	11.90	14.00
Sulphate.										
Total Solids.	35	33	39	34	35	59	57	56	53	56
Less On Ignition.	18	14	15	16	15	23	14	17	16	17
Total Alkalinity.	3.77	3.80	3.90	4.13	3.90	13.57	12.73	13.73	14.00	13.51
Phenolphthalein Alk.	0.00	0.00	0.00	0.00	0.00	6.90	6.53	6.90	7.00	6.83
Zinc. . . . .	....	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, 1956

RAW WATER*												TAP WATER											
1955- 1956	Ammonia		Nitrates	Chlorides	Dissolved Oxygen		Total Solids	Loss on Ignition	Ammonia		Nitrites	Nitrates	Chlorides	Dissolved Oxygen		Total Solids	Loss on Ignition	1955- 1956					
	Free	Alb.			Free	Alb.																	
									P.P.M.	% Sat.				P.P.M.	% Sat.								
Oct.	0.048	0.056	0.000	0.04	2.8	8.9	87.7	35	18	0.009	0.032	0.001	0.03	3.5	..	..	57	23	Oct.		
Nov.	0.048	0.058	0.000	0.02	3.3	10.5	90.7	36	19	0.016	0.046	0.001	0.02	3.9	..	..	61	25	Nov.		
Dec.	0.064	0.070	0.000	0.01	3.0	12.6	91.0	34	18	0.052	0.038	0.001	0.01	3.4	..	..	59	22	Dec.		
Jan.	0.032	0.054	0.000	0.01	2.9	13.5	93.7	31	14	0.032	0.048	0.001	0.02	3.3	..	..	57	12	Jan.		
Feb.	0.040	0.070	0.000	0.02	2.9	13.4	97.4	34	14	0.036	0.040	0.002	0.01	3.2	..	..	58	18	Feb.		
Mar.	0.048	0.102	0.000	0.02	2.8	13.6	98.8	35	13	0.040	0.021	0.001	0.01	3.0	..	..	57	11	Mar.		
Apr.	0.040	0.077	0.000	0.02	2.8	11.3	98.6	36	14	0.040	0.045	0.001	0.02	2.8	..	..	54	16	Apr.		
May	0.052	0.093	0.000	0.03	2.4	10.0	92.8	35	15	0.032	0.021	0.001	0.02	2.7	..	..	52	16	May		
June	0.064	0.065	0.000	0.04	2.5	8.2	77.9	47	15	0.052	0.045	0.001	0.06	2.9	..	..	63	19	June		
July	0.080	0.061	0.000	0.02	2.5	7.2	68.4	29	15	0.040	0.021	0.001	0.02	2.9	..	..	53	8	July		
Aug.	0.044	0.069	0.000	0.03	2.3	6.3	59.9	34	18	0.028	0.021	0.001	0.00	2.9	..	..	52	19	Aug.		
Sept.	0.016	0.093	0.001	0.09	2.6	7.8	74.1	38	14	0.004	0.061	0.001	0.05	2.9	..	..	54	22	Sept.		
Avg.	0.048	0.072	0.000	0.03	2.7	10.3	85.9	35	15	0.032	0.036	0.001	0.02	3.1	..	..	56	17	Avg.		

*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, 1956

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	
I	BROOKS AND STREAMS ON WATERSHED Eleven Brooks and Two Streams.....			Monthly.....	1,057	1,317	..	..	..	2,374
II	SMALLER STORAGE RESERVOIRS ON WATERSHED Regulating Reservoir..... Westconaug Reservoir..... Barden Reservoir..... Moswanscut Pond.....			Monthly..... Monthly..... Monthly..... Monthly.....	84 84 84 84	104 100 96 104	.. .. .. ..	.. .. .. ..	.. * .. .. ..	188 184 180 188
III	SCITUATE RESERVOIR Surface Water..... Subsurface Water (See Purif. Wks.—Raw Water).....			Bi-Weekly.....	208	..	21	156	385
IV	PAWTUCKET RIVER—BELOW SCITUATE DAM Scituate Dam Meter Chamber..... Fiskeville, R. I..... Twelve other locations on Pawtucket River.....			Bi-Weekly..... Bi-Weekly..... Bi-Weekly.....	182 182 2,340	.. .. ..	.. 156 156 2,172	.. .. ..	.. .. ..	338 338 4,512
V	WATER PURIFICATION WORKS Raw Water (from Bottom of Scit. Res.)..... Raw Water (from Bottom of Scit. Res.)..... Raw Water (from Bottom of Scit. Res.)..... ***Raw Water (from Bottom of Scit. Res.)..... Aerated Influent..... Mixer..... Settled..... Settled..... Settled..... Filtered..... Filtered..... Unchlorinated Effluent..... Unchlorinated Effluent..... Unchlorinated Effluent..... Chlorinated Effluent..... Raw Water (from Bottom of Scituate Reservoir)..... Unchlorinated Effluent.....			Daily..... Weekly..... Monthly..... Every 13 weeks..... Daily..... Daily..... Weekly..... Monthly..... Monthly..... Monthly..... Daily..... Daily..... Daily..... Daily..... Daily..... Daily..... Daily at 3:00 P.M. Daily at 3:00 P.M.	3,370 726 1,845 2,844 1,089 3,207 1,488 988 988	3,842 1,236 1,214 1,741 1,194 989	.. 21 21 21	1,452 52* 72** 52* 48** 48** 1,452 52* 24** 1,240 988 988	.. .. 36	8,664 73 72 36 726 1,845 4,080 73 48 1,089 48 5,873 73 24 4,469 3,170 2,965

Table 21 (Continued)
WATER PURIFICATION WORKS
LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1956

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.....	1,488	1,736	21	992	..	..	4,216
		Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	21
VII	LONGVIEW DISTRIBUTION RESERVOIR	Sample from nearby Tap.....	Daily.....	1,488	1,736	21	992	..	..	4,216
		Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	21
VIII	DISTRIBUTION SYSTEM	Water Supply Board Bldg. Tap Water.....	Daily.....	2,408	2,110	21	941	..	..	5,459
		Water Supply Board Bldg. Tap Water.....	Bi-Weekly.....	..	..	..	84**	..	..	84
		Water Supply Board Bldg. Tap Water.....	Monthly.....	..	..	..	..	..	..	32
		Water Supply Board Bldg. Tap Water.....	Every 13 Weeks.....	..	..	..	..	..	..	..
		***Sectional Tests.....	Monthly.....	532	384	..	288	..	..	1,204
		Consumers' Complaints (42 during the year).....	Monthly.....	682	406	..	274	..	..	1,362
		Sterilization of Newly Laid Mains.....	Daily.....	..	1,292	..	169	..	..	1,461
		†Sectional Tests.....	Daily.....	10,332	12,075	..	6,888	..	..	29,295
	
	
IX	MISCELLANEOUS TESTS	Coagulation Tests to Determine Chemical Dosages.....	.....	959	..	..	..	..	344	1,303
		Analysis of Ferri-Floc used for Treatment.....	.....	54	..	..	..	..	18	72
		Analysis of Quicklime used for Treatment.....	.....	18	..	..	..	..	36	54
		Analysis of Sodium Silicofluoride used for Treatment.....	.....	17	..	..	..	..	4	21
		Samples from Plant Filters.....	Daily.....	4,935	6,501	..	4,935	..	1,369	17,740
		Water, Filter Sand and Other Materials.....	.....	352	284	15	252	..	103	1,006
	
	
	
	
Totals.....				44,115	38,461	162	24,923	68	109,603	

*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, 1956

1955- 1956	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMP						Fuel Oil Used For Heating — 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'			Oil Used — Qts.	Total Water Pumped — Mil. Gals.		
	Operated			Operated			Water Pumped — Mil. Gals.	KWH	Cost	Days	Hours and Minutes	Water Pumped — Mil. Gals.	Gasoline Used — Gals.				
	Day†	Hours and Minutes	Water Pumped — Mil. Gals.	Days	Hours and Minutes	Days										Hours and Minutes	
Oct.	16	333-15	58.24	16	332-00	87.07	62,400	\$ 936.34	4	4-00	1.36	106	4	146.67	4.73		
Nov.	30	616-30	102.48	0	0	0	32,100	640.57	5	5-00	1.80	105	5	104.28	3.48		
Dec.	31	649-00	107.28	0	0	0	36,900	638.79	4	3-45	1.29	102	4	108.57	3.50		
Jan.	31	660-15	108.73	0	0	0	43,500	708.41	4	6-45	2.40	171	16	111.13	3.58		
Feb.	29	617-30	101.24	0	0	0	39,000	661.82	5	5-00	1.82	107	14	103.06	3.55		
Mar.	31	672-15	110.59	0	0	0	40,800	689.02	4	4-00	1.38	115	3	111.97	3.61		
Apr.	28	592-45	98.46	3	45-30	12.20	38,400	666.36	4	4-00	1.40	111	8	112.06	3.73		
May	31	705-30	116.87	0	0	0	42,600	779.80	5	5-00	1.70	116	3	118.57	3.82		
June	12	270-15	44.88	18	391-45	105.40	46,200	820.27	4	4-00	1.42	110	5	151.70	5.06		
July	0	0	0	31	669-15	180.51	79,500	1,161.61	4	4-00	1.39	96	20	181.90	5.87		
Aug.	0	0	0	31	682-45	185.06	72,900	1,093.56	5	5-00	1.79	102	6	186.85	6.03		
Sept.	2	13-15	1.91	30	625-30	168.82	75,000	1,120.66	3	3-00	1.09	72	4	171.82	5.73		
Totals	241	5,130-30	850.68	129	2,746-45	739.06	609,300	\$9,917.31	51	53-30	18.84	1,313	92	1608.58	4.39		
															5798		

*Narragansett 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, 1956

1955-1956	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*					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		Water Pumped Mil. Gals.	Operated		Water Pumped Mil. Gals.	KWH	Cost	†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																	
Oct.	1	19-00	2.70	19	311-15	44.47	12,320	\$ 321.30	2	2-00	0.30	0	16	2	2-00	0.25	0	15			47.72	1.54	0				
Nov.	30	557-15	79.02	0	0	0	30,660	538.71	2	2-00	0.28	0	15	2	2-00	0.27	0	16	79.57	2.65	200						
Dec.	31	556-15	79.06	0	0	0	29,540	533.73	0	0	0	0	0	0	0	0	0	0	79.06	2.55	400						
Jan.	31	543-00	77.38	0	0	0	33,600	575.72	2	2-00	0.25	10	16	2	2-00	0.28	10	17	77.91	2.51	395						
Feb.	29	510-00	72.65	0	0	0	29,960	538.97	1	1-00	0.14	4	9	1	1-00	0.12	4	8	72.91	2.51	400						
Mar.	31	529-00	75.23	0	0	0	29,680	542.22	1	1-00	0.15	11	15	1	0-45	0.11	9	11	75.49	2.44	397						
Apr.	28	499-30	71.14	0	0	0	30,380	551.51	1	1-00	0.14	0	7	1	1-00	0.13	0	8	71.41	2.38	0						
May	31	559-00	77.65	2	7-15	2.69	28,840	537.51	2	2-30	0.23	0	16	1	0-45	0.10	0	5	80.67	2.60	200						
June	30	488-45	66.26	16	168-30	21.87	32,620	638.90	2	2-00	0.27	0	17	2	2-00	0.24	0	17	88.64	2.95	0						
July	22	242-45	33.57	6	49-00	6.34	23,520	531.81	2	2-00	0.28	0	14	2	2-15	0.27	0	16	40.46	1.31	0						
Aug.	25	282-45	38.01	13	93-00	12.15	23,520	532.44	2	2-00	0.27	0	11	2	2-00	0.27	0	11	50.70	1.64	0						
Sept.	23	161-03	22.15	2	8-30	1.14	11,340	345.60	2	2-00	0.25	10	17	2	2-00	0.25	10	19	23.79	0.79	0						
Totals	312	4948-18	694.82	58	637-30	88.66	315,980	\$6,188.42	19	19-30	2.56	35	153	18	17-45	2.29	33	143	788.33	2.15	1992						

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

TABLE 24
WATER DISTRIBUTION SYSTEM
NEUTACONKANUT DISTRIBUTION RESERVOIR*
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1964

1955- 1956	7 A.M. Statistics on First Day of Month				OPERATING CHARACTERISTICS DURING MONTH											
	Water Level	Storage Mil. Gals.			Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
		Max.	Min.		Avg.†	Max.	Min.	Avg.†	Max.	Min.	Avg.	Max.	Min.	Avg.		
Oct.	226.50	41.21		226.66	223.53	226.18	41.50	35.99	40.65	2.61	0.71	1.97	4.59	1.05	3.48	
Nov.	226.10	40.51		226.50	223.54	226.18	41.21	36.01	40.65	2.72	1.38	2.12	4.85	2.42	3.72	
Dec.	226.25	40.77		226.95	223.60	226.10	42.01	36.12	40.51	2.68	1.25	2.11	4.72	1.82	3.61	
Jan.	225.65	39.72		226.63	223.30	226.19	41.45	35.59	40.67	2.96	0.88	2.09	5.20	1.54	3.69	
Feb.	226.28	40.83		226.60	225.78	226.25	41.39	39.95	40.77	2.92	1.23	2.16	5.13	2.17	3.81	
Mar.	226.18	40.65		226.38	223.69	226.13	41.00	36.27	40.57	2.39	1.08	1.74	4.21	1.89	3.06	
Apr.	226.10	40.51		226.54	223.43	226.20	41.28	35.82	40.69	2.69	0.85	1.89	4.73	1.50	3.32	
May	226.20	40.69		226.59	223.00	226.18	41.37	35.06	40.65	3.51	0.86	2.04	6.17	1.51	3.59	
June	226.08	40.48		226.67	222.63	226.33	41.52	34.41	40.91	3.78	1.04	2.19	6.64	1.83	3.84	
July	226.54	41.28		226.66	223.37	226.24	41.50	35.71	40.76	3.07	0.61	2.06	5.40	1.08	3.43	
Aug.	226.48	41.18		226.58	223.08	226.23	41.36	35.20	40.74	3.18	0.68	2.05	5.59	1.20	3.61	
Sept.	226.39	41.02		226.56	223.35	226.26	41.32	35.68	40.79	2.99	0.57	2.01	5.25	1.01	3.53	
For Year	—	—		226.95	222.63	226.23	42.01	34.41	40.74	3.78	0.57	2.04	6.64	1.01	3.56	

*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, 1956

1955- 1956	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.	304.74	11.82		305.75	302.75	304.56	12.28	10.90	11.73	2.46	1.19	1.75
Nov.	303.87	11.41		305.32	302.96	304.40	12.09	10.99	11.66	2.23	1.13	1.60
Dec.	304.50	11.71		305.37	302.88	304.49	12.11	10.95	11.70	2.12	1.35	1.69
Jan.	304.40	11.66		305.39	302.57	304.39	12.12	10.81	11.65	2.47	1.34	1.79
Feb.	304.38	11.65		305.35	304.74	304.41	12.10	11.82	11.66	2.40	1.22	1.73
Mar.	305.05	11.96		305.58	302.82	304.52	12.21	10.93	11.71	2.39	1.03	1.71
Apr.	304.30	11.61		305.48	302.87	304.44	12.16	10.95	11.68	2.46	1.19	1.82
May	304.23	11.58		305.54	302.42	304.62	12.19	10.74	11.76	3.08	1.03	1.84
June	304.80	11.85		305.57	300.59	304.59	12.20	9.89	11.75	4.66	1.54	2.57
July	304.38	11.65		305.53	300.26	304.75	12.18	9.74	11.82	4.80	0.92	2.40
Aug.	304.71	11.80		305.63	301.52	304.91	12.23	10.32	11.90	3.69	0.96	2.35
Sept.	304.85	11.87		305.42	302.88	304.72	12.13	10.95	11.81	2.30	0.98	1.95
For Year	—	—		305.75	300.26	304.52	12.28	9.74	11.71	4.80	0.92	1.93
										2.23	0.37	0.89

*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, 1956

	PIPE LAID IN FEET (Including Pipe Replaced)					PIPE REMOVED IN FEET (Including Pipe Replaced)				
	6"	8"	12"	16"	Totals	6"	8"	12"	16"	Totals
Providence.....	8,877.63	2,114.94	888.51	2,072.10	13,953.18	3,385.77	1,690.00	1,839.22	1,005.00	7,919.99
Cranston.....	12,680.04	7,142.89	3,213.19	0	23,036.12	5,382.30	0	0	0	5,382.30
Johnston.....	10,049.86	3,835.89	30.90	0	13,916.65	0	0	0	0	0
North Providence..	6,691.40	4,575.87	0	0	11,267.27	73.20	0	0	0	73.20
Smithfield	0	0	146.00	0	146.00	0	0	0	0	0
Pawtucket.....	0	0	0	0	0	0	0	0	0	0
Totals.....	38,298.93	17,669.59	4,278.60	2,072.10	62,319.22	8,841.27	1,690.00	1,839.22	1,005.00	13,375.49

	NET LENGTH IN FEET ADDED TO DISTRIBUTION SYSTEM					PIPE REPLACED IN FEET				
	6"	8"	12"	16"	Totals	6"	8"	12"	16"	Totals
Providence.....	+5,491.86	+424.94	-950.71	+1,067.10	+6,033.19	278.40	0	0	588.12	866.52
Cranston.....	+7,297.74	+7,142.89	+3,213.19	0	+17,653.82	*5,389.00	0	0	0	5,389.00
Johnston.....	+10,049.86	+3,835.89	+30.90	0	+13,916.65	0	0	0	0	0
North Providence..	+6,618.20	+4,575.87	0	0	+11,194.07	**73.20	0	0	0	73.20
Smithfield	0	0	+146.00	0	+146.00	0	0	0	0	0
Pawtucket.....	0	0	0	0	0	0	0	0	0	0
Totals.....	+29,457.66	+15,979.59	+2,439.38	+1,067.10	+48,943.73	5,740.60	0	0	588.12	6,328.72

*2,872.55' of 6-inch replaced with 12-inch.
 * 479.30' of 6-inch replaced with 8-inch.
 ** 73.20' of 6-inch replaced with 8-inch.

TABLE 27

PUBLIC WATER MAINS IN USE ON SEPT. 30, 1956																SPECIAL HIGH PRESSURE FIRE SERVICE	
Diameter of Pipe	Providence*		Cranston		Johnston		N. Providence		Pawtucket		Smithfield		Total*		Providence		
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	
6-inch....	1,524,698.58	288.77	589,365.04	111.62	104,142.53	19.72	133,693.06	25.32	870.98	0.16	0	0	2,352,770.19	445.60	82.06	0.02	
8-inch....	320,694.69	60.74	235,748.61	44.65	90,144.96	17.07	74,860.21	14.18	0	0	0	0	721,448.47	136.64	1,577.52	0.30	
10-inch....	14,083.03	2.67	0	0	0	0	0	0	0	0	0	0	14,083.03	2.67	0	0	
12-inch....	230,948.67	43.74	94,483.59	17.89	8,909.12	1.69	28,387.77	5.38	44.88	0.01	146.00	0.03	362,920.03	68.73	6,893.80	1.31	
16-inch....	83,610.48	15.84	3,511.86	0.67	663.46	0.13	0	0	0	0	0	0	37,785.80	16.63	54,865.59	10.39	
20-inch....	16,261.89	3.08	0	0	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	0	0	91,172.82	17.27	4,299.44	0.81	
30-inch....	46,120.89	8.73	29,415.62	5.57	0	0	3,733.40	0.71	0	0	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	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	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	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	0	0	20,570.00	3.90	0	0	
66-inch....	0	0	8,448.00	1.60	0	0	0	0	0	0	0	0	8,448.00	1.60	0	0	
Totals.....	2,316,560.24	438.74	1,006,131.07	190.55	239,941.90	45.44	243,057.83	46.03	915.86	0.17	146.00	0.03	3,806,752.90	720.98	67,718.41	12.83	

*High Pressure Fire Service in Providence not included.

TABLE 28

GATES IN USE ON SEPT. 30, 1956

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	4911	1031	24	658	*265	23	68	34	8	1	10	*7033	0	513	1868	2381	2	14	1	2	1	20	*9434
Cranston	1552	544	0	191	*10	0	11	14	6	10	3	*2341	1	638	0	639	3	5	0	2	3	13	*2993
Johnston	265	161	0	22	*8	0	4	0	0	0	1	*461	0	201	12	213	3	0	0	0	2	5	*679
N. Providence ..	316	137	0	64	0	0	2	0	0	0	0	519	0	238	0	238	0	3	0	0	0	3	760
Totals	7044	1873	24	935	*283	23	85	48	14	11	14	*10354	1	1590	1880	3471	8	22	1	4	6	41	*13866

Note: Above table includes all gates in the special high pressure fire system in Providence (129) 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, 1956

CITY OR TOWN	INSTALLED			REMOVED - REPLACED OR ABANDONED			REPAIRED		
	General		Fire Supply	General		Fire Supply	General		Fire Supply
	Copper 3/4"-2"	Cast Iron 4"-8"	Cast Iron 4"-8"	Lead or Copper 1/2"-2"	Cast Iron 4"-6"	Cast Iron 4"-6"	Lead or Copper 1/2"-2"	Cast Iron 2"-6"	Cast Iron 4"-6"
Providence	414	7	16	224	7	12	33	2	4
Cranston	440	2	2	19	0	0	36	3	0
Johnston	169	0	0	10	0	0	47	0	0
North Providence	173	1	0	9	0	0	9	0	0
Pawtucket	0	0	0	0	0	0	0	0	0
Totals	1196	10	18	262	7	12	135	5	4

Total number of services in the System as of Sept. 30, 1956—67,355.

TABLE 30

SERVICES IN USE ON SEPTEMBER 30, 1956

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"	Total		Lead or Copper ½"-1½"	Cast Iron 4"-8"	Cast Iron 4"-10"	Total		Lead or Copper ½"-2"	Cast Iron 2"-12"	Cast Iron 4"-10"	Total	
Providence	36,430	1,004	728	38,182	54	0	40	94	36,504	1,004	768	38,276			
Cranston	13,981	130(a)	64	14,195	0	0	0	0	13,981	150	64	14,195			
Johnston	2,496	18	6	2,520	1	0	0	1	2,497	18	6	2,521			
North Providence.	2,866	32(b)	7	2,905	0	0	0	0	2,866	32	7	2,905			
Pawtucket	7	0	0	7	0	0	0	0	7	0	0	7			
Totals	55,800	1,204	805	57,809	55	0	40	95	55,855	1,204	845	57,904			

(a) Includes 1-10" Protectus meter on 30" main supplying the City of Warwick.
 (a) Includes 2-6" Protectus meters on 12" service 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 Kent County Water Authority.
 (b) 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

HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1956						
CITY OR TOWN	Providence		Cranston	Johnston	No. Prov.	Totals
	Flush	Post				
New Post Hydrant Installations.....	20		27	0	3	50
Flush Hydrants replaced with Post Hydrants.....	*72		0	8	0	80
Post Hydrants replaced.....	6		13	1	1	21
Flush Hydrants removed or abandoned.....	*15		0	0	0	*15

*Includes 1 Hydrant in Special High Service Fire System.

TABLE 32

TOTAL PUBLIC HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1956**									
CITY OR TOWN	Providence*		Cranston	Johnston		No. Prov.		Totals in Providence, Cranston, Johnston & No. Prov.	
	Flush	Post		Flush	Post	Flush	Post	Flush	Post & Post Combined
Number in System.....	2265	866	647	8	225	235	1973	2273	4246*

*Includes 86 Flush Hydrants and 78 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, 1956

PROVIDENCE

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	252	37	8	84	24	....	3	....	....	....	....	....	408
Empire	1,040	61	1	120	46	2	....	....	2	....	....	....	1,272
Hersey .....	....	....	....	2	3	3	14	71	9	....	....	....	102
Thomson	10,536	1016	427	37	141	....	....	....	....	....	....	....	12,157
Trident	19,427	2014	595	770	1025	103	71	49	7	5	....	....	24,066
Venturi .....	....	....	....	....	....	....	....	....	....	....	....	2	2
TOTALS	31,255	3128	1031	1013	1239	108	88	120	18	5	....	2	38,007

*** CRANSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	16	....	2	4	....	....	....	....	....	....	....	....	22
Empire	195	5	3	10	5	....	....	....	....	....	....	....	218
Hersey .....	....	....	....	....	....	....	....	4	4	....	....	....	8
Thomson	3,014	90	49	1	13	....	....	....	....	....	....	....	3,167
Trident	9,841	456	151	123	115	3	9	11	3	1	1	....	10,714
Venturi .....	....	....	....	....	....	....	....	....	....	....	....	....	1
TOTALS	13,066	551	205	138	133	3	9	15	7	1	2	....	*14,130

*Includes 1-6" Trident Compound Meter supplying City of Warwick.
2-8" Trident Protectus Meters 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	334	21	8	....	2	....	....	....	....	....	....	....	365
Trident	1,738	134	23	22	12	....	....	....	1	....	....	....	1,930
TOTALS	2,073	155	31	26	14	....	....	....	1	....	....	....	*2,300

*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	499	14	9	1	1	....	....	....	....	....	....	....	524
Trident	2,100	149	55	18	11	2	2	1	....	....	1	....	2,339
TOTALS	2,604	163	65	19	13	2	2	6	....	....	1	....	*2,875

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

TABLE 34

CONSUMPTION OF WATER — MILLION GALLONS

YEAR ENDED SEPTEMBER 30, 1956

1955- 1956	LOW SERVICE*				HIGH SERVICE†				TOTAL SERVICE*†				1955- 1956
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	
Oct.	39.66	24.46	34.01	1,054.21	6.87	5.65	6.28	194.79	46.19	30.11	40.29	1,249.00	Oct.
Nov.	37.34	21.95	32.18	965.42	6.72	5.31	6.12	183.55	43.72	27.61	38.30	1,148.97	Nov.
Dec.	40.75	24.48	32.12	995.84	6.48	5.50	6.06	187.67	46.76	29.98	38.18	1,183.51	Dec.
Jan.	37.19	22.21	32.32	1,002.12	6.55	5.42	6.10	189.04	43.35	27.63	38.42	1,191.16	Jan.
Feb.	38.21	23.07	33.25	964.35	6.61	5.56	6.06	175.65	44.67	28.75	39.31	1,140.00	Feb.
Mar.	37.42	24.15	32.31	1,001.72	6.36	5.57	6.06	187.81	43.71	29.72	38.37	1,189.53	Mar.
Apr.	37.55	22.12	32.44	973.14	6.67	5.51	6.12	183.50	44.02	27.68	38.55	1,156.64	Apr.
May	41.22	23.28	33.66	1,043.54	7.22	5.33	6.42	198.98	48.07	28.81	40.08	1,242.52	May
June	57.55	23.56	41.48	1,244.48	11.63	5.75	8.02	240.35	68.79	29.31	49.50	1,483.03	June
July	53.66	24.33	37.76	1,170.72	11.19	5.50	7.17	222.21	64.56	29.95	44.93	1,392.93	July
Aug.	51.10	27.69	41.20	1,277.28	9.91	5.80	7.66	237.47	61.00	33.96	48.86	1,514.75	Aug.
Sept.	46.28	24.77	35.17	1,055.12	8.40	5.61	6.53	196.00	54.67	30.38	41.70	1,251.12	Sept.
For Year	57.53(a)	21.95(b)	34.83	12,747.94	11.63(c)	5.42(d)	6.55	2,397.22	68.79(e)	27.61(f)	41.38	15,145.16	For Year

(a) June 14; (b) November 13

(c) June 15; (d) January 1

(e) June 14; (f) November 13

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

†Includes water supplied to East Smithfield Water Co.

TABLE 35
WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK
 YEAR ENDED SEPT. 30, 1956

1955- 1956	STATE INSTITUTIONS					CITY OF WARWICK						
	S.S. 50,767 Sackanosset Rd. Cranston	12"x5.50" Venturi Meter	SS24,215A East St. Cranston		Avg. Gallons per Day	S.S. 47,269 Petta- consett Cranston	S.S. 47,475 Pawtuxet Bridge Cranston	S.S. 61,515 Oaklawn Avenue Cranston	S.S. 61,780 Dresden Street Cranston	Total Gallons per Month	Avg. Gallons per Day	
			8" Tri-Prot. Meter	Gallons per Month								
Oct. . .	39,396,000		0		1,270,838	51,100,900	1,234,950	3,521,925	3,504,000	59,361,775	1,914,895	
Nov. . .	41,473,000		0		1,382,433	43,702,900	1,681,350	3,900,300	4,130,100	53,414,650	1,780,488	
Dec. . .	40,484,000		0		1,305,935	46,581,100	896,475	3,619,200	3,641,325	54,738,100	1,765,745	
Jan. . .	42,571,000		0		1,373,238	49,298,100	0	3,744,525	3,842,400	56,885,025	1,835,000	
Feb. . .	40,218,000		0		1,386,827	44,632,600	0	3,507,450	3,489,150	51,629,200	1,780,317	
Mar. . .	37,627,000		0		1,213,774	47,167,400	0	3,569,175	5,707,200	56,443,775	1,820,766	
Apr. . .	43,573,000		0		1,452,433	54,094,000	0	4,116,600	4,805,625	63,016,225	2,100,540	
May. . .	39,102,000		0		1,261,354	54,546,400	0	4,178,250	5,366,275	64,290,925	2,073,900	
June. . .	39,546,000	364,725			1,330,357	94,019,000	2,980,500	10,179,375	21,120,600	128,299,475	4,276,649	
July. . .	36,936,000	57,450			1,193,337	73,378,600	2,012,757	6,038,400	19,983,000	102,312,757	3,300,411	
Aug. . .	41,720,000	155,325			1,350,816	94,413,100	2,012,757	9,389,775	19,992,900	125,808,532	4,058,339	
Sept. . .	33,772,000	81,375			1,128,445	53,690,600	2,012,757	3,867,750	5,079,600	64,650,707	2,155,023	
For Year	476,418,000	658,875			1,303,488	706,624,700	12,831,546	60,532,725	100,862,175	880,851,146	2,406,697	

TABLE 36
WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND
KENT COUNTY WATER AUTHORITY
FOR YEAR ENDED SEPT. 30, 1956

1955- 1956	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. ..	3,877,500	3,285,000	7,162,500	231,048	0	11,181,000	11,181,000	360,677
Nov. ..	4,898,250	2,628,000	7,526,250	250,875	0	12,577,000	12,577,000	419,233
Dec. ..	4,534,500	2,637,750	7,172,250	231,362	0	13,667,000	13,667,000	440,870
Jan. ..	5,001,000	2,784,750	7,785,750	251,153	0	12,744,000	12,744,000	411,096
Feb. ..	4,212,000	2,498,250	6,710,250	231,387	0	11,498,000	11,498,000	396,482
Mar. ..	4,017,750	2,522,250	6,540,000	210,967	0	11,697,000	11,697,000	377,322
Apr. ..	4,628,250	2,942,250	7,570,500	252,350	0	12,571,000	12,571,000	419,033
May ..	4,444,500	2,502,000	6,946,500	224,080	0	11,851,000	11,851,000	382,290
June ..	5,562,000	2,623,500	8,185,500	272,850	4,616,475	18,187,000	22,803,475	760,115
July ..	4,768,500	2,408,250	7,176,750	231,508	6,092,250	16,662,000	22,754,250	734,008
Aug. ..	5,053,500	3,320,880	8,374,380	270,141	7,527,000	19,585,000	27,112,000	874,580
Sept. ..	3,766,500	3,345,000	7,111,500	237,050	4,218,750	16,185,000	20,403,750	680,125
For Year	54,764,250	33,497,880	88,262,130	241,153	22,454,475	168,405,000	190,859,475	521,473

*Temporary Supply opened on June 14, 1956.

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	7.55	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	12.33	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	27.06	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	26.13	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	34.32
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	37.35	39.34	39.21	36.08
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	36.64
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
1956.....	40.29	38.30	38.18	38.42	39.31	38.37	38.55	40.08	49.50	44.93	48.86	41.70	41.49

†Average for 9 months

TABLE 38
FINANCIAL STATEMENT OF THE PROVIDENCE
WATER SUPPLY BOARD FOR THE YEAR
ENDED SEPT. 30, 1956

REVENUE	
Water Rents	†\$2,236,331.86
Hydrant Rental	79,095.01
Electric Power	49,500.76
Setting Meters	6,793.50
Repairing Meters	1,642.86
Rents from Non-Operating Property	1,099.94
Repairs to Water Services	2,124.68
Repairs to Distribution Mains	4,404.02
Repairs to Hydrants	962.02
Installation of New Fire Supplies	4,397.00
Installation of New Water Services	65,837.00
Installation of New Water Mains	131,354.98
Revolving Fund—Water Meters	14,551.08
Sale of Scrap Iron, Brass, Lead, Etc.	8,286.26
Sale of Lumber, Pulpwood, Etc.	596.16
Sale of Obsolete Equipment	166.75
Sundries.	903.59
Total Revenue	\$2,608,047.47

DISBURSEMENTS	
Operating Expense:	
Salaries.	\$636,623.13
Services Other Than Personal	90,893.31
Materials and Supplies	223,865.47
Special Items	5,857.92
Capital Outlay	34,986.14
Land and Buildings	3,710.00
Other Structures and Improvements	
Water Main Extensions	281,983.91
Total Operating Expense	*\$1,277,919.88
Taxes.	225,563.69
Interest on Bonds	610,000.00
Employees' Retirement System	41,861.55
Social Security F.O.A.S.I.	9,246.84
Depreciation and Extension Fund	200,000.00
Payable to Sinking Fund	** 243,455.51
Total Disbursements	\$2,608,047.47
Gross Water Rents	\$2,303,631.07
Minus Refunds (Current Year) ..	67,200.99
Minus Refunds (Prior Year) ..	98.22
Net Water Rents	†\$2,236,331.86

*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, 1956

ADMINISTRATIVE	
Salaries:	
001 Officials	\$18,495.30
Clerical—Chief Engineer's Office	3,217.35
Clerical—Accounting	33,282.84
Engineering	47,930.60
Labor—General	9,456.40
008 Sick Leave Payrolls	1,868.31
009 Vacation Payrolls	3,551.12
Total	\$117,801.92
Services Other Than Personal:	
109 Fees Not Otherwise Classified	\$ 146.00
111 Telephone and Telegraph	1,760.32
112 Postage, Freight and Express	35.50
118 Travel Subsistence—Other	6.43
121 Printing, Binding and Reproduction Services	1,477.92
122 Advertising	244.19
131 Light and Power	1,282.42
141 Repairs—Office Machinery	296.44
142 Repairs—Automobiles	66.42
146 Repairs—Plant Equipment	59.99
149 Repairs—Other Equipment	49.30
150 Repairs—Structures and Improvements	957.00
151 Maintenance and Servicing	115.20
181 Laundry and Cleaning	75.00
183 Dues and Subscriptions	118.60
199 Miscellaneous Services	7,573.30
Total	\$14,264.03
Outstanding Commitments	510.08
Total—Services Other Than Personal	\$ 14,774.11
Materials and Supplies:	
201 Stationery and Office Supplies	\$ 1,067.47
211 Motor Fuel	424.51
212 Lubricants	34.85
213 Tires and Tubes	335.52
214 Repair Parts and Supplies—Trucks and Autos	128.00
231 Medical, Chemical and Laboratory Supplies	4.65
241 Fuel	885.21
244 Housekeeping Supplies	132.90
252 Seeds, Fertilizer, Trees and Shrubs	128.42
259 Other Agricultural, Horticultural and Land- scaping Supplies	13.72
267 Paint and Painters' Supplies	7.48
268 Plumbing and Electrical Supplies	23.45
272 Valves and Fittings	21.80
299 Miscellaneous Materials and Supplies	254.01
Total	\$ 3,461.99
Outstanding Commitments	41.18
Total—Materials and Supplies	\$ 3,503.17
Capital Outlay:	
501 Office Furniture, Machinery and Equipment	\$ 2,260.00
502 Books, Maps and Charts	173.08
511 Automobiles	1,210.56
Total	\$ 3,643.64
Outstanding Commitments	4.00
Total—Capital Outlay	\$ 3,647.64
Total—Administrative	\$139,726.84

SOURCE OF SUPPLY

Hydro Electric Station:

Salaries:	
001 Labor—Operation.	\$ 7,424.89
Repairs—Structures and Improvements.	14.49
Repairs—Machinery and Equipment.	153.73
Total.	\$ 7,593.11

Services Other Than Personal:	
111 Telephone and Telegraph.	\$ 163.56
142 Repairs—Trucks and Autos.	22.25
146 Repairs—Plant Equipment.	478.94
151 Repairs—Machinery and Equipment.	61.50
199 Miscellaneous Services.	425.00
Total.	\$ 1,151.25

Materials and Supplies:	
201 Stationery and Office Supplies.	\$ 90.77
202 Small Tools and Shop Supplies.	12.25
212 Lubricants.	66.97
214 Repair Parts and Supplies—Trucks and Autos.	40.10
222 Repair Parts and Supplies—Plant Equipment.	47.30
241 Fuel.	136.20
266 Lumber and Hardware.	58.96
268 Plumbing and Electrical Supplies.	254.13
Total.	\$ 706.68

Capital Outlay:	
591 Equipment Not Otherwise Classified.	\$ 1,780.00
Total.	\$ 1,780.00

Water Purification Plant:

Salaries:	
001 Supervision.	\$15,219.90
Labor—Operation.	32,307.30
Technical.	19,647.04
Clerical—Laboratory.	1,089.60
Repairs—Structures and Improvements.	759.75
Repairs—Machinery and Equipment.	5,822.22
Repairs—Care of Grounds.	1,964.02
Total.	\$ 76,809.83

Services Other Than Personal:	
102 Expert Consultant and Other Service Fees.	\$ 12.00
111 Telephone and Telegraph.	1,012.02
112 Postage, Freight and Express.	88.67
121 Printing and Binding.	1.23
141 Repairs—Office Machinery.	34.40
142 Repairs—Trucks and Autos.	239.87
146 Repairs—Plant Equipment.	1,434.67
150 Repairs—Structures and Improvements.	783.00
151 Maintenance and Servicing.	468.42
181 Laundry and Cleaning.	272.86
183 Dues and Subscriptions.	6.25
199 Miscellaneous Services.	364.00
Total.	\$ 4,717.39

Materials and Supplies:	
201 Stationery and Office Supplies.	\$ 493.44
202 Small Tools and Shop Supplies.	225.67
204 Wearing Apparel and Personal Supplies.	274.84
211 Motor Fuel.	315.12
212 Lubricants.	25.73
213 Tires and Tubes.	43.69
214 Repair Parts and Supplies—Trucks and Autos.	60.61
222 Repair Parts and Supplies—Plant Equipment.	1,514.96

229	Repair Parts and Supplies—Other Equipment	212.61	
231	Ferric Sulphate	41,216.88	
231	Lime	13,773.69	
231	Chlorine	4,777.50	
231	Sodium Silico Fluoride	17,985.89	
231	Miscellaneous Chemical Supplies	93.51	
231	Miscellaneous Laboratory Supplies	1,185.92	
241	Fuel	5,710.62	
244	Housekeeping Supplies	342.54	
252	Seeds, Fertilizer, Trees and Shrubs	129.47	
259	Other Agricultural, Horticultural and Landscaping Supplies	1.80	
260	Loam	150.00	
265	Fabricated Metal Products	101.06	
266	Lumber and Hardware	605.46	
267	Paint and Painters' Supplies	289.95	
268	Plumbing and Electrical Supplies	1,872.75	
271	Pipe	2,819.55	
272	Valves and Fittings	56.39	
279	Water System Materials and Supplies Not Otherwise Classified	31.14	
299	Miscellaneous Materials and Supplies	440.17	
Total		\$	94,750.96
Special Items:			
302	Liability Insurance	\$	67.92
Total		\$	67.92
Capital Outlay:			
502	Books, Maps and Charts	\$	106.40
511	Trucks and Autos	1,239.81	
561	Shop and Plant Equipment	3,768.00	
571	Agricultural and Landscaping Equipment	87.00	
591	Equipment Not Otherwise Classified	1,756.17	
Total		\$	6,957.38
Land and Buildings:			
612	Improvements to Buildings	\$	3,710.00
Total		\$	3,710.00
Scituate Reservoir:			
Salaries:			
001	Labor—Operation	\$	2,915.36
	Repairs—Care of Grounds	652.90	
Total		\$	3,568.26
Services Other Than Personal:			
111	Telephone and Telegraph	\$	156.95
142	Repairs—Trucks and Autos	22.71	
Total		\$	179.66
Materials and Supplies:			
213	Tires and Tubes	\$	287.34
214	Repair Parts and Supplies—Trucks and Autos	56.65	
Total		\$	343.99
Other Reservoirs:			
Salaries:			
001	Labor—Operation	\$	3,298.02
	Repairs—Structures and Improvements	86.45	
Total		\$	3,384.47
Services Other Than Personal:			
142	Repairs—Trucks and Autos	\$	70.29
Total		\$	70.29

Materials and Supplies:		
213	Tires and Tubes.....	\$ 165.65
214	Repair Parts and Supplies—Trucks and Autos	36.83
	Total.	\$ 202.48
Reforestation:		
Salaries:		
001	Supervision.	\$ 4,615.75
	Labor—Operation.	995.70
	Repairs—Structures and Improvements.....	50.70
	Repairs—Machinery and Equipment.....	38.40
	Repairs—Care of Grounds.....	10,450.75
	Total.	\$ 16,151.30
Services Other Than Personal:		
102	Expert Consultant and Other Service Fees..	\$ 18.00
142	Repairs—Trucks and Autos.....	143.69
183	Dues and Subscriptions.....	7.50
199	Miscellaneous Services	19.50
	Total.	\$ 188.69
Materials and Supplies:		
204	Wearing Apparel and Personal Supplies....	\$ 178.71
214	Repair Parts and Supplies—Trucks and Autos	8.46
229	Repair Parts and Supplies—Other Equipment	8.28
241	Fuel.	453.21
244	Housekeeping Supplies and Minor Equipment	58.31
252	Seeds, Fertilizer, Trees and Shrubs.....	475.00
259	Other Agricultural, Horticultural and Land- scaping Supplies	462.00
267	Paint and Painters' Supplies.....	40.97
	Total.	\$ 1,684.94
Capital Outlay:		
502	Books, Maps and Charts.....	\$ 15.20
	Total.	\$ 15.20
Real Estate:		
Salaries:		
001	Repairs—Care of Grounds.....	\$ 34.00
	Total.	\$ 34.00
Materials and Supplies:		
261	Gravel, Sand and Stone.....	\$ 100.00
	Total.	\$ 100.00
General:		
Salaries:		
001	Clerical.	\$ 844.80
	Labor—Operation.	4,734.50
	Repairs—Structures and Improvements.....	667.70
	Repairs—Machinery and Equipment.....	174.91
	Repairs—Care of Grounds.....	3,719.50
	Repairs—Care of Grounds—Rockland Ceme- tery.	547.40
008	Sick Leave Payrolls.....	4,439.11
009	Vacation Payrolls	3,290.06
025	Injured Employees' Payrolls.....	10.40
	Total.	\$ 18,428.38
Services Other Than Personal:		
109	Fees Not Otherwise Classified.....	\$ 40.00
121	Printing and Binding.....	1.59
142	Repairs—Trucks and Autos.....	333.04
	Total.	\$ 374.63

Materials and Supplies:		
201	Stationery and Office Supplies.....	\$ 54.33
202	Small Tools and Shop Supplies.....	47.04
204	Wearing Apparel and Personal Supplies.....	58.46
211	Motor Fuel	811.15
212	Lubricants.	104.55
213	Tires and Tubes.....	268.87
214	Repair Parts and Supplies—Trucks and Autos	1,300.19
222	Repair Parts and Supplies—Plant Equipment	357.75
231	Medical, Chemical and Laboratory Supplies	10.41
244	Housekeeping Supplies and Minor Equipment	83.78
259	Other Agricultural, Horticultural and Land-scaping Supplies	76.96
262	Cement, Plaster and Related Products.....	68.60
265	Fabricated Metal Products.....	21.93
266	Lumber and Hardware.....	1.47
267	Paint and Painters' Supplies.....	84.22
299	Miscellaneous Materials and Supplies.....	56.42
Total.		\$ 3,406.13
Outstanding Commitments—Services Other Than Personal.		\$ 7,545.75
Outstanding Commitments—Materials and Supplies..		8,850.65
Outstanding Commitments—Capital Outlay.....		15,106.44
Total—Source of Supply.....		\$277,879.78

TRANSMISSION AND DISTRIBUTION

Pumping Station:

Salaries:		
001	Labor—Operation.	\$14,602.00
	Repairs—Machinery and Equipment.....	4.13
Total.		\$ 14,606.13
Services Other Than Personal:		
111	Telephone and Telegraph.....	\$ 351.88
131	Light and Power.....	14,639.47
146	Repairs—Plant Equipment	98.30
150	Repairs to Buildings.....	178.00
151	Maintenance and Servicing.....	40.65
181	Laundry and Cleaning.....	36.00
199	Miscellaneous Services	15.00
Total.		\$ 15,359.30

Materials and Supplies:		
201	Stationery and Office Supplies.....	\$ 438.89
211	Motor Fuel	179.70
212	Lubricants.	34.43
214	Repair Parts and Supplies—Trucks and Autos	53.98
222	Repair Parts and Supplies—Plant Equipment	35.45
241	Fuel.	859.79
244	Housekeeping Supplies	14.97
252	Seeds, Fertilizer, Trees and Shrubs.....	38.95
259	Other Agricultural, Horticultural and Land-scaping Supplies	71.33
260	Loam.	120.00
268	Plumbing and Electrical Supplies.....	51.94
Total.		\$ 1,899.43

Pipe Lines:

Salaries:		
001	Supervision.	\$ 6,650.40
	Clerical.	6,820.45
	Labor—Operation.	80,815.68
	Repairs—Structures and Improvements.....	72.37
	Repairs—Trucks and Autos.....	6,842.77
	Repairs—Care of Grounds.....	7,790.43
	Repairs—Transmission Mains	1,292.52

Repairs—Distribution Mains	12,345.14
Repairs—Gates and Valves.....	8,164.51
Repairs—Hydrants.	4,774.19
Repairs—Services.	12,970.00
New Work—Distribution Mains.....	2,442.53
New Work—Gates and Valves.....	2,524.21
New Work—Hydrants	8,951.96
New Work—Services	46,949.11
New Work—Meters (Emergency).....	429.70
Retirement Work—Distribution Mains	540.81
Retirement Work—Gates and Valves.....	1,330.99
Retirement Work—Hydrants.	3,364.82
Retirement Work—Services.	2,854.83
Total.	\$217,927.42

Services Other Than Personal:

102 Expert Consultant and Other Service Fees.. \$	30.00
109 Fees Not Otherwise Classified.....	36.00
111 Telephone and Telegraph.....	3,112.00
112 Postage, Freight and Express.....	43.63
116 Transportation of Persons—Other.....	7.46
118 Travel Subsistence—Other	1.40
121 Printing and Binding.....	4.16
122 Advertising.	225.12
131 Light and Power.....	361.07
141 Repairs—Office Machinery	21.23
142 Repairs—Trucks and Autos.....	839.34
143 Repairs—Construction and Other Automotive Equipment.	816.14
150 Repairs to Buildings.....	554.96
153 Repairs—Street Openings	6,486.06
165 Rental of Land.....	10.00
181 Laundry and Cleaning.....	75.00
199 Miscellaneous Services	2,382.05
Total.	\$ 15,005.62

Materials and Supplies:

201 Stationery and Office Supplies..... \$	447.08
202 Small Tools and Shop Supplies.....	1,728.13
204 Wearing Apparel and Personal Supplies.....	464.56
211 Motor Fuel	2,684.87
212 Lubricants.	278.43
213 Tires and Tubes.....	492.62
214 Repair Parts and Supplies—Trucks and Autos	2,497.61
231 Medical, Chemical and Laboratory Supplies..	135.00
241 Fuel.	1,231.55
244 Housekeeping Supplies and Minor Equipment	9.55
259 Other Agricultural, Horticultural and Land- scaping Supplies	5.29
261 Gravel, Sand and Stone.....	539.27
262 Cement, Plaster and Related Products.....	205.80
265 Fabricated Metal Products.....	314.80
266 Lumber and Hardware.....	929.70
267 Paint and Painters' Supplies.....	96.09
268 Plumbing and Electrical Supplies.....	1,866.04
271 Pipe—Cast Iron	4,024.82
271 Pipe—Service.	13,432.29
271 Pipe—Other.	354.67
272 Hydrants, Valves and Fittings.....	51,846.60
272 Gates and Valves.....	9,155.90
279 Water System Materials and Supplies Not Otherwise Classified	9.75
299 Miscellaneous Materials and Supplies.....	377.80
Total.	\$ 93,128.22

Special Items:

331 Payment of Claims and Damages..... \$	630.00
343 Appropriation to set up Transmission and Distribution Revolving Account.....	5,000.00
Total.	\$ 5,630.00

Capital Outlay:	
501 Office Furniture, Machinery and Equipment	\$ 175.52
512 Trucks and Tractors.....	2,715.39
521 Construction and Engineering Equipment...	443.15
561 Shop and Plant Equipment.....	787.92
Total.	\$ 4,121.98

Other Structures and Improvements:	
721 New Main Extensions.....	\$224,204.51
Total.	\$224,204.51

Distribution Reservoirs:

Services Other Than Personal:	
111 Telephone and Telegraph.....	\$ 119.50
131 Light and Power.....	23.20
Total.	\$ 142.70

General:

Salaries:	
001 Labor—Operation.	\$ 5,025.47
Repairs—Structures and Improvements.....	2,020.29
Repairs—Trucks and Autos.....	2,300.84
008 Sick Leave Payrolls.....	8,276.63
009 Vacation Payrolls	8,372.90
025 Injured Employees' Payrolls.....	240.16
Total.	\$ 26,236.29

Services Other Than Personal:	
106 Expert Consultant and Other Service Fees..	\$ 275.00
109 Fees Not Otherwise Classified.....	2.00
112 Postage, Freight and Express.....	2.88
199 Miscellaneous Services	9.50
Total.	\$ 289.38

Materials and Supplies:	
202 Small Tools and Shop Supplies.....	\$ 94.66
222 Repair Parts and Supplies—Plant Equipment	261.66
259 Other Agricultural, Horticultural and Land-scaping Supplies	1.71
265 Fabricated Metal Products.....	13.35
266 Lumber and Hardware.....	156.66
Total.	\$ 528.04

Outstanding Commitments—Services Other Than Personal.	\$ 3,738.81
Outstanding Commitments—Materials and Supplies....	2,453.58
Outstanding Commitments—Capital Outlay.....	165.00
Outstanding Commitments—New Main Extensions.....	57,779.40

Total—Transmission and Distribution.....\$683,215.81

METERING

Salaries:	
001 Supervision.	\$ 10,913.14
Clerical.	38,762.59
Labor—Operation.	32,229.80
Repairing Meters	11,888.69
Removing and Setting Meters.....	14,781.90
Testing Meters	3,200.79
Inspection—Services.	3,224.00
General Operation	9,122.63
008 Sick Leave Payrolls.....	4,675.66
009 Vacation Payrolls	5,198.82
025 Injured Employees' Payrolls.....	84.00
Total.	\$134,082.02

Services Other Than Personal:

102	Expert Consultant and Other Service Fees..	\$ 30.00
109	Fees Not Otherwise Classified.....	20.00
111	Telephone and Telegraph.....	2,193.80
112	Postage, Freight and Express.....	450.76
116	Transportation of Persons—Carfares.....	571.70
121	Printing and Binding.....	35.00
131	Light and Power.....	1,282.34
141	Repairs—Office Machinery, Furniture and Furnishings.....	723.69
142	Repairs—Trucks and Autos.....	677.37
181	Laundry and Cleaning.....	150.00
199	Miscellaneous Services.....	21,087.51
Total.....		\$ 27,222.17

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 2,452.36
202	Small Tools and Shop Supplies.....	428.09
204	Wearing Apparel and Personal Supplies....	108.50
211	Motor Fuel.....	1,045.14
212	Lubricants.....	153.00
213	Tires and Tubes.....	30.65
214	Repair Parts and Supplies—Trucks and Autos	512.96
231	Medical, Chemical and Laboratory Supplies..	82.41
241	Fuel.....	935.95
244	Housekeeping Supplies and Minor Equipment	60.50
259	Other Agricultural, Horticultural and Land- scaping Supplies.....	5.29
267	Paint and Painters' Supplies.....	3.02
268	Plumbing and Electrical Supplies.....	442.18
272	Valves and Fittings.....	2,262.28
274	Meter Parts.....	3,141.84
299	Miscellaneous Materials and Supplies.....	12.65
Total.....		\$ 11,676.82

Special Items:

331	Payment of Claims and Damages.....	\$ 160.00
Total.....		\$ 160.00

Capital Outlay:

501	Office Furniture, Machinery and Equipment..	\$ 3,192.50
Total.....		\$ 3,192.50

Outstanding Commitments—Services Other Than Per- sonal.....	133.56
Outstanding Commitments—Materials and Supplies.....	630.28

Total—Metering.....\$177,097.45

TOTAL—OPERATING EXPENSE.....\$1,277,919.88

TABLE 40
STATEMENT OF REVENUE—ESTIMATED AND ACTUAL
FOR THE YEAR ENDED SEPTEMBER 30, 1956

Account	Estimated Revenue	Actual Revenue
Water Rents	\$2,146,000.00	\$2,236,331.86
Hydrant Rental	72,500.00	79,095.01
Electricity.	20,000.00	49,500.76
Stores Account (Meters).....	4,300.00	14,551.08
Repairing and Setting Meters.....	7,000.00	8,436.36
Fire Supplies and Miscellaneous Repairs	9,000.00	11,887.72
New Service Installations.....	50,000.00	65,837.00
New Main Extensions.....	120,000.00	131,354.98
Rentals.	1,200.00	1,099.94
Other miscellaneous Receipts.....	10,000.00	9,952.76
Total.....	\$2,440,000.00	\$2,608,047.47

TABLE 41
SUMMARY OF ANNUAL WATER WORKS REVENUES
1930-1956

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
1956.....	2,236,331.86	371,715.61	2,608,047.47

TABLE 42

STATEMENT OF WATER WORKS
DEPRECIATION AND EXTENSION FUND

	Investment	Cash	Due From Other Funds	Total
Balance Sept. 30, 1955.....	\$574,533.49	\$ 7,823.62	\$362,567.23	\$ 944,924.34
Increase During Year Ended Sept. 30, 1956.....	182,466.51	199,565.56		
Disbursements During Year Ended Sept. 30, 1956.....			362,567.23	
Accounts Receivable Year Ended Sept. 30, 1956.....			200,000.00	
Balance Sept. 30, 1956.....	\$757,000.00	\$207,389.18	\$200,000.00	\$1,164,389.18

TABLE 43

STATEMENT OF WATER WORKS
DEPOSIT AND REFUND ACCOUNT

Cash Balance Sept. 30, 1955.....	\$39,868.00
Receipts for Year Ended Sept. 30, 1956.....	NIL
Total Available	\$39,868.00
Disbursements for Year Ended Sept. 30, 1956.....	\$11,649.00
Accounts Payable for Year Ended Sept. 30, 1956.....	NIL
Total Deductions	11,649.00
Cash Balance Sept. 30, 1956.....	\$28,219.00

TABLE 44

**STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING
AND SINKING FUND REQUIREMENTS ON A 3% BASIS
AS OF SEPTEMBER 30, 1956**

Bonds Payable from Sinking Fund	Rate of Int. %	Year of		Bonds		Sinking Fund Requirements On a 3% Basis
		Issue	Maturity	Issued	Outstanding	
Water Supply	4½	1922	1962	\$1,000,000.00	\$1,000,000.00	\$ 780,952.33
" "	4	1922	1962	2,000,000.00	2,000,000.00	1,550,420.07
" "	4	1932	1962	1,000,000.00	1,000,000.00	729,046.07
" "	4	1922	1962	2,500,000.00	2,500,000.00	1,871,812.10
" "	4½	1924	1964	2,000,000.00	2,000,000.00	1,420,475.53
" "	4	1924	1964	1,500,000.00	1,500,000.00	1,024,573.73
" "	4	1925	1965	2,500,000.00	2,500,000.00	1,670,320.45
" "	4	1928	1968	1,500,000.00	1,500,000.00	873,118.73
Total Water Supply Debt and Sinking Fund Requirements.....					\$14,000,000.00	\$9,920,719.01
Sinking Fund Assets Allocated to Water Supply debt per City Controller's Report on Sinking Fund Sept. 30, 1956 (Includes \$243,455.51* Water Operating Balance for Year Ended Sept. 30, 1956 plus Prior Year Adjustments of \$9,833.20 or a total of \$253,288.71).....						\$9,929,446.65
Amount in Excess of Requirements on 3% Basis.....						\$ 8,727.64

*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, 1956**

REMOVABLE PROPERTY INVENTORY.....	\$117,156.90
SOURCE OF SUPPLY:	
Hydro Electric Station.....	\$ 10,432.13
Purification Works	22,799.11
Laboratory.	5,012.45
General.	3,305.06
	41,548.75
TRANSMISSION AND DISTRIBUTION:	
Pipe Lines	\$100,782.91
Pumping Stations	272.17
Garage.	6,339.97
	107,395.05
METERING:	34,653.73
SUPPLIES:	2,034.84
Total Personal Property Inventory.....	\$302,789.27

TABLE 46

**STATEMENT OF STORES REVOLVING FUND
FOR THE YEAR ENDED SEPT. 30, 1956**

Cash Balance Sept. 30, 1955.....	\$10,000.00
Outstanding Commitments Sept. 30, 1955.....	15,284.40
Receipts—Oct. 1, 1955 to Sept. 30, 1956.....	52,063.55
Total Available	<u>\$77,347.95</u>
Disbursements Sept. 30, 1956.....	\$31,978.67
Outstanding Commitments Sept. 30, 1956.....	20,818.20
Transferred as Income to General Fund.....	14,551.08
Total Disbursements	<u>67,347.95</u>
Cash Balance Sept. 30, 1956.....	<u>\$10,000.00</u>

TABLE 47
WATER WORKS PROPERTY IN THE VARIOUS CITIES AND TOWNS
 (VALUATIONS AS OF DECEMBER 31, 1955)

LOCATION OF PROPERTY	LAND AREA (Acres)	VALUATIONS						Tax
		DECLARED			ASSESSED			
		Land	Bldgs. & Imp.	Total	Land	Bldgs. & Imp.	Total	
City of Providence.....	3.03	.....	.....	\$ 350,580.00(a)	\$ 26,380.00	\$ 324,200.00	\$ 350,580.00	4.00
City of Warwick.....	0.06	.....	.....	160.00(b)	160.00	0	160.00	28,857.60
City of Cranston.....	79.43	.....	.....	961,920.00(c)	20,920.00	941,000.00	961,920.00(c)	2,398.00
Town of Foster.....	1,936.04	.....	.....	33,160.00	109,000.00	0	109,000.00	316.27
Town of Gloucester.....	73.30	.....	.....	11,020.00	11,020.00	0	11,020.00	7,778.50
Town of Johnston.....	103.13	.....	.....	331,000.00(d)	38,330.00	292,670.00	331,000.00	4,795.00
Town of North Providence.....	8.58	.....	.....	175,000.00(e)	175,000.00	0	175,000.00(e)	183,330.00
Town of Scituate.....	13,182.24	.....	.....	6,790,000.00(f)	607,000.00	6,183,000.00	6,790,000.00(f)	.....
Total Real Estate.....	15,385.81	.....	.....	\$ 8,652,840.00	\$987,810.00	\$7,740,870.00	\$8,728,680.00	\$227,479.37
Water Distribution System.....	.....	.....	.....	8,479,638.16	.....	.....	.....	.....
Total.....	15,385.81	.....	.....	\$17,132,478.16	\$987,810.00	\$7,740,870.00	\$8,728,680.00	\$227,479.37

(a) Providence—Assessed Valuation.
 (b) Warwick—Assessed Valuation.
 (c) Cranston—Assessed Valuation (\$150,000.00 exemption not included).
 (d) Johnston—Assessed Valuation.
 (e) North Providence—Valuation as per agreement dated March 3, 1953.
 (f) Scituate—Valuation as per agreement dated June 9, 1951.

TABLE 48
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPT. 30, 1956

In form recommended by the New England Water Works Association

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

GENERAL STATISTICS

Population of Providence	253,475
Estimated population supplied in suburbs.....	142,185
Total population supplied.....	395,660
Date of Construction.....	1870-76; 1915-28; 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.....	84.2% by gravity; 15.8% by pumping

STATISTICS OF CONSUMPTION OF WATER

1. Estimated total population to date	
2. Estimated population on lines of pipe	
3. Estimated population supplied	395,660
4. Total consumption for the year, gallons	15,145,161,000
5. Passed through meters, gallons	14,087,763,750
6. Percentage of consumption metered	93.02%
7. Average daily consumption, gallons	41,380,221
8. Gallons per day to each inhabitant	
9. Gallons per day to each consumer	104.6
10. Gallons per day to each tap	714
11. Cost of supplying water, per million gallons, based on total maintenance	\$56.09
12. Cost of supplying water, per million gallons, total maintenance plus fixed charges	\$127.84

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	15,252,543,000
6. Average quantity filtered per day, gallons	41,674,000
7. Total filtered water delivered to the distribution system during the year, gallons	15,143,611,000

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

TABLE 48—Continued
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPT. 30, 1956
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)	48,326.38 feet
4. Discontinued during year	12,975.49 feet
5. Total now in use	720.98 miles
6. Cost of repairs per mile	.....
7. Number of leaks per mile	0.15
8. Length of pipes less than 6 inches in diameter	0
9. Number of hydrants added during year	40
10. Number of hydrants now in use	4,082
11. Number of stop gates added during year	147
12. Number of stop gates now in use	10,225
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 (net))	1,617.35 feet
Discontinued during year	400.00 feet
Total now in use	12.83 miles
Hydrants added during year	0
Hydrants now in use	164
Stop gates added	3
Stop gates now in use	129
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	1,224
22. Number now in use	57,904
23. Average length of services, feet	.....
24. Average cost of service for year	.....
25. Number of meters added	976
26. Number of meters now in use	57,312
27. Percentage of services metered	99.8
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.