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# TRAFFIC ENGINEERING DEPARTMENT



**ANNUAL REPORT**

**1967**

---

**CITY OF PROVIDENCE, RHODE ISLAND**

Frank A. Tibaldi  
~~JOHN L. DOUGAN~~  
Traffic Engineer



JOSEPH A. DOORLEY, JR.  
MAYOR

## TRAFFIC ENGINEERING DEPARTMENT

147 FOUNTAIN ST., PROVIDENCE, R. I. 02903 Telephone 331-7510

February 1, 1968

The Honorable Joseph A. Doorley, Jr.  
Mayor of Providence  
The Honorable City Council  
Providence, Rhode Island

Gentlemen:

We are hereby submitting for your consideration the Annual Report of your Traffic Engineering Department for 1967. This department was established by the adoption of Ordinance No. 592, approved October 21, 1948; and the department has been in active operation since March 1, 1949.

This report is compiled to review the activities of the department, including physical changes that have been made in the street system, changes in traffic regulations, and a breakdown of annual expenditures necessary to continue this effort.

The problem of better use of existing streets will continue to be one of the department's major functions. The modernization program of updating traffic signs, signals and markings will also be continued to bring all traffic devices into national conformity.

The shortage of engineers and technical personnel has slowed the operations of this department. We hope to be able to remedy this situation by reorganizing the department, and requesting new positions for technical employees.

Through your continued support we hope that a safe, efficient transportation system can be assured for Providence.

Very truly yours,

Handwritten signature of Frank A. Tibaldi in cursive script.  
Frank A. Tibaldi  
Traffic Engineer

FAT:gd

IN CITY COUNCIL  
FEB 15 1968

READ:  
WHEREUPON IT IS ORDERED THAT  
THE SAME BE RECEIVED.

Handwritten signature of Vincent Desjardis in cursive script.  
CLERK

## INTRODUCTION

It is the policy of this department to provide the City of Providence with the best possible use of our existing street system.

Processing of the continuous stream of traffic requests and complaints constitutes a large part of the department work. From the time the request is made until the time our crews install the traffic controls on the street, appropriate surveys must be made, and pertinent information compiled to assure a proper evaluation. The principle behind gathering this information is to place any decisions regarding changes in control or regulation on a factual basis, rather than on a basis which relies strictly on personal opinion.

When the decision is made, and the traffic regulation written, notification is sent to the shop superintendent to implement the traffic orders, and copies of the traffic regulation are sent to the Commissioner of Public Safety, various Police divisions, the City Solicitor, the Chamber of Commerce, the appropriate councilmen, and the Press.

All traffic regulation changes are advertised once a month in one issue of the Providence newspaper, in accordance with the provisions of Ordinance No. 592. When the necessary signs, signals, painting, etc., are completed, the regulation becomes effective.



TRAFFIC ENGINEERING DEPARTMENT ORGANIZATION

Traffic Engineering Advisory Committee

Mayor Joseph A. Doorley, Jr., Chairman

Joseph C. Keegan, Finance Director

Robert McOsker, City Solicitor

Howard A. Franklin, Chief of Police

Lawrence P. McGarry, Director of Public Works

Thomas L. Payne, Chairman of the City Council's  
Committee on Public Works

Frank H. Malley, Chief of Planning -- Department of  
Planning and Urban Development

Peter J. Hicks, Jr., Public Service Engineer

Staff Engineers During 1967

John I. Logan, Traffic Engineer

Frank A. Tibaldi, Deputy Traffic Engineer  
(January to August)

Robert W. Carvalho, in charge of Maintenance  
and Operations

BUDGET 1966-1967

<u>Item</u>	<u>Original Appropriation</u>	<u>Transfer</u>	<u>Spent</u>	<u>Returned General Fund</u>
0	190,210.95	--	165,570.92	19,015.31
I	33,148.00	6,024.72	39,008.10	164.62
II	40,280.00	3,350.00	43,606.55	23.45
V	<u>35,730.00</u>	<u>--</u>	<u>29,942.92</u>	<u>2,037.08</u>
	299,368.95	9,374.72	278,128.49	21,240.46

TYPES OF TRAFFIC SIGNAL EQUIPMENT IN OPERATION

Traffic Actuated Equipment (Vehicle actuated only)	45
Traffic Actuated Equipment (Vehicle and Pedestrian actuated)	20
Fixed-Time Equipment (No pedestrian signal heads)	84
Fixed-Time Equipment (Equipped with pedestrian signal heads)	29
Special Pedestrian Crossing	5
Flashing (Red and Amber)	4

NEW INTERSECTIONS INSTALLED

Academy and Atwells  
Academy and Eaton  
Broad and Stewart  
Gano and Pitman

INTERSECTIONS MODIFIED TO MEET FEDERAL STANDARDS

Broad and Prairie  
Crawford and Dyer  
Hartford and Bodell  
Pine and Chestnut  
Reservoir and Ardoene  
Washington Row and Exchange Place

PEDESTRIAN SIGNALS MODIFIED TO MEET FEDERAL STANDARDS  
(Central Business District)

Dorrance and Fulton  
Fountain and Gaspee  
Washington and Eddy  
Washington and Empire  
Westminster and Mathewson  
Westminster and Union  
Weybosset and Richmond  
Weybosset and Union

As of December 31, 1967, fifty signals (or 25%) have been brought up to Federal standards.

TRAFFIC SIGNAL PROJECTS FOR 1968

NEW INSTALLATIONS

Admiral and Douglas

Broad and Thurbers

MODIFICATIONS TO MEET FEDERAL STANDARDS

Atwells and Service Road 7

Atwells and Service Road 8

Broad and Service Road 7

Broad and Service Road 8

Broad and Farragut

Broadway and Service Road 7

Broadway and Service Road 8

PEDESTRIAN SIGNAL MODIFICATIONS  
(Central Business District)

Exchange Street and Exchange Place

Exchange Street and Exchange Terrace

Washington and Mathewson

Washington and Union

Westminster and Empire

Weybosset and Empire

MAINTENANCE WORK

TROUBLE CALLS DURING WORKING HOURS

Mechanical or electrical	336
Lamps burned out	338
Damage to equipment	144
No trouble found	58

TROUBLE CALLS DURING NON-WORKING HOURS

Mechanical or electrical	243
Lamps burned out	108
Damage to equipment	57
No trouble found	58
Miscellaneous	115

SIGN INSTALLATION AND MAINTENANCE

New installations	755
Signs replaced	3460
Signs repaired	525
Steel posts installed	938
Moveable standards placed	840
Parking meter posts	240
Pedestrian posts	16

SIGNS MANUFACTURED

Reflectorized - Wood blanks	983
Painted wood blanks	3568
Other	0

PAINTING

Gallons of reflectorized paint used	4150
Miles of street marked (total program)	114.7
Miles of street repainted this year	87
Number of streets marked (total program)	127
Number of streets repainted this year	111
Number of intersections marked with crosswalks (total program)	781
Number of intersections repainted this year	521

REVENUES DERIVED FROM PARKING METERS

On-street meters	\$93,326.23
Pershing Square Parking Plaza	\$22,692.96
Number of meters in service	1525

DISPOSITION OF INVESTIGATIONS  
RESULTING FROM COMPLAINTS AND REQUESTS

Requests Granted	60%
Requests Denied	18%
Requests Pending	18%
Complaints Dropped	4%

TRAFFIC REGULATIONS ESTABLISHED

Parking Regulations	123
Loading Zones	20
Stop Control	35
Traffic Signal Control	5
One-Way Streets	8
Turn Prohibitions	2
Cab Stands	1

DOWNTOWN PARKING SPACE INVENTORY

Off-Street Lots:

Public	6,511
Private	1,379
<u>Garages</u>	<u>1,325</u>
TOTAL OFF STREET	9,215
TOTAL ON STREET	<u>903</u>
GRAND TOTAL	10,118

**FILED**

**Feb 12 12 33 PM '98**

**OFFICE OF THE CLERK  
PROVIDENCE, R.I.**



**ANNUAL  
REPORT  
OF THE**

**PERSONNEL  
DIRECTOR**

**CITY OF  
PROVIDENCE  
1966 - 1967**

JOHN V. ROMANO  
PERSONNEL DIRECTOR



MAYOR  
JOSEPH A. DOORLEY, JR.

DEPARTMENT OF FINANCE  
CITY HALL, PROVIDENCE, RHODE ISLAND 02903

January 31, 1968

To the Honorable Joseph A. Doorley, Jr., Mayor  
and the Honorable, The City Council

As directed by ordinance, I am submitting this, the annual report of the Personnel Department for the year beginning October 1, 1966 and ending September 30, 1967.

The Personnel Department of the City of Providence, lacking neither experience nor effort continues to strive for maximum efficiency.

Now in its sixteenth year, the Personnel Department again wishes to thank the various department heads for their co-operation and assistance in fulfilling the requirements of this office and its obligations to the citizens of Providence.

My sincere thanks are extended to His Honor, the Mayor and the City Council, the City Solicitor, the Finance Director and the Budget Officer for their co-operation during the past year.

I look forward to their ever-increasing support.

Respectfully submitted,

*John V. Romano*  
John V. Romano  
Personnel Director

JVR/mf

IN CITY COUNCIL  
FEB 15 1968

READ:  
WHEREUPON IT IS ORDERED THAT  
THE SAME BE RECEIVED.

*Vincent Vespa*

CLERK

FILED  
FEB 29 9 34 AM '68  
CITY CLERK  
PROVIDENCE, R.I.

DEPARTMENT FUNCTIONS

The Providence City Charter provides that the Personnel Director is responsible for the administration and control of personnel policies for \$14,911,621.35 in pay and benefits during the 1966-67 fiscal year.

Included in the administration of personnel policies are the constant maintenance of record keeping, such as sick pay credits, accrued and used, absenteeism, vacation periods and claims for injured pay.

The Director of Personnel attends Retirement Board meetings in an advisory capacity whenever necessary.

JOB REFERRALS

The Personnel Office continues to assist private industry throughout Metropolitan Providence by obtaining willing applicants for existing vacancies in various enterprises.

This is accomplished by a joint effort of the Personnel Executives' Club, a division of the Greater Providence Chamber of Commerce of which the Personnel Director is a member.

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There exists several positions within the City of Providence which are of a professional nature and remain vacant. This is perhaps due to salaries that are non-competitive with those offered in private industry.

Measures presently under study by the administration however, may eventually eliminate this particular handicap.

INJURY PAY

By ordinance, city employees are insured against accidental injuries-sustained while in the regular performance of their duties.

Injured pay claims are received by the Personnel Office, thoroughly investigated and subsequently referred to the Commission for the Relief of Injured Employees for disposition.

In such event, a maximum of \$1200.00 in wages becomes available to the employee through regular weekly pay checks.

During the year 1966-67 many petitions for injury pay were presented to the Commission out of which one-hundred and three (103) were approved at regularly scheduled meetings.

Authorized payments totaled \$142,586.02.

### EMPLOYEE IDENTIFICATION

Employee records include individual identification badges (I.D. Cards) which are laminated and indexed. As a departmental regulation, employees are photographed and issued I.D. badges upon entering city service.

In addition, periodic investigations of employees are made by the Personnel Director, together with representatives of the City Controller's Department. Employees' pay checks are hand delivered on-the-job where individual badges are examined for accuracy and signatures obtained for certification.

In the absence of advance notice-of-inspection to departments, (which is necessary to achieve the desired result) supervisors and employees occasionally resent the element of surprise used, in that their integrity may be questioned.

However, full co-operation is received and always appreciated by the Personnel Office.

PERSONNEL CHANGES

On February 27, 1967 a major accomplishment occurred when various departments were consolidated and incorporated into the Department of Planning and Urban Development.

These included the Division of Minimum Housing, the City's Planning Department, the Family and Business Relocation Service and the former Redevelopment Agency.

The advantages of this consolidation are many.

A brief analysis immediately obviates the merits of the consolidation, as evidenced by the elimination of duplicitous duties, responsibility in its proper perspective and additional financial augmentation through available federal programs.

Various other minor personnel changes were requested and approved by the Personnel Office and the City Council during the year 1966-67.

DIRECTIVE

On August 11, 1967 an administrative directive was received by the Personnel Office.

As issued - Executive Order No. 5 gave notice that discriminatory practices of any kind would not be tolerated and called for implementation of safeguards.

The Personnel Office and the Providence Human Relations Commission are jointly preparing regulations which are soon to be presented for acceptance and probable adoption.



BREAKDOWN OF PERSONAL SERVICES EXPENDITURES

001	Salaries and Wages Permanent Positions	\$11,933,824.10
002	Salaries and Wages Temporary Positions	347,594.89
005	Payments to Dependents	3,639.61
006	Overtime Pay	692,384.33
008	Sick Leave	459,365.11
009	Vacations	591,514.46
011	Fire Department-Temporary Service out of rank	23,775.86
012	Snow Removal Regular Work Week	92,147.36
013	Snow Removal Overtime	77,768.56
014	Snow Removal Temporary	16.40
015	Elected Officials	61,402.50
018	Call Back Pay for Police and Fire	159,968.38
025	Injured Employees	142,586.02
033	Holiday Pay - Police & Fire	189,571.55
034	Holiday Pay - Regular Employees	116,388.73
037	Witness Fees - Members of Police Department	19,673.49
	Total	<hr/> \$14,911,621.35

EMPLOYEE TURNOVER

The following schedule shows the monthly turnover for all departments except the School Department.

October 1, 1966 - September 30, 1967

<u>DATE</u>	<u>ADDITIONS</u>	<u>TERMINATIONS</u>	<u>NUMBER WORKING</u>
10/1/66			2719
10/31/66	75	52	2742
11/30/66	44	27	2759
12/31/66	53	65	2747
1/31/67	74	36	2785
2/28/67	38	30	2793
3/31/67	35	34	2794
4/30/67	63	45	2812
5/30/67	62	45	2829
6/30/67	235	36	3028
7/31/67	118	65	3081
8/31/67	62	54	3089
9/30/67	43	289	2843
Number of employees working Oct. 1, 1966			2719
Number of employees working Sept. 30, 1967			2843
* Net Increase			+124
Number of employees hired -----			902
Number of employees terminated -----			778
			+124

\* The total increase of 124 positions reflects the inclusion of 101 temporary positions in the city Recreation Department. Previously - Recreation Department temporary positions were not included in annual reports.

DEPARTMENT EMPLOYEE STATUS

<u>Department</u>	<u>Allowed</u> <u>Oct. 1, 1966</u>	<u>Ordinance Changes</u> <u>During Year</u>		<u>Employed</u> <u>Sept. 30, 1967</u>
		<u>Add</u>	<u>Delete</u>	
City Clerk	9			9
Bd. of Canvassers	Unlimited			12
Probate Court	10			9
Police Court	14			14
Mayor's Office	Unlimited	1		7
Law Department	9			9
Recorder of Deeds	14			14
City Sergeant	41			37
Finance Director	9			9
City Controller	27			22
Employees				
Retirement	7			5
Data Processing				
Division	27			26
City Collector	25		3	14
Water Board				
Collection	7			7
City Assessor	29			30
Purchasing Division	18			18
Municipal Garage	22			21
City Treasurer	5			5
Board of Tax				
Assessment Review	5			5
Commissioner of				
Public Safety	13			13
Police Department	679			595
Fire Department	543	4		495
Supt. of Weights				
and Measures	5			5

DEPARTMENT EMPLOYEE STATUS

<u>Department</u>	<u>Allowed</u> <u>Oct. 1, 1966</u>	<u>Ordinance Changes</u> <u>During Year</u>		<u>Employed</u> <u>Sept. 30, 1967</u>
		<u>Add</u>	<u>Delete</u>	
Bldg. Inspection				
Administration	14			12
Structures & Zoning	15			13
Plumbing, Drainage and Gas Piping	8			8
Electrical Installations	8			6
Air Poll., Mech. Equip. and Installations	9			5
Traffic Engineer	42		1	31
Public Works Admin.	29		1	27
Engineering Office	35			35
Sanitation Admin.	3			2
Street Cleaning	59			54
Sewage Pumping	14			13
Sewage Disposal	58	1	1	46
Garbage Collection & Disposal	114			119
Refuse Colletion & Disposal	21			22
Construction and Maintenance Admin.	1			1
Highway	Unlimited		1	177
Environment Control	17			13
Bridge Maintenance	11			11
Sewer Construction and Maintenance	62		1	61
Public Buildings	17			17
Public Service Admin.	1			--
Stores Revolving Fund	16			15
Street Lighting	1			1
Municipal Docks	11			6
Draw Bridge	12			12
Family & Business Relocation Service	20			--

DEPARTMENT EMPLOYEES STATUS

<u>Department</u>	<u>Allowed</u> <u>Oct. 1, 1966</u>	<u>Ordinance Changes</u> <u>During Year</u>		<u>Employed</u> <u>Sept. 30, 1967</u>
		<u>Add</u>	<u>Delete</u>	
Vital Statistics	9			9
Bath Houses & Comfort Stations	21			17
Welfare Admin.	9			7
G.P.A. Admin.	116			89
Parks Admin.	5			4
Parks General & Roger Wms. Park	Unlimited	1	2	99
Forestry	23			19
Municipal Golf Course	Unlimited			17
Park Museum	6			4
Recreation Dept.	445			147
Zoning Bd. of Review	10			11
Bldg. Bd. of Review	6			5
City Plan Commission	23			--
Prov. Redev. Agency	60			--
Minimum Housing Standard Division	24			--
Planning & Urban Development		150		122
Bureau of Licenses	9			9
Prov. Civilian Defense	8			7
Prov. Human Relations Commission	5			5
Water Supply Board Administration	35		1	31
W.S.B. - Source of Supply	48		1	37
W.S.B. - Transmission & Distribution	89			80
W.S.B. - Accounting & Commercial	39			36

98  
CITY COUNCIL FINAL PAPERS  
1 9 6 8



RE-ORDER NO. K527-345T



## **ANNUAL REPORT**

DATA FOR FISCAL YEAR  
ENDED SEPTEMBER 30, 1967

**WATER SUPPLY BOARD**  
CITY OF PROVIDENCE

THE CITY OF PROVIDENCE

**WATER SUPPLY BOARD**

JOHN A. DOHERTY, CHAIRMAN  
EARL H. ASHLEY  
UGO RICCIO  
JOHN J. TIERNEY  
DAVID R. MCGOVERN, EX-OFFICIO

552 ACADEMY AVENUE  
PROVIDENCE 8, R. I.

PHILIP J. HOLTON, JR.  
CHIEF ENGINEER  
WILLIAM I. McDONALD  
DEPUTY CHIEF ENGINEER  
JOHN T. WALSH, LEGAL ADVISOR  
JOHN J. DEARY, SECRETARY

February 9, 1968

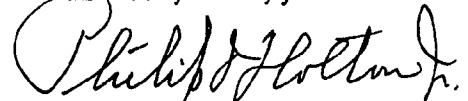
Mr. Vincent Vespia  
City Clerk  
City Hall  
Providence, Rhode Island

Dear Mr. Vespia:

I am enclosing copy of the Annual Report of the Water Supply Board for the fiscal year ended September 30, 1967.

Thirty copies are being forwarded to your office for presentation to the members of the City Council at their next meeting.

Yours very truly,



Philip J. Holton, Jr.  
Chief Engineer

PJH:kam



## WATER SUPPLY BOARD

John A. Doherty, *Chairman*

Earl H. Ashley

Ugo Riccio

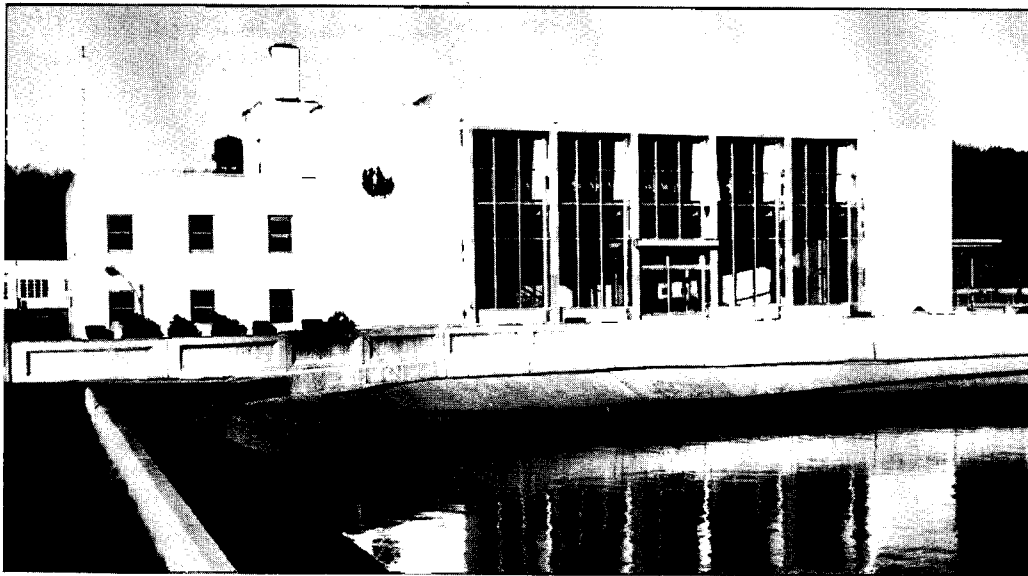
John J. Tierney

David R. McGovern

IN CITY COUNCIL  
FEB 15 1968

READ:  
WHEREUPON IT IS ORDERED THAT  
THE SAME BE RECEIVED.

*Vincent Vespa*  
CLERK



*Main entrance to multi-million dollar Water Purification Works with south coagulation basin in the foreground.*

October 1, 1967

The Honorable Joseph A. Doorley, Jr., Mayor  
The Honorable Members of the City Council  
City of Providence, Rhode Island

Gentlemen:

We are submitting the 27th Annual Report of the Water Supply Board that highlights, in abbreviated text and pictorial form, the important operations and activities of the department during the fiscal year ended September 30, 1967.

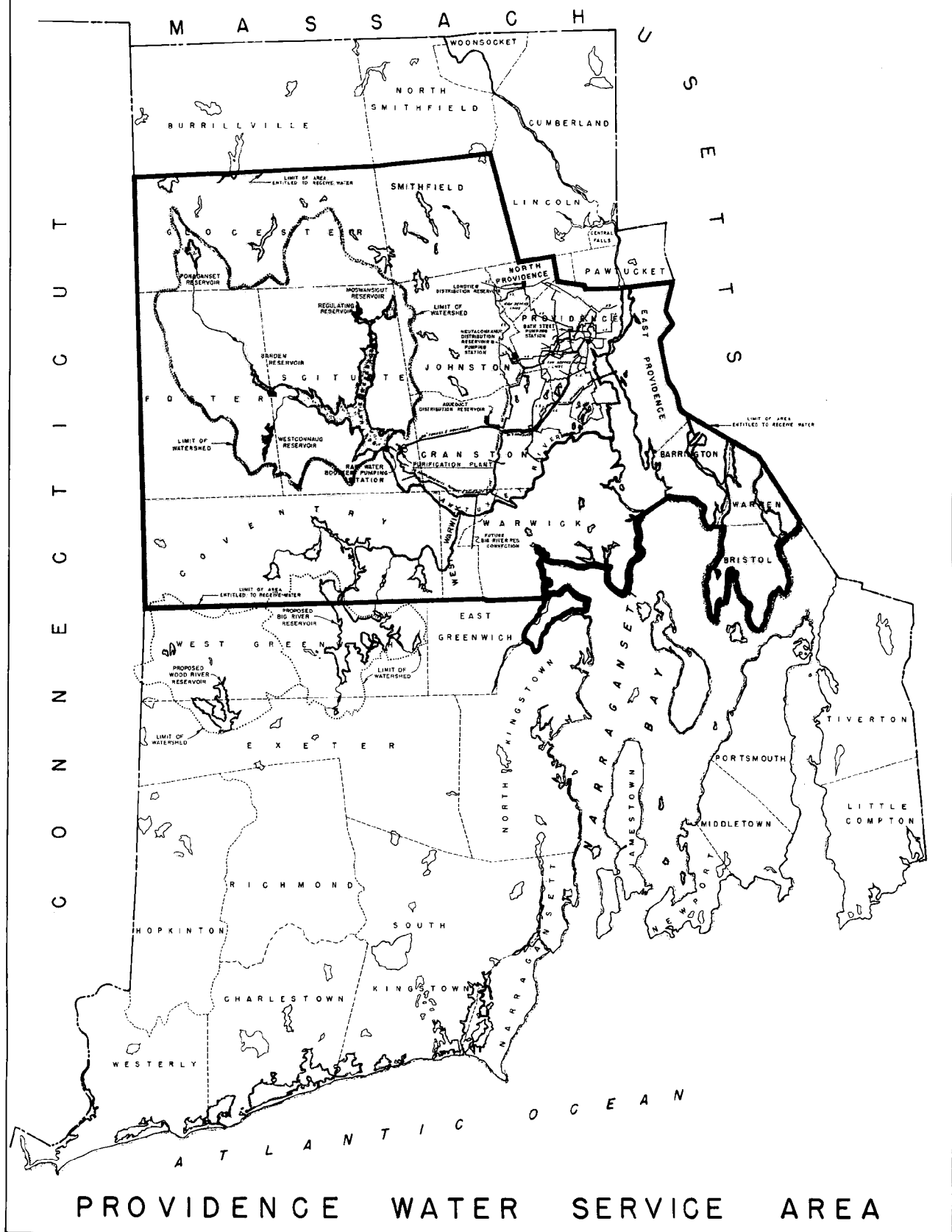
The ability to meet all demands on our system is due to the long-range plans of the Original Water Supply Board appointed in 1915 and the continuation of this policy by the present Board. Our Capital Improvement Program, based on the department's projective studies, will provide sufficient capacity to meet the system's requirements up to the year 2015. The Board is proud of the numerous improvements made to our system and its continued national reputation of producing an excellent quality of water.

The department realizes, Mr. Mayor, that we would not be able to accomplish our Capital Improvement Program without your leadership and guidance and the assistance of the members of the City Council. We are grateful for the cooperation of the U. S. Department of Commerce, particularly the officials of the Regional Office of the Economic Development Administration and the help received from other governmental agencies, industrial organizations and the public. The Board wants to publicly thank the 179 employees of the department for the dedicated manner in which they performed their duties throughout the year.

Respectfully submitted,

*John A. [Signature]*  
WATER SUPPLY BOARD  
CHAIRMAN

FILED



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## PROVIDENCE REGIONAL WATER SERVICE AREA

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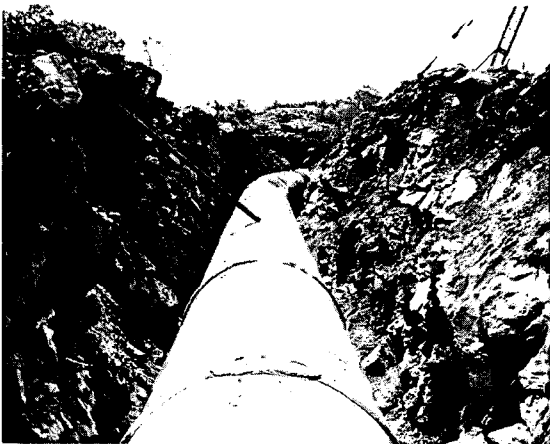
The map of the State of Rhode Island, shown on the opposite page, outlines the fifteen cities and towns that are entitled by law to receive water from the Scituate drainage basin. The Providence service area totals 415.71 square miles which is 22 times the area of the City of Providence. The land area of the entire State is only 1,058 square miles so our service territory represents 39.3% of Rhode Island.

Although municipally owned, the Providence Water Works has operated as a regional or metropolitan district from its very inception over 100 years ago. At the present time, in addition to the City of Providence, the City of Cranston and the Towns of Johnston and North Providence are supplied from a distribution system owned and maintained by Providence. The City of Warwick, the Kent County Water Authority supplying parts of Scituate, West Warwick and Coventry, the East Smithfield Water District and the Town of Smithfield are supplied by Providence but own and maintain their own distribution systems. Water to these latter communities is supplied through master meters. The population served in these areas during 1967 was estimated to be 388,420 against an estimated population for the State of Rhode Island of 912,195 or 42.6%.

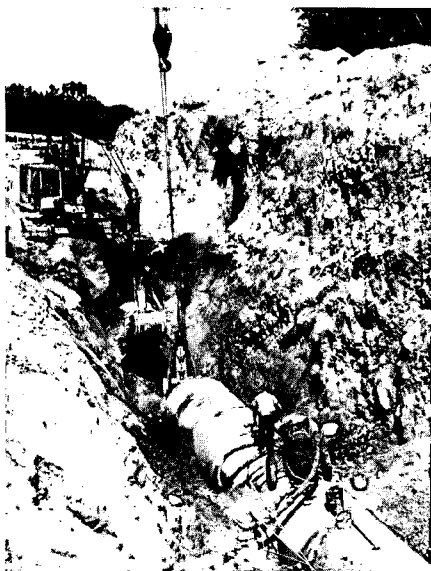
As early as 1949, the City of Providence offered to supply East Providence and the three communities served by the Bristol County Water Company with water from our Scituate supply. No action was taken until 1963 when the City of East Providence introduced legislation in the General Assembly that would amend the 1915 Water Act and permit them to obtain water from our system. In 1966 legislation was enacted and the Act amended to allow the Towns of Barrington, Warren and Bristol, which are served from the investor-owned Bristol County Water Company, to obtain a supply from Providence. The City of East Providence should be connected to the Providence system by 1970 and the other three communities shortly thereafter. Based on 1967 estimated population figures, the cities and towns presently served plus the four additional communities authorized to obtain their supply from Providence will represent a total population of 477,900 or 52.4% of the estimated population of the State. Two other towns are entitled to water under the early Act. They are Foster and Coventry but up to the present time, there is no public water supply in either of these communities.



*Work progressing on the installation of the 78" prestressed reinforced concrete steel cylinder pipe section of the Supplemental Tunnel and Aqueduct.*



*Completing the installation of the 78" pipe after ledge had been removed.*



*Trench had to be excavated for a depth of 35 ft. in this section of the new work.*

## MAJOR CONSTRUCTION PROJECTS

It has always been the aim of the department to conduct long-range projective studies to assure that Providence and all the other cities and towns dependent upon our supply, now and in the future, receive water of outstanding quality and in sufficient quantity to meet the requirements of residential, commercial and industrial use as well as adequate public and private fire protection. In order to fulfill our obligations to all these cities and towns, the department is engaged in a large capital improvement program that will cost approximately \$16,200,000.

**TUNNEL AND AQUEDUCT**—At present, we have a single tunnel and aqueduct that extends from the plant in Scituate to the siphon chamber in the City of Cranston. It was designed over 50 years ago and is capable of delivering 100 million gallons per day into our system. Our maximum daily demand is around 90 million gallons and if East Providence, Barrington, Warren and Bristol were connected to our supply lines, our transmission facilities would not be adequate. The maximum daily potential from our present source of supply in Scituate is 144 million gallons which is twice the dependable safe yield that is available for water supply purposes.

To provide the necessary transmission capacity to convey the full output from Scituate, we are constructing another tunnel and aqueduct that will be capable of delivering an additional 44 million gallons daily from the plant. This section is 78 inches in diameter and is approximately 23,000 feet in length. It will terminate at tunnel portal No. 4 located at the easterly end of the West Warwick Country Club. There is a 30-inch connection in the 78-inch aqueduct section near Clinton Street in

the Town of Scituate that will reinforce the rapidly growing Kent County Water Authority system in West Warwick, Coventry and parts of Scituate.

Portal No. 4 is designed to eventually receive a supplementary supply of 56 million gallons daily from the proposed Big and Wood River Reservoir development. The combination of both will provide an additional 100 million gallons for our system. The section of the aqueduct from portal No. 4 to its termination in Budlong Road, Cranston, a distance of 27,200 feet, will be 102 inches in diameter. There will be two 42-inch connections off the 102-inch aqueduct. One will reinforce areas supplied by the Kent County Water Authority and the City of Warwick system and the other will furnish water to the western areas of the City of Cranston and the Town of Johnston. There will be a 24-inch connection in the vicinity of Wilbur Avenue that will reinforce our own distribution system in the Oakland Avenue area of Cranston. Where the aqueduct ends at Budlong Road, Cranston, there will be a 42-inch connection for East Providence and a 24-inch for the Bristol County Water Company. When the work is completed, Providence will have transmission capacity of 200 million gallons daily which will be capable of meeting our estimated load demand of the maximum day to the year 2015.

The project is divided into eight contracts, four each for the 78-inch and the 102-inch sections. The first contract was for a portion of the 78-inch aqueduct and was awarded in March of 1966 and completed during the fiscal year. All remaining contracts on the 78-inch tunnel and aqueduct were under construction during the year and should be completed by the summer of 1968. Two contracts have been let for the 102-inch diameter aqueduct section and the remaining two contracts should be awarded in the early part of the next fiscal year. The entire project should be finished



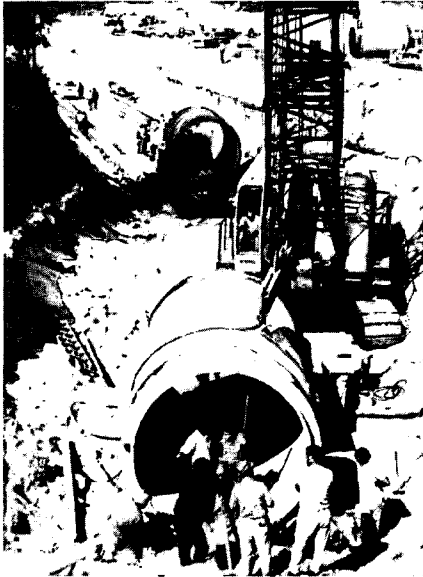
*Pointing of interior joints of the installed pipe aqueduct section.*



*Rock spoil in tunnel immediately following blasting operations.*



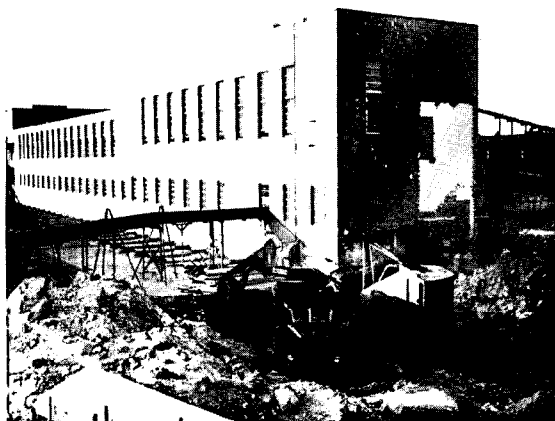
*Forms in place ready to receive concrete lining in tunnel.*



*Contractor installing section of the 102" pre-stressed reinforced concrete steel cylinder pipe that has a capacity of 100 million gallons daily.*



*General excavation for filter plant extension that will increase capacity to 144 million gallons daily.*



*Construction operation that will extend the clear well to receive effluent from four additional filters.*

and in operation by May of 1969.

The bids submitted on the first six contracts, including the cost of the 102-inch aqueduct under the P-37 Interchange, amounts to \$8,611,047. The cost of the two remaining contracts, plus the expense of land acquisition, engineering, field supervision and interest during construction is estimated to be \$4,600,000. The final project cost may run to \$13,200,000 or \$2,700,000 in excess of the estimate prepared in 1964.

### **ADDITIONS and IMPROVEMENTS at the WATER PURIFICATION WORKS**

**ADDITIONAL FILTERS**—Providence has always provided ample storage throughout its distribution system in order to avoid excessive loads on the filtration plant. Under this arrangement, the plant is designed to meet the demands of the maximum day and the increased volume required for peak hourly loads is obtained from our distribution reservoirs.

The original plant in Scituate started operation in 1926 and consisted of ten rapid sand filters with a capacity of 44 million gallons daily. It has been necessary to expand the size of the filtration plant periodically so that ample production capacity would be available to meet customer's requirements. In 1939, four additional filters were added to the plant bringing the capacity up to 61.6 million gallons daily. As the load on the treatment plant continued to increase around 1950, it was necessary to construct additional filters or determine a method for producing greater volume from the existing fourteen filters. After a few years of research on a laboratory and plant scale basis, some of the filters were rebuilt in 1954. The effective size of the sand in the beds was increased and the rate of filtration was advanced to three gallons per square foot per minute. This change jumped the plant capacity

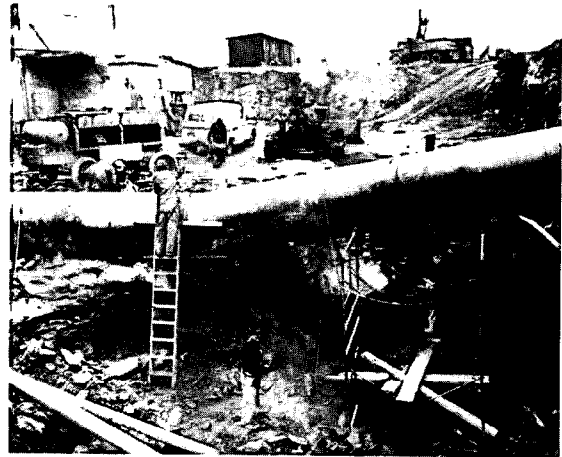
with all fourteen filters in service from 61.6 to 105 million gallons daily.

In 1964, our studies showed that the maximum daily demand was rapidly approaching the full plant capacity and work was started on the preparation of plans and specifications for the construction of four additional filter beds. Included in this program were provisions for replacing the sand in five existing filters that was not changed in 1954. The rate of filtration will be jumped to 3.25 gallons per square foot per minute so that the plant will be able to process 144 million gallons daily. This is the full potential that may be withdrawn from Scituate based on maximum daily demands.

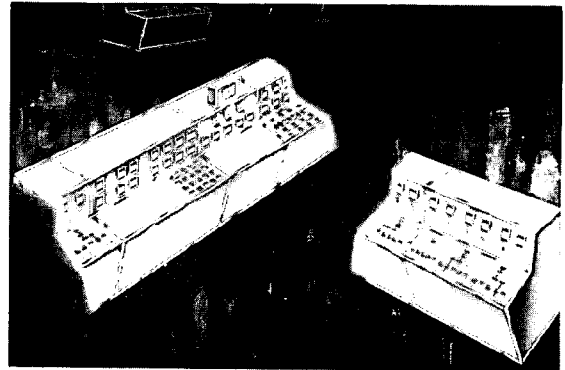
The contract was awarded on May 8, 1967 and the work is scheduled for completion in September, 1968 which is well ahead of the date that transmission lines will be completed by East Providence and the Bristol County Water Company.

**CENTRALIZED CONTROL SYSTEM**—A contract for the new centralized control system was awarded during the year. It will replace the present control board installed in 1939. The new system will monitor and control the performance of the filter plant, pumping stations, distribution reservoirs, flow measuring stations and other related functions such as the emergency diesel-driven generator located in the new Raw Water Booster Pumping Station. All pumping stations, including the Raw Water Booster Station at the base of Gainer Memorial Dam in the Town of Scituate as well as the three pumping stations in the distribution system, will be unattended and their operation will be regulated by a single operator stationed at the control board.

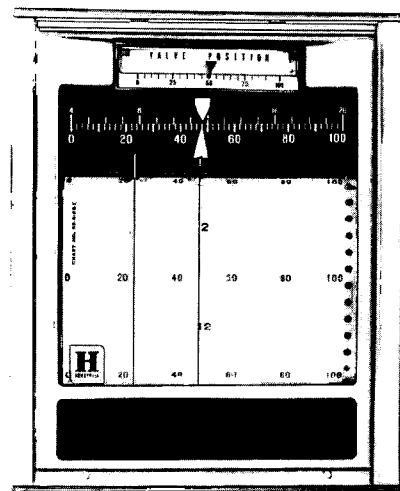
The board will consist of nine panels upon which will be mounted the instruments and controls for the eighteen filters.



*Ledge being removed from under 48" wash water main that must continue in service until lowered to connect with additional filters.*

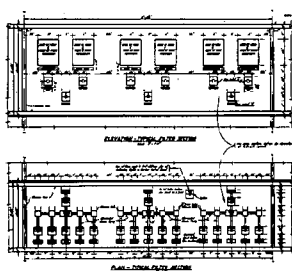


*Artist's rendering of centralized control system that will monitor operation and control of filtration plant, pumping stations and distribution reservoirs.*

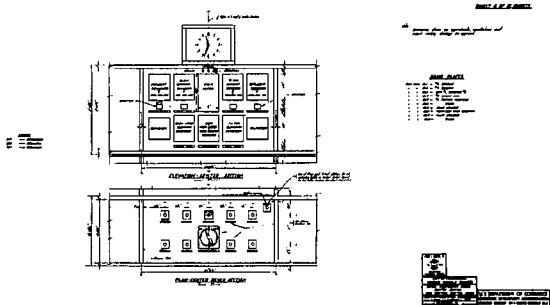


*Dual pen instrument to record loss-of-head and rate-of-flow on each half filter.*

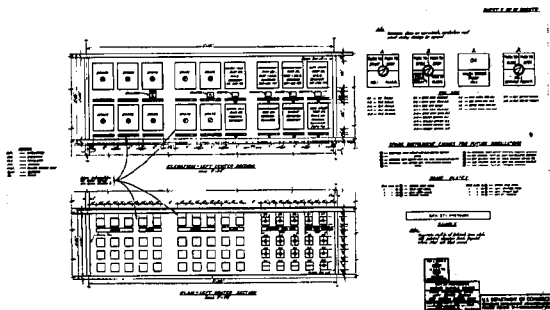




*Typical filter section showing recording instruments, control stations and mimic piping diagram.*



*Instrumentation on the incline vertical section along with miscellaneous controls on the bench board.*



*Miscellaneous controls and instrumentation for the remote operation of the pumping stations and reservoirs.*

The inclined vertical section of the filter panels will have a single graphic recorder showing the loss-of-head and rate-of-flow for each half filter. There will be a modern dual pen miniature-type instrument with a thirty day continuous chart compared to separate loss-of-head and rate-of-flow circular instruments on the present board. Instead of the present time impulse transmitters, the new installation will have the continuous signal type with all transmitters located in the effluent pipe gallery. When the loss-of-head reaches a certain predetermined point, a relay will function closing the effluent valve and the filter will be removed from service. Directly below the miniature recorders will be an indicating light to show the filter requires backwashing. When both half filters reach this stage, there is a selector switch for either automatic or manual operation.

On the bench board section of each filter is an illuminated mimic piping arrangement that shows the normal flow when the water is being filtered and also the flow when the filter is being backwashed. There are pushbutton controls in the mimic piping diagram that allow manual operation whenever it is desired.

The three central panels will contain instrumentation and controls for the pumping stations, distribution reservoir elevations, flow measuring stations, emergency generator and other related functions.

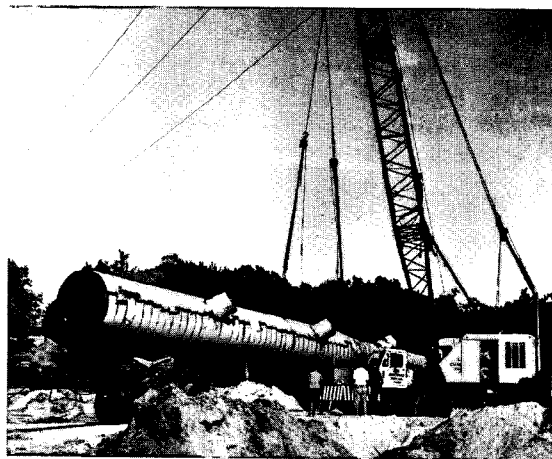
Space has been provided in these panels for the installation of additional instruments and controls for the eventual operation of a pumping station that must be built to obtain water from Wood River Reservoir and additional stations that will be required to serve the western sections of Cranston and Johnston.

The additions and improvements to the Water Purification Works were estimated to

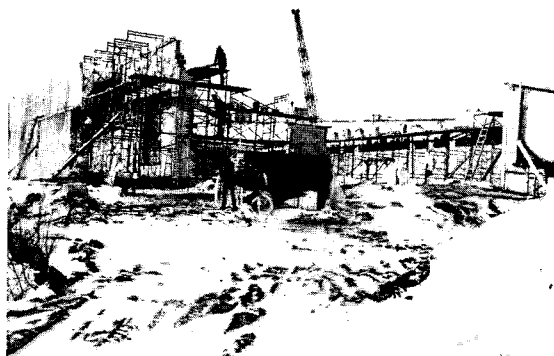
cost \$2,500,000 and present indications are that the cost of all contracts will not exceed \$1,800,000.

**RAW WATER BOOSTER PUMPING STATION**—The first contract on the new Raw Water Booster Pumping Station includes the pump, motors, switchgear, etc. and was awarded on April 25, 1966. Another contract for the building and site improvements was let the following month. This station will perform a dual role in transporting water from the reservoir intake structures to the Water Purification Works. The pumps will operate during periods of extended drought when the water in the reservoir recedes to a level that prevents gravity flow to the plant. It will also be necessary to use the pumps during the dry summer months when the reservoir elevation would drop to a point that would not be sufficient to provide the proper head characteristics to supply the plant with a sufficient quantity of water to meet the requirements of the maximum day.

As the station will be called upon to operate under a wide demand range, we selected two pumps rated at thirty million gallons daily and two larger pumps of fifty million-gallons daily capacity. This arrangement will provide eight different rate combinations varying from thirty million gallons for a single pump to 160 million gallons for all the pumps. Each pump will be driven by one of two synchronous motors mounted on a single shaft. The thirty million gallon pumps will be driven by either a 150 horsepower or 400 horsepower motor, the fifty million gallon pumps by a 300 horsepower or 600 horsepower motor. The low horsepower motors on each pump will operate when the reservoir elevation does not drop more than 26 feet. The large horsepower motors will be placed into service for reservoir elevations that drop to 60 feet below the spillway.



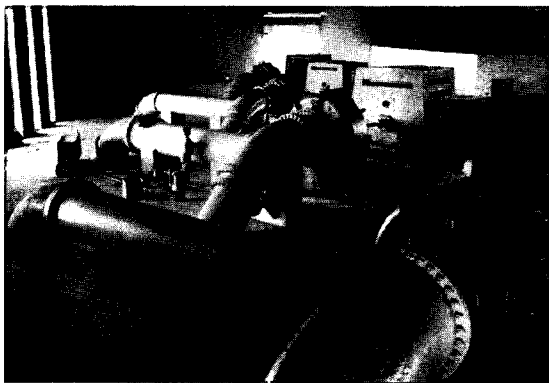
*109 ft. section of 72" diameter steel pipe suction header section showing connections for individual pumps.*



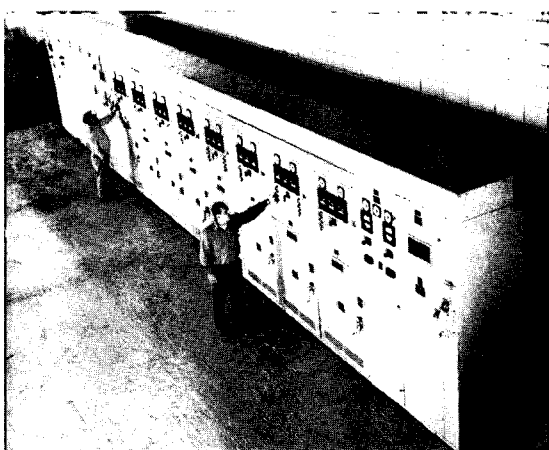
*Raw Water Booster Pumping Station under construction that will contain two 50 and two 30 million gallons daily pumps along with a 2300 horsepower diesel driven generator.*



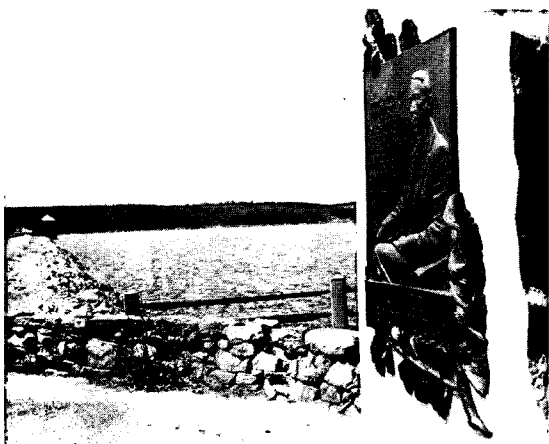
*Manifold suction connection to the existing twin 60" steel pipe aqueducts showing the motor-operated valves that will be controlled from the centralized system at the Purification Works.*



*50 and 30 million gallons daily pumps with dual synchronous motor drives.*



*High voltage switchgear for eight pump motors ranging from 150 to 600 horsepower remotely controlled from the Purification Works.*



*View of main dam named after Joseph H. Gainer, Mayor of Providence from 1913 to 1927.*

The switchgear for the pump motors and valve operators will be remotely controlled over our own signal lines that run underground from the station to the Water Purification Works. The 2300 horsepower emergency diesel-driven generator that will furnish power in case of failure to the local power system will be similarly operated. There are 53 command and reportback signals for general start and stop operations, indication of generator fault, overheating of motor windings and bearings and the changeover from public power to our own.

The station should be ready for acceptance tests in the early part of the next fiscal year. Although the cost was estimated to be \$1,500,000, it appears that the final cost will not exceed \$1,200,000.

## SOURCE OF SUPPLY

Providence was fortunate in having a dynamic and farsighted administration back in 1915 that succeeded in having legislation passed establishing a Water Supply Board with authority to build our present supply on the north branch of the Pawtuxet River. Water is impounded in Scituate Reservoir from a drainage basin that contains 92.8 square miles and the City owns in fee 23.93 square miles or about 25% of the catchment area. The major portion of the watershed is located within three towns that are sparsely populated with only 80 persons per square mile. There are practically no industries operating on the watershed. It has been highly productive over the years with a daily yield for the past 52 years of 107.87 million gallons compared to an estimated safe yield of 84 million gallons.

**FIVE-YEAR DROUGHT**—Since the start of the supply in 1926, we have experienced several periods of drought but they have been of relatively short duration with rapid recovery in our impounding reservoirs. For five consecutive years, from October 1, 1961 to September 30, 1966, the eyes of the public were focused on a serious drought that prevailed throughout the northeastern section of the country. During this period, many communities were compelled to curtail the use of water which was due to the failure of some public officials to plan for adequate water supplies.

The accumulated deficiency in rainfall on the Scituate watershed during the drought amounted to 32.07 inches and the deficiency in runoff, the amount of precipitation collected, was 38.42 inches. This latter figure represented a loss in production on the drainage basin of about 62 billion gallons. The lowest water level during the five-year drought occurred on February 11, 1966 when Scituate Reservoir reached 266.28 or 17.73 feet below the spillway. In June of that year, all five small reservoirs were drained into the main body to reduce evaporative losses and increase the elevation in Scituate Reservoir. The lowest yield ever recorded on the Scituate basin took place that year with a daily yield of only 47.84 million gallons compared to the long-term average of 107.56 million gallons. Our total storage on February 11, 1966 was 24,193 million gallons equivalent to 58.66% of capacity, representing a reserve supply of 372 days based on the requirements of the basic draft.

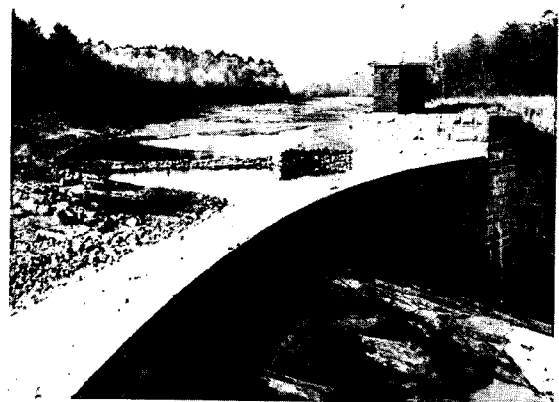
Recovery from the drought was rapid during the past year. Rainfall on the watershed amounted to 56.41 inches which was considerably in excess of the 52-year average of 48.09 inches. Runoff was 27.44 inches against an average of 24.43 inches. This runoff produced 44,277.11 million gallons equal to 121.31 million gallons daily compared to an average of



*Receding shoreline of main Scituate Reservoir as a result of the extended drought.*



*Severe loss in storage in main reservoir resulting from the five-year dry spell.*



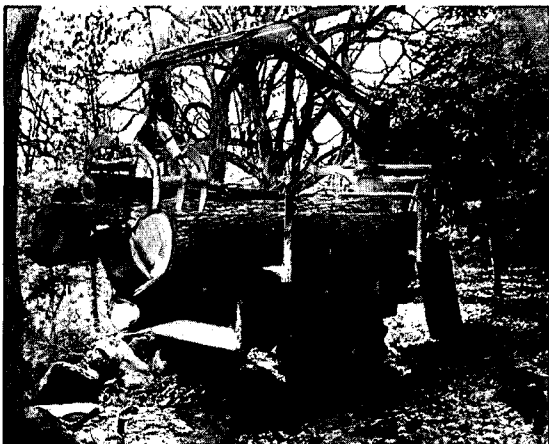
*Barden Reservoir, one of the five small reservoirs that were drained to reduce evaporative losses and concentrate the storage in the main reservoir.*



*Rapid recovery of main reservoir occurred in 1967 resulting in large quantities of water discharging over the spillway.*



*Barden Reservoir recovered full storage in 1967 with excess storage discharging over the spillway.*



*Modern logging equipment harvests logs from mature stands of timber on the watershed forests.*

107.87 million gallons. The water level in Scituate Reservoir reached elevation 285.85 on May 27, 1967 which was 1.84 feet above the spillway and 0.18 feet above the two rows of 8-inch flashboards. Recovery in the five small reservoirs started when the gates were closed around the first of April. Storage in all reservoirs on May 27, 1967 was 42,945 million gallons, equal to 105% of capacity with sufficient reserve storage of 613 days.

For the first time in 3 years, regulatory control returned to normal with surplus water available to operate the water wheel at rates that would produce excess power that was sold to the Narragansett Electric Company.

**FORESTRY OPERATIONS**—The City of Providence owns more land on the watershed of our Scituate supply than the entire area of the City. The property has been under the management of professional foresters for over 20 years. The importance of proper management of the forest cover is plainly demonstrated in the improved quality of the raw water impounded in our storage reservoirs. Forest soils provide favorable conditions for increased infiltration and absorption of precipitation thereby preventing rapid runoff and subsequent erosion and silting. The porous, organic soil of the forest filters the water as it moves to lower soil levels and into the streams and reservoirs on the watershed.

Almost 7,000,000 coniferous transplants and seedlings have been planted on arable areas, reservoir margins and upland sites. The management of these plantations and existing forestland has required an intensive maintenance program for many years. Timberculture opera-

tions such as thinning of crowded plantations, the release of suppressed conifers from low-quality trees and brush and the preparation of sites for reforestation are carried out annually.

Timber removed in thinnings, improvement operations and the harvest of matured stands is selectively marked by foresters who must consider important factors as far as site, timber quality, terrain, market conditions and aesthetics. During the fiscal year, nearly 1,000,000 board feet of timber products consisting of sawlogs, pulpwood and cordwood were removed from the watershed forests. Stumpage is contractually sold to woods operators who are carefully supervised by the foresters in the field.

Protection of the forest resources is most essential in the proper operation of the watershed. Forest roads and fire lanes are developed and maintained to insure quick access if required for forest fire suppression. The City's 100 ft. fire tower on Tunk Hill is regularly manned to provide fast detection of fires on high-hazard days.

The forestry staff is continually on the alert for forest insect and disease infestations that may reach serious epidemic proportions. Problem areas are quickly identified and frequently brought under the scrutiny of research and field personnel of the U. S. Forest Service. An example of such a cooperative venture is a coordinated program with research teams of the Forest Service in the study of destructive root and butt disease of conifers caused by *Fomes Annosus*. Infra-red aerial photographs of diseased plantations have been taken and analyzed. While new control techniques are being tested, problems encountered with treatment materials now used in the control of the disease are under close surveillance.



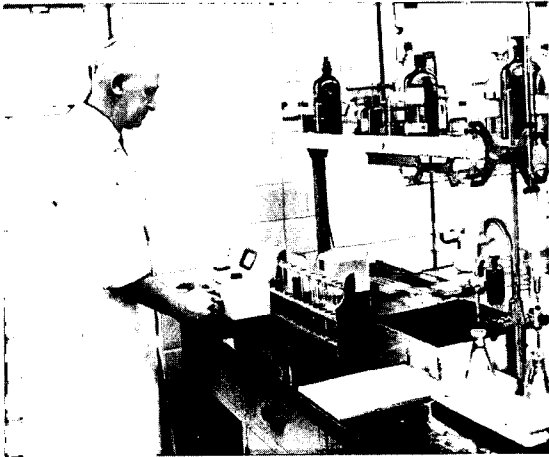
*Pulpwood is removed in thinning and improvement operations in the management of the forest.*



*Forest-access roads are developed and maintained to provide accessibility for fire protection and future management operations.*



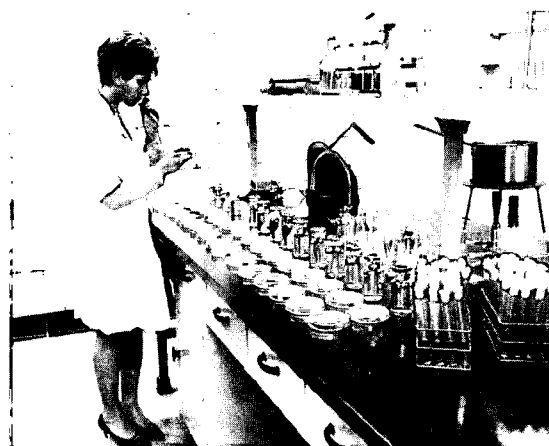
*Experienced woods operators harvest selectively marked trees in the cultural development of forest stands. Immediate treatment of stumps after cutting prevents spread of damaging root disease.*



*Chemists conduct numerous tests in the department's laboratories checking the characteristics of the water throughout the entire treatment process.*



*Laboratory technicians conduct student tours explaining the various processes employed in the treatment of our water supply.*



*Bacteriologist making frequent examinations to safeguard the quality of the water being delivered into the distribution system.*

Turf management at the dams, distribution reservoirs and Purification Works were carried out during the year. Herbicidal spray treatment was applied to 29 miles of access roads and fire lanes. Thirteen miles of roadside fence-line and a substantial shoreline area was sprayed to eliminate hardwood sprout growth. Over 3,000 feet of forest access roads were graded and topped with gravel and 6,600 feet were cleared and improved. Five thousand hemlock, larch and white pine seedlings were planted on 9.4 acres of watershed property.

**LABORATORIES**—The chemical and bacteriological laboratories that check the quality of the water supply from the raw water impoundments to the tap at the consumer's premises conducted tests on 12,664 samples of water during the year. They were obtained from brooks, streams and raw water reservoirs as well as samples collected daily throughout the distribution system. Tests made on these samples included chemical, sanitary chemical and mineral analyses, and bacteriological and microscopical examinations. The total number of tests made during the year amounted to 102,572. Based on a 40-hour week, the water was receiving one test or another every 73 seconds.

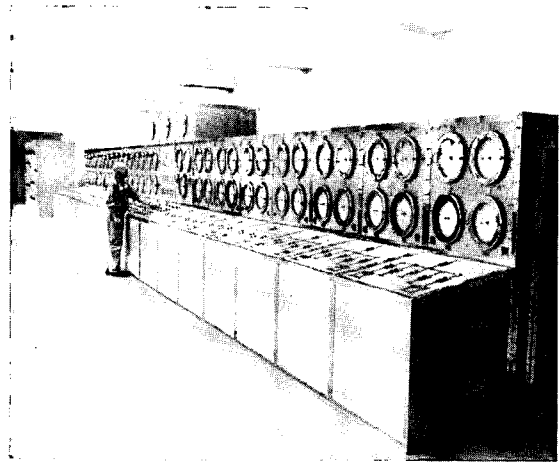
Chemists carried out frequent coagulation tests of the raw water with various amounts of chemicals, simulating all operations of the purification processes for the purpose of determining the most desirable dosage to produce an excellent quality of water at a reasonable cost. Rigid laboratory control over the quality of the water exceeded the sampling requirements of the U. S. Public Health Service Drinking Water Standards. The actual number of bacteriological samples collected from our distribution system amounted to 3,134 or an average of 261 per month, a figure 37% greater than recommended by the Standards and about equal to the number required for a population of 600,000.

**PURIFICATION**—The water supplied to communities from the Providence system is processed at one of the most modern filtration plants in the country. In 1939 the usual hydraulic operation of the equipment with manually-controlled tables spread all over the plant were replaced with all-electric operation from a central control board. There is no danger from loss of power to this all electrically operated plant as we have three sources of power.

All chemical feeding machines are automatically controlled in direct proportion to the volume of water being treated. They are installed in multiple units with standby machines that may be placed in service in case of mechanical failure. Chemicals are stored in large silos and materials are transferred pneumatically to hoppers over each chemical feed machine by remote control.

The treatment process consists of influent aeration, mixing, coagulation and sedimentation and, finally, filtration. Chemicals employed include ferric sulphate to coagulate micro-organisms and particles that cause color and turbidity; lime to change the water from acid to alkaline, that reduces corrosion in the distribution system and assists in the precipitation of iron and manganese; and chlorine to destroy harmful bacteria. Finally, fluoride is added to reduce dental caries in children.

During the year, 17,562.53 million gallons were delivered into the distribution system equal to 48.12 million gallons daily. Peak loads for this period did not reach the record established in 1965. At that time the plant was called on to produce water at the rate of 102.44 million gallons a day for several hours and the maximum hourly demand in the system was at the rate of 134.06 million gallons daily. The difference in plant production and system demands was provided from storage reservoirs in our distribution system.



*Original Central Control Board installed in 1939 for all-electric plant operation; to be replaced with new Centralized Control System.*



*Introduction of chemicals into the treatment process is automatically controlled by modern chemical feeding machinery.*



*Filter gallery with electrically operated valves remotely controlled from Central Control Board.*

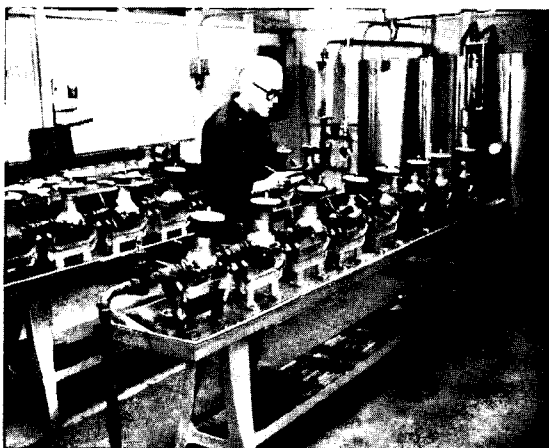




*Distribution main being extended into residential development by private contractor engaged by the department through competitive bidding.*



*Maintenance crew conducting annual valve inspection program with utility truck equipped with power-driven valve operator.*



*Double bank of meters being tested for accuracy in shop after mechanics complete repairs.*

## DISTRIBUTION

At the time water was first introduced into our distribution mains on Thanksgiving Day, November 30, 1871, the system contained 121,336 ft. (22.98 miles) of water mains ranging from 6" to 36" in diameter. Today we have a network of 4,241,013 ft. (803.22 miles) in the four communities supplied from our own distribution pipes in sizes from 6" to 66" in diameter. The distribution grid contains cast iron, steel, asbestos-cement and reinforced concrete steel cylinder pipe. There are 63,819 services, 15,707 valves and 4,858 hydrants installed.

During the year, we laid 54,677 feet of mains in sizes from 6" to 16" in diameter and installed 832 services, 193 valves and 198 hydrants. Maintenance crews carried out the annual inspection of all hydrants and valves throughout the distribution system.

The network consists of two sections, the so-called low service area that is a gravity supply and the high service system that furnishes water to higher elevations as well as the special fire service in the downtown business district of Providence. These areas are supplied from three pumping stations located in different parts of the system. Total water distribution was 17,561.32 million gallons or 48.11 million gallons per day. The low service area consumed the greater portion, 81.8%, and the high service 18.2%. Total registration on customers' meters was 16,747.48 million gallons which accounts for 95.4% of the water delivered into the system.

Leaks in the transmission and distribution mains totalled 62 throughout the year, 29 occurring at joints and 33 as a result of ruptured mains. Leaks at joints averaged one for every 28 miles of pipe and total leaks averaged one for every 13 miles of main.

Meters in our system are owned by the customer and total 63,931. After meters have been in service from 35 to 40 years and repairs to the meter become excessive, the property owner is compelled to purchase a replacement meter. Small size meters in residential properties are brought into our repair shop every seven years for test and repairs and larger meters more frequently. During the year, 8,337 meters were repaired in the shop and 159 in the field.

## ENGINEERING OFFICE

The engineering staff played a major role in supervising all construction work and various technical operations throughout the department as well as planning and designing numerous capital improvements. Some of our projects are carried out as a joint venture with our own personnel preparing the plans and specifications for the engineering aspects of the work and outside architectural consultants are retained to prepare plans and specifications for their portion, both phases being combined in a single set of contract documents.

Our design engineers and draftsmen prepared plans and specifications for the construction of additional filters and a new central control system at the Water Purification Works, main extensions into numerous real estate developments along with the preparation of specifications covering the purchase of materials and equipment for the department. Other services included computations of quantities and the preparation of monthly estimates for periodic payments on all outstanding contracts.

During the year, our engineers supervised the construction of the Supplemental Tunnel and Aqueduct, the Raw Water Booster Pumping Station and the Additions, Alterations and Improvements to the Water Purification Works. The program consisted of twelve separate contracts and represents a capital investment of



*Engineers and draftsmen engaged in preparation of plans and specifications and the maintenance of all records relating to plant operations and distribution system.*



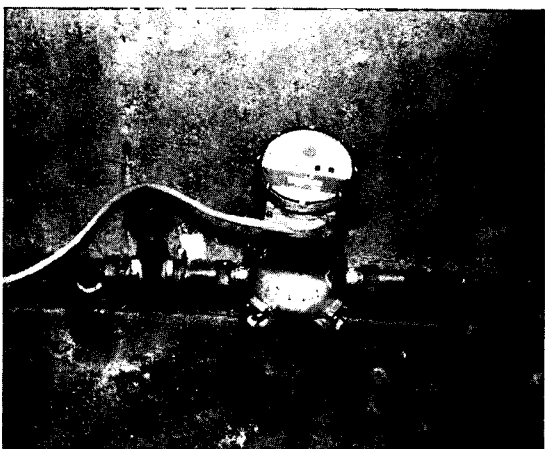
*Project engineer inspecting 102-inch prestressed reinforced concrete pipe prior to installation.*



*Department's field engineers checking alignment and proper bedding of pipe prior to backfilling operations.*



*Business office responsible for customer accounts, payrolls and job cost system.*



*Encoder register placed on existing meter to transmit readings to outside house receptacle.*



*Meter reader inserts jack attached to visual recorder into outside receptacle in order to obtain remote reading on customer's meter.*

over \$16,000,000.

## COMMERCIAL AND ACCOUNTING

During the year, the department added 832 new accounts to its books bringing the total to 62,318. To meet the varying requirements of our customers, incoming telephone calls were received 24 hours daily. The usual operations were carried out such as the preparation of water bills, the collection of delinquent accounts, notifying customers of excessive water consumption, investigating complaints, processing new applications, preparing payrolls and job cost data.

For many years the department has been concerned with the growing problems faced by this division in obtaining data for the preparation of customer's bills. A recent survey showed that out of a total of 118,556 calls made by our meter readers for billing and intermediate readings, we were unable to gain access to the meter on 22,847 occasions. On the call-back, we managed to read 14,096 meters but there remained 8,751 accounts that would require an estimated bill unless the customer phoned or mailed in the reading. During the year, the department studied and reviewed the literature on remote reading systems and finally adopted the ARB system manufactured by the Neptune Meter Company. With the receptacle located on the outside of the house or building, the meter readers will be able to more than double the number of readings obtained daily. At the start, we will use the visual reader as an interim step but will eventually employ a magnetic tape recorder that will be forwarded to the data processing center for the preparation of the bills. The ARB method will insure accuracy and eliminate human errors that are bound to take place under our present arrangement.

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## FINANCIAL

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The Providence Water Works is a self-supporting utility that operates entirely from revenue received from the sale of water and other miscellaneous department charges. Although the costs of labor and material have risen sharply over the years, there has been only one rate increase since 1923. This occurred 10 years ago, in 1957, and we have made no changes in the rate structure since that date. Gross revenue for the year amounted to \$3,402,948.17, a drop of 3.4% or \$119,437.93 below the previous year. This loss in income resulted from reduced water consumption due to an exceptionally wet summer compared to the last five years of drought plus considerable emphasis placed on the dry spell by the press and the desirability of curtailing the use of water. Current water sales which account for 89% of all water income was \$3,033,036.68, a drop of \$116,040.85 below the 1966 year. Operating expense moved up 6.8% to \$2,359,882.39, an increase of \$150,836.58.

Principal payments on the serial bonds and the floating debt was \$134,350. Interest on the bonded and floating debt was \$157,934.63. The department placed \$350,000 in the Water Depreciation and Extension Fund. This left a surplus of \$400,781.15, which under the law reverts to the Sinking Fund to retire water bonds.

The bonded debt as of September 30, 1967 was \$4,380,000 that includes one remaining issue of \$1,500,000 for the development of our present Scituate supply and \$2,880,000 issued in 1962 for the construction of Aqueduct Reservoir and improvements to the Water Purification Works. The \$1,500,000 bond issue will be retired in January, 1968 and the Sinking Fund to retire this issue contains \$3,309,279.10, a surplus of \$1,809,279.10.

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## PRESENT AND FUTURE CAPITAL PLANNING

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Our present capital improvement program was originally estimated to cost \$14,500,000. Included in the program was a Supplemental Tunnel and Aqueduct from the Water Purification Works in Scituate to the Budlong Road area of Cranston, as well as the Alterations and Improvements to the Water Purification Works. These two projects were to be financed by a \$13,000,000 bond issue which had been approved by the voters. The Raw Water Booster Pumping Station would be financed by a transfer of \$1,500,000 from the Water Depreciation and Extension Fund. Contracts already awarded indicate the cost will be in excess of the early estimates. Mayor Joseph A. Doorley, Jr. succeeded in obtaining a 50% Federal grant from the U. S. Commerce Department,

Economic Development Administration, of \$7,250,000. As a result of the Mayor's efforts, the cost of debt service on this program will be reduced by about \$450,000 annually.

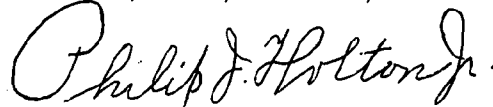
For years, the department has recommended the development of Big River Reservoir located on the south branch of the Pawtuxet and the Wood River Reservoir on the Pawcatuck Basin as a supplementary source of water for the Providence system. Our long-range studies show that the demand on our system will reach the estimated safe yield of our present Scituate supply by the year 1983. As it will require four to five years to complete the field work and to prepare the construction plans for these new facilities, plus six to seven years to build them, it is urgent that work proceed at once. The Mayor and the City Council approved an appropriation that will enable the department to prepare preliminary plans in order to file an application with the newly created State Water Resources Board that will permit Providence to construct the reservoirs, purification works, pumping stations and other appurtenant work. Two years ago, the estimated cost of the project was \$48,000,000.

If our application is approved by the State agency, the department will endeavor to obtain a Federal loan to assist in financing the cost of the field work as well as the preparation of the construction plans.

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Statistical data for the year ended September 30, 1967 is appended to the report.

Respectfully submitted,

A handwritten signature in cursive script that reads "Philip J. Holton, Jr." with a period at the end.

Philip J. Holton, Jr.  
Chief Engineer

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## APPENDIX

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# LIST OF TABLES

## Table

1. SCITUATE WATERSHED--Monthly Rainfall in Inches--Year Ended Sept. 30, 1967.
2. SCITUATE WATERSHED--Monthly and Yearly Rainfall in Inches for 52 Years, 1916-1967.
3. SCITUATE WATERSHED--Monthly and Yearly Runoff in Inches for 52 Years, 1916-1967.
4. SCITUATE WATERSHED--Monthly and Yearly Percent of Rainfall Collected for 52 Years, 1916-1967.
5. SCITUATE WATERSHED--Statistics of Storage--Year Ended Sept. 30, 1967.
- 5A. SCITUATE RESERVOIR--Monthly Elevations for 40 Years, 1928-1967.
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TABLE 1  
MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED  
YEAR ENDED SEPTEMBER 30, 1967

1966-1967	STATIONS ON WATERSHED					
	Rocky Hill	Hopkins Mills	North Scituate	Westcott	Gainer Dam	Average
October	3.67	3.74	3.54	3.71	3.61	3.65
November	5.85	5.17	5.42	5.60	4.99	5.41
December	3.45	3.98	3.94	3.34	4.12	3.77
January	2.37	2.29	2.11	1.98	1.76	2.10
February	3.87	4.19	3.88	4.54	3.54	4.00
March	5.82	6.28	6.39	6.24	6.02	6.15
April	5.05	5.21	4.67	4.56	4.54	4.81
May	8.71	8.79	7.98	7.61	8.58	8.33
June	2.98	2.94	2.86	3.31	3.50	3.12
July	5.88	7.22	5.77	7.32	7.38	6.71
August	5.27	5.84	4.12	4.06	3.21	4.50
September	4.08	4.58	3.87	3.88	2.88	3.86
Total	57.00	60.23	54.55	56.15	54.13	56.41*
Monthly Average	4.75	5.02	4.55	4.68	4.51	4.70

\*Total of averages.



TABLE 2

## MONTHLY AND YEARLY RAINFALL IN INCHES ON SCITUATE WATERSHED

## YEARS ENDED SEPTEMBER 30

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Jan. Year	Dec. Total
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	42.56
1916-1917	2.61	2.34	3.30	3.96	2.18	4.91	2.70	4.15	4.54	1.51	6.13	2.66	40.99	1917	43.16
1917-1918	6.71	0.48	3.23	3.56	3.73	2.15	4.56	3.12	4.49	5.13	4.14	8.79	50.09	1918	47.09
1918-1919	1.07	2.60	3.75	4.89	3.42	6.05	4.31	5.99	3.65	5.47	6.65	6.07	53.92	1919	56.42
1919-1920	2.29	5.05	2.58	3.03	6.10	4.90	6.28	3.95	7.93	4.44	3.86	3.04	53.45	1920	55.81
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	47.84
1921-1922	1.26	8.02	2.54	1.91	2.67	6.40	1.98	5.22	6.34	8.36	9.09	5.35	59.14	1922	54.76
1922-1923	2.92	1.41	3.11	6.78	1.82	3.73	5.92	1.48	4.93	2.78	2.35	2.15	39.38	1923	48.39
1923-1924	5.67	5.68	5.10	4.49	2.92	2.80	6.12	3.66	1.49	1.72	5.85	5.28	50.78	1924	39.15
1924-1925	0.21	2.23	2.38	4.41	2.22	4.76	2.85	2.72	2.36	6.14	1.70	2.96	34.94	1925	44.45
1925-1926	4.32	4.83	5.18	3.26	6.10	3.73	2.46	2.27	1.74	3.80	3.94	1.89	43.52	1926	43.33
1926-1927	5.04	5.55	3.55	2.98	3.31	1.59	2.56	3.41	3.36	3.99	8.55	2.61	46.50	1927	52.45
1927-1928	5.24	9.22	5.63	4.32	4.32	2.70	5.43	1.45	3.91	5.06	5.50	4.80	55.98	1928	45.59
1928-1929	3.99	2.50	3.21	5.20	4.89	3.92	7.56	3.47	2.27	2.06	2.93	1.35	43.35	1929	43.95
1929-1930	3.09	3.06	4.15	2.86	2.88	3.23	2.03	2.74	3.05	3.33	3.00	1.35	34.77	1930	35.58
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	44.43
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	58.60
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	48.13
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	51.14
1934-1935	3.25	4.44	3.55	7.24	3.09	1.93	4.76	2.27	5.12	4.10	1.42	3.59	44.76	1935	41.30
1935-1936	1.04	5.86	0.88	8.81	4.16	9.31	3.80	1.98	2.98	2.63	3.28	7.72	52.45	1936	57.75
1936-1937	2.00	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	50.58
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	57.83
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	44.17
1939-1940	5.76	1.40	3.40	2.82	5.97	4.04	6.00	5.75	2.45	4.41	2.01	2.63	46.65	1940	47.18
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	37.88
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	51.98
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	36.84
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	48.82
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	52.25
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	43.01
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	47.68
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	55.70
1948-1949	4.86	7.43	3.45	4.38	3.62	2.47	4.65	4.03	0.10	1.24	6.07	3.49	45.79	1949	38.58
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	45.11

(e Estimated)

TABLE 2 (Continued)

## MONTHLY AND YEARLY RAINFALL IN INCHES ON SCITUATE WATERSHED

Year	YEARS ENDED SEPTEMBER 30												Total	Year	Jan.-Dec. Total
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			
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	55.38
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	45.26
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	61.10
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	57.44
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	57.74
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	49.06
1956-1957	2.96	4.92	5.46	2.90	2.46	3.33	5.01	1.55	0.72	0.96	1.58	1.58	33.43	1957	36.13
1957-1958	3.07	5.50	7.47	8.46	4.50	5.46	7.55	3.84	2.69	7.04	4.58	6.12	66.28	1958	58.88
1958-1959	3.83	3.03	1.78	2.56	4.12	7.13	4.41	1.15	5.55	6.74	2.27	0.57	43.14	1959	53.82
1959-1960	8.37	5.35	5.60	3.59	5.65	3.27	3.06	4.49	1.15	4.86	2.55	8.10	56.04	1960	47.42
1960-1961	3.58	2.86	4.26	3.24	3.48	4.27	5.92	5.65	2.25	3.01	4.02	9.43	51.97	1961	50.52
1961-1962	2.60	3.18	3.47	4.55	6.15	3.67	2.16	2.05	4.68	1.33	3.37	3.49	40.70	1962	47.58
1962-1963	8.95	4.20	2.98	3.23	3.41	3.71	2.03	3.06	3.36	3.59	1.65	4.41	44.58	1963	40.63
1963-1964	1.59	7.82	2.77	6.32	5.36	2.63	5.65	1.15	1.98	3.86	2.14	3.56	44.83	1964	45.58
1964-1965	2.84	3.81	6.28	4.13	4.51	2.13	2.54	2.03	2.71	2.61	2.58	1.96	36.13	1965	33.21
1965-1966	3.58	2.48	1.95	5.93	5.09	1.59	1.95	3.57	2.40	3.71	3.10	5.28	40.63	1966	45.45
1966-1967	3.65	5.41	3.77	2.10	4.00	6.15	4.81	8.33	3.12	6.71	4.50	3.86	56.41	1967	57.49
52 Years Average	3.59	4.65	4.00	4.15	3.88	4.33	4.15	3.55	3.54	3.84	4.31	4.10	48.09*	Avg.	48.12
52 Years Maximum	11.48	9.64	9.83	8.81	6.15	9.33	7.56	9.36	8.62	11.49	12.75	11.75	66.28	Max.	61.10
52 Years Minimum	0.21	0.48	0.72	1.00	1.82	1.42	0.89	0.94	0.10	0.96	1.33	0.20	33.43	Min.	33.21

\*Total of Monthly Averages.

TABLE 3

## MONTHLY AND YEARLY RUNOFF IN INCHES ON SCITUATE WATERSHED (92.8 SQ. MI.)

YEARS ENDED SEPTEMBER 30

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Jan.-Dec. Total
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	28.25
1916-1917	0.51	0.58	0.97	1.91	1.30	4.29	3.05	2.79	2.18	0.79	0.71	0.63	19.71	1917	22.41
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	23.75
1918-1919	1.02	1.34	2.37	3.81	2.27	5.01	4.43	3.86	1.27	1.35	0.91	3.33	30.97	1919	32.65
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	33.29
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	24.52
1921-1922	0.24	1.65	2.68	1.13	1.80	4.81	3.92	3.50	2.39	3.50	3.59	4.39	33.60	1922	33.32
1922-1923	1.66	1.26	1.37	4.16	2.46	6.10	4.06	2.68	1.15	0.64	0.40	0.25	26.19	1923	29.75
1923-1924	1.27	2.01	4.57	4.52	1.88	3.43	5.70	3.38	1.05	0.20	0.56	0.68	29.25	1924	23.31
1924-1925	0.49	0.45	0.97	0.91	3.65	3.41	2.46	1.46	0.52	0.58	0.39	0.32	15.61	1925	19.04
1925-1926	0.61	1.48	3.25	2.23	3.11	4.38	3.00	1.70	0.62	0.40	0.42	0.17	21.37	1926	21.03
1926-1927	0.76	2.15	2.09	3.34	2.64	3.05	1.71	2.03	1.44	0.32	1.59	0.64	21.76	1927	30.14
1927-1928	1.95	6.73	4.70	2.62	3.76	2.86	3.18	2.05	1.15	1.08	1.17	0.80	32.05	1928	23.03
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	25.18
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	11.82
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	21.67
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	30.15
1932-1933	3.48	6.29	2.26	2.24	2.70	6.28	6.88	1.93	1.57	0.17	0.25	1.52	35.57	1933	27.13
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	28.94
1934-1935	1.33	1.91	3.21	4.78	2.83	4.22	4.05	1.71	1.78	0.62	-0.14	0.26	26.56	1935	21.82
1935-1936	-0.13	1.09	0.75	3.94	1.93	11.51	4.45	1.59	0.44	0.03	-0.02	0.82	26.40	1936	31.64
1936-1937	0.46	0.43	6.06	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	0.57	25.90	1937	27.16
1937-1938	0.79	4.17	3.25	4.15	2.99	2.99	2.29	1.84	2.85	6.93	1.32	1.66	35.23	1938	33.76
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	24.57	1939	21.35
1939-1940	0.63	1.35	1.54	2.03	1.51	4.86	6.89	3.17	1.65	0.84	-0.14	-0.04	24.29	1940	23.98
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	12.43
1941-1942	-0.15	0.52	0.86	1.87	2.54	7.14	1.75	1.06	0.59	0.86	0.26	-0.17	17.13	1942	22.77
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	17.97
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	18.61
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	24.70	1945	24.02
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	21.08
1946-1947	0.49	0.30	1.19	2.16	1.52	4.01	3.31	2.86	1.09	0.53	0.12	0.31	17.89	1947	20.47
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	29.08
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	16.40
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	19.39

(e Estimated)

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

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec. Year Total
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1950-1951	0.04	1.85	2.59	3.24	4.95	4.35	4.30	2.70	1.21	0.14	0.07	-0.07	25.38
1951-1952	0.34	4.62	4.30	4.24	3.30	5.02	2.97	2.46	0.98	-0.35	0.53	-0.20	28.21
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
1953-1954	0.38	1.86	4.32	2.12	2.66	3.56	4.01	3.71	0.33	-0.01	0.93	3.95	27.83
1954-1955	1.33	3.55	5.90	2.46	3.51	4.26	2.76	1.62	0.89	0.02	4.04	1.19	31.73
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	35.92
1956-1957	0.23	1.10	2.90	2.41	2.10	2.78	4.54	0.58	-0.18	-0.41	-0.38	-0.22	15.45
1957-1958	0.06	0.52	2.40	6.59	2.69	6.03	6.89	3.88	0.83	0.85	0.86	1.31	32.91
1958-1959	2.05	1.85	1.83	1.65	2.58	5.86	4.52	1.45	1.23	2.09	0.07	-0.23	24.95
1959-1960	1.17	2.18	4.40	3.29	5.09	3.15	4.01	2.19	0.35	0.38	0.00	1.54	27.75
1960-1961	0.98	2.11	2.42	2.21	3.58	4.97	4.75	3.63	1.30	0.25	0.20	2.30	28.80
1961-1962	1.28	1.53	1.83	4.32	1.66	5.24	3.61	1.53	0.98	-0.09	0.04	0.07	22.01
1962-1963	1.89	2.97	2.12	1.81	1.88	4.47	1.69	1.88	0.54	0.10	-0.25	-0.02	19.08
1963-1964	-0.11	1.59	1.67	4.68	2.82	3.47	4.61	0.87	0.01	0.03	-0.14	-0.11	19.39
1964-1965	0.11	0.47	2.48	1.68	3.43	3.02	1.89	1.04	0.44	-0.10	-0.14	-0.06	14.25
1965-1966	0.04	0.21	0.44	0.70	2.26	3.11	1.10	1.68	0.73	0.11	0.09	0.36	10.83
1966-1967	0.50	1.87	1.37	2.25	1.60	4.52	4.92	4.94	1.61	1.67	1.58	0.61	27.44
52 Years Average	0.83	1.83	2.42	2.80	2.75	4.63	3.80	2.40	1.15	0.63	0.51	0.68	24.43*
52 Years Maximum	7.22	6.73	6.06	6.59	5.09	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.92
52 Years Minimum	-0.20	0.15	0.42	0.70	1.18	2.42	1.10	0.58	-0.18	-0.41	-0.38	-0.41	10.83
													24.46
													35.66
													11.82

\*Total of Monthly Averages.

TABLE 4

## MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SCITUATE WATERSHED

YEARS ENDED SEPTEMBER 30

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Jan.-Dec. Year Total
1915-1916	27.3(e)	43.0(e)	51.7(e)	133.0	62.9	162.2	128.9	76.4	59.9	37.1	82.0	33.9	68.1	1916 66.4
1916-1917	19.5	24.8	29.4	48.2	59.6	67.4	113.0	67.2	48.0	52.3	11.6	23.7	48.1	1917 51.9
1917-1918	26.7	331.2	42.7	51.4	108.3	147.4	74.6	71.8	27.6	9.2	19.8	20.6	47.5	1918 50.4
1918-1919	95.3	51.5	63.2	77.9	66.4	82.8	102.8	64.4	34.8	24.7	13.7	54.8	57.4	1919 57.9
1919-1920	63.3	44.6	105.0	39.3	27.7	195.9	81.2	94.4	52.3	31.1	20.5	11.2	64.3	1920 59.6
1920-1921	27.6	29.6	63.3	80.6	55.2	112.6	67.5	76.4	22.1	37.6	31.3	12.2	52.3	1921 51.2
1921-1922	19.0	20.6	105.5	59.2	67.4	75.2	198.0	67.0	37.7	41.9	39.5	82.0	56.8	1922 60.8
1922-1923	56.8	89.4	44.0	61.4	135.2	163.5	68.6	181.1	23.3	23.0	17.0	11.6	66.5	1923 61.5
1923-1924	22.4	35.4	89.6	100.7	64.4	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.6	1924 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	1925 42.8
1925-1926	14.1	30.6	62.7	68.4	51.0	117.4	122.0	74.9	35.6	10.5	10.6	9.0	49.1	1926 48.5
1926-1927	15.1	38.7	58.9	112.1	79.8	191.8	66.8	59.5	42.8	8.0	18.6	24.5	46.8	1927 57.5
1927-1928	37.2	73.0	83.5	96.3	87.0	105.9	58.6	141.4	29.4	21.3	21.3	16.7	57.2	1928 50.5
1928-1929	30.3	45.4	62.0	77.3	74.6	141.8	80.6	102.6	21.1	2.9	2.4	-6.7	64.0	1929 57.3
1929-1930	2.3	17.3	28.4	68.5	82.6	84.8	90.6	32.1	13.8	2.7	1.3	-8.1	34.6	1930 33.2
1930-1931	3.6	13.5	26.8	43.9	82.1	93.4	95.5	74.0	47.1	18.4	14.3	5.1	45.0	1931 48.8
1931-1932	3.2	14.6	28.8	54.4	90.8	66.6	156.3	52.5	14.2	2.7	5.4	27.8	39.2	1932 51.4
1932-1933	52.5	88.2	108.1	110.9	70.9	95.9	111.3	51.3	38.9	8.5	6.9	20.1	64.2	1933 56.4
1933-1934	27.9	55.4	48.9	97.7	26.0	136.0	116.0	72.4	30.7	3.6	3.6	19.0	53.8	1934 56.6
1934-1935	40.9	43.0	90.4	66.0	91.6	218.6	85.1	75.3	34.8	15.1	-9.8	7.2	59.3	1935 52.8
1935-1936	-12.5	18.6	85.2	44.7	46.4	123.6	117.1	80.3	14.8	1.1	-0.6	10.6	50.3	1936 54.8
1936-1937	23.0	34.4	61.6	91.4	113.1	81.7	69.9	82.6	22.0	1.3	9.3	13.6	53.1	1937 53.7
1937-1938	20.2	51.5	112.5	78.4	102.7	110.7	88.1	44.1	33.1	60.3	42.6	24.6	56.3	1938 58.4
1938-1939	46.2	48.6	99.4	68.5	81.4	89.4	108.2	114.9	10.5	-20.0	3.4	2.6	56.1	1939 48.3
1939-1940	10.9	96.4	45.3	72.0	25.3	120.3	114.8	55.0	67.3	19.0	-7.0	-1.5	52.1	1940 50.8
1940-1941	-3.5	23.9	72.4	49.0	87.4	81.5	121.3	36.7	27.0	9.2	2.5	-205.0	35.9	1941 32.8
1941-1942	-8.6	15.5	22.8	37.8	77.0	85.5	196.6	37.8	15.2	16.0	6.0	-8.8	38.3	1942 43.8
1942-1943	10.6	33.7	71.4	68.8	177.4	119.6	68.7	77.8	18.1	0.6	-7.4	-16.9	54.5	1943 48.8
1943-1944	9.4	27.7	34.4	40.8	49.2	64.2	85.9	80.0	11.5	-14.9	-15.4	15.7	30.1	1944 38.1
1944-1945	18.4	37.4	82.0	84.3	44.6	263.4	64.0	63.4	24.4	5.5	-3.9	-5.3	50.5	1945 46.0
1945-1946	2.7	20.8	60.6	102.9	78.2	260.6	60.3	50.8	49.8	0	20.5	15.2	45.7	1946 49.0
1946-1947	102.1	22.7	30.5	72.5	58.5	104.2	61.3	84.9	26.6	10.9	4.1	7.7	45.0	1947 42.9
1947-1948	7.0	45.8	35.5	21.7	122.6	168.1	94.7	56.1	74.3	15.0	4.8	-13.2	54.2	1948 52.2
1948-1949	7.2	30.1	58.0	81.5	89.0	118.2	68.8	44.2	-20.0	-21.0	0.3	2.6	41.7	1949 42.5
1949-1950	2.2	16.4	45.2	55.2	52.4	104.3	81.8	62.7	34.1	-6.8	4.4	-1.0	42.4	1950 43.0

(e Estimated)

TABLE 4 (Continued)  
MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SCITUATE WATERSHED  
YEARS ENDED SEPTEMBER 30

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Jan.-Dec. Total
1950-1951	1.8	25.6	56.7	65.4	110.5	73.8	108.3	51.9	44.6	4.2	2.3	-2.9	50.7	1951	54.5
1951-1952	8.2	47.9	77.8	86.9	68.6	121.5	67.3	61.7	31.0	-29.2	7.2	-9.0	50.9	1952	44.8
1952-1953	-10.3	12.2	27.4	62.5	93.8	77.6	84.4	98.8	12.0	1.6	-1.7	-4.7	51.4	1953	53.0
1953-1954	6.8	29.9	77.7	72.8	84.2	81.6	74.7	75.6	21.3	-0.4	10.2	51.9	47.1	1954	56.0
1954-1955	42.5	64.6	85.4	246.0	72.8	102.2	66.3	91.0	19.6	0.8	32.7	26.3	56.7	1955	60.8
1955-1956	62.9	122.7	208.3	60.7	93.2	57.8	171.1	81.8	45.7	8.9	-14.1	1.2	67.6	1956	52.7
1956-1957	7.8	22.4	53.1	83.1	85.4	83.5	90.6	37.4	-25.0	-42.7	-24.1	-13.9	46.2	1957	39.3
1957-1958	2.0	9.5	32.1	77.9	59.8	110.4	91.3	101.0	30.9	12.1	18.8	21.4	49.7	1958	60.6
1958-1959	53.5	51.1	102.8	64.5	62.6	82.2	102.5	126.1	22.2	31.0	3.1	-40.4	57.8	1959	50.1
1959-1960	14.0	40.7	78.6	91.6	90.1	96.3	131.0	48.8	30.4	7.8	-0.1	19.0	49.6	1960	53.8
1960-1961	27.4	73.8	56.8	68.2	105.7	116.4	80.2	64.2	57.8	8.3	5.0	24.4	55.4	1961	55.3
1961-1962	49.2	48.1	52.7	94.9	27.0	142.8	167.1	74.6	20.9	-6.8	1.2	2.0	54.1	1962	51.1
1962-1963	21.1	70.7	71.1	56.0	55.1	120.5	83.3	61.4	16.1	2.8	-15.2	-0.5	42.8	1963	37.5
1963-1964	-6.8	20.3	60.3	74.1	52.6	131.9	81.6	75.7	0.5	0.8	-6.5	-3.1	43.3	1964	42.3
1964-1965	3.9	12.3	39.5	40.7	76.1	141.8	74.4	51.2	16.2	-3.8	-5.4	-3.1	37.4	1965	35.8
1965-1966	1.1	8.5	22.6	11.8	44.4	195.6	56.4	47.1	30.4	3.0	2.9	6.8	26.7	1966	30.5
1966-1967	1.4	34.6	36.3	107.1	40.0	73.5	102.3	59.3	51.6	2.5	3.5	1.6	48.6	1967	53.1
52 Years Average	23.1	39.4	60.5	67.5	70.9	106.9	91.6	67.6	32.5	16.4	11.8	16.6	50.8	Avg.	50.8
52 Years 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	Max.	66.4
52 Years Minimum	-12.5	8.5	22.6	11.8	25.3	57.8	56.4	32.1	-25.0	-42.7	-24.1	-205.0	26.7	Min.	30.5

TABLE 5

## SCITUATE WATERSHED

(92.8 Square Miles)

## STATISTICS OF STORAGE - YEAR ENDED SEPTEMBER 30, 1967

1966 1967	1 Regulating Reservoir		2 Westconnaug Reservoir		3 Barden Reservoir		4 Moswansicut Reservoir		5 Ponaganset Reservoir		6 Scituate Reservoir		Total 1-6		
	Elev. M.G.	Avail. Storage M.G.	Elev. M.G.	Avail. Storage M.G.	Elev. M.G.	Avail. Storage M.G.	Elev. M.G.	Avail. Storage M.G.	Elev. M.G.	Avail. Storage M.G.	Elev. M.G.	Avail. Storage M.G.	Avail. Storage M.G.	% of *Tot. Avail.	
October	274.69	0	441.90	2	319.26	0	294.55	69	613.67	0	71	2.3	23,413	58.9	
November	274.75	0	442.15	3	319.45	0	294.63	75	613.65	0	78	2.5	22,537	56.7	
December	275.30	0	442.85	8	320.00	0	294.93	98	614.15	0	106	3.4	23,997	60.4	
January	275.85	0	443.25	12	320.65	1	294.98	101	614.10	0	114	3.5	24,594	61.9	
February	275.80	0	443.85	21	320.65	1	295.13	113	614.10	0	135	4.3	26,563	66.8	
March	275.35	0	442.45	4	320.25	1	294.98	101	614.20	0	106	3.4	27,612	69.5	
April	280.65	118	445.35	55	331.55	90	295.38	133	615.80	0	396	12.6	33,230	83.6	
May	285.65	433	452.55	364	345.40	877	298.20	368	622.72	104	2,143	68.4	38,307	96.4	
June	285.70	437	454.74	485	345.50	885	301.30	655	626.22	268	2,731	87.1	40,747	102.5	
July	285.60	429	454.30	460	345.25	865	302.00	725	626.67	294	2,773	88.5	40,548	102.0	
August	285.70	437	454.50	472	345.45	881	302.10	735	626.97	310	2,835	90.4	39,771	100.1	
September	285.55	425	454.30	460	345.30	869	302.00	725	627.30	329	2,808	89.5	37,782	95.1	
Maximum	May 27	458	May 27	503	May 27	917	Aug. 5, Sept. 30	735	Sept. 30	335	Sept. 30	91.3	May 27	May 27	104.0
For Year	295.95		455.05		345.90		302.10		627.42		2,861		285.85	38,672	
Minimum															
For Year													Nov. 2	Nov. 1	
													269.61	22,431	56.7
1. Regulating Reservoir-Spillway	Elev. 285.50;	Total Storage	428 M.G.;	453 "	453 "	453 "	453 "	453 "	453 "	453 "	453 "	453 "	Total Available Storage	421 M.G.	
2. Westconnaug	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
3. Barden	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
4. Moswansicut	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
5. Ponaganset	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
Total 1-5	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
6. Scituate Reservoir-Spillway	Elev. 294.01;	Total Storage	4,257 M.G.;	425 "	425 "	425 "	425 "	425 "	425 "	425 "	425 "	425 "	Total Available Storage	*3,135 M.G.	
Total 1-6	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	" "	
													36,611	39,746	
													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 5A

## SOITUATE RESERVOIR ELEVATIONS

YEARS ENDED SEPTEMBER 30

1st of Month

Year	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1927-1928	276.13	275.89	284.21	284.26	284.20	284.29	284.28	284.40	284.83	284.43	283.63	283.06
1928-1929	282.87	282.65	282.11	282.34	284.00	284.32	284.28	284.53	284.10	282.77	280.87	278.95
1929-1930	276.88	274.83	273.09	272.60	273.57	275.38	277.54	278.29	277.51	276.23	274.28	272.18
1930-1931	269.80	269.58	266.14	264.86	265.82	267.39	275.51	278.84	281.37	283.32	281.56	280.11
1931-1932	278.25	276.34	274.45	273.35	276.56	277.95	281.85	283.83	283.17	281.06	278.86	277.16
1932-1933	279.75	282.50	284.60	283.61	282.80	282.86	284.23	284.16	283.09	282.68	280.42	278.39
1933-1934	278.26	277.54	276.86	277.58	280.96	280.38	285.04	284.14	284.09	283.14	280.72	278.62
1934-1935	278.55	278.20	278.73	281.17	283.23	281.23	281.20	284.37	283.14	283.50	281.93	279.32
1935-1936	277.32	275.01	274.30	273.13	277.33	278.48	285.48	283.95	282.22	280.91	279.07	277.06
1936-1937	275.97	274.43	273.12	280.27	280.85	279.18	281.83	284.30	285.19	284.06	282.09	281.43
1937-1938	279.80	278.13	280.96	279.49	279.19	279.73	280.86	282.48	283.04	284.87	285.14	280.58
1938-1939	281.12	279.83	278.23	280.01	279.17	281.31	282.72	283.74	282.57	280.86	278.48	276.67
1939-1940	274.62	272.85	273.10	273.18	274.28	274.70	280.08	284.55	285.11	283.53	282.87	280.63
1940-1941	278.35	275.88	276.19	276.21	276.22	278.63	279.70	280.39	280.01	280.07	278.99	277.15
1941-1942	274.75	272.38	270.88	270.02	270.95	273.39	282.29	281.65	281.25	280.34	279.81	278.31
1942-1943	276.16	274.55	275.40	280.05	279.69	280.00	280.98	281.53	283.91	282.46	280.43	278.21
1943-1944	275.93	274.41	273.57	271.84	270.65	270.52	273.95	277.75	277.50	276.20	273.86	271.20
1944-1945	271.68	270.27	273.47	277.37	279.19	279.43	283.76	283.73	283.88	283.76	282.03	279.81
1945-1946	277.63	275.45	275.88	280.85	281.92	282.59	283.71	283.56	284.57	283.41	281.23	282.51
1946-1947	281.16	279.95	278.30	277.97	279.17	279.62	283.18	283.87	284.50	283.91	282.73	280.97
1947-1948	279.29	277.37	279.63	279.66	277.97	280.01	285.22	284.61	285.56	284.69	282.83	281.01
1948-1949	278.73	277.01	278.12	279.00	279.00	281.56	282.64	284.16	284.66	282.50	280.17	278.10
1949-1950	276.05	273.94	272.40	272.07	273.29	275.58	280.13	282.78	284.07	283.58	281.33	279.64
1950-1951	277.64	275.63	275.99	277.74	279.77	282.17	283.41	284.46	285.08	284.19	282.41	280.57
1951-1952	278.54	276.71	281.24	283.40	282.84	281.44	283.39	284.31	285.10	283.92	281.34	280.02
1952-1953	277.76	275.37	273.52	272.74	278.12	282.29	285.13	284.68	284.49	282.38	280.50	278.36
1953-1954	276.08	274.38	274.86	279.60	280.19	281.50	283.75	284.92	284.46	283.05	281.11	280.22
1954-1955	282.61	281.65	282.94	284.57	281.49	282.33	282.66	284.05	284.35	283.65	281.04	282.47



TABLE 5A (continued)  
SCITUATE RESERVOIR ELEVATIONS  
YEARS ENDED SEPTEMBER 30  
1st of Month

Year	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1955-1956	279.97	285.21	284.60	281.10	282.20	282.41	282.18	285.06	283.80	282.87	281.39	278.96
1956-1957	276.87	274.79	274.14	276.52	278.15	279.67	282.10	284.36	283.34	281.00	278.38	275.91
1957-1958	273.47	271.19	269.42	270.66	279.27	280.98	284.82	285.62	284.67	283.80	282.10	280.42
1958-1959	279.27	279.43	279.32	278.74	278.12	279.12	282.98	284.30	283.82	283.61	283.91	281.28
1959-1960	279.01	278.35	279.54	282.60	282.15	284.19	283.12	284.27	284.62	282.55	280.89	278.94
1960-1961	279.00	278.37	279.44	280.03	278.86	281.01	282.99	284.92	285.35	283.23	281.41	279.11
1961-1962	279.99	279.76	279.36	278.81	280.96	279.87	283.34	284.04	284.15	283.45	281.29	279.08
1962-1963	277.14	277.54	280.09	280.12	278.98	279.05	283.61	283.64	284.54	283.55	282.41	280.07
1963-1964	278.08	275.77	274.90	275.36	280.15	280.37	282.17	284.68	283.53	281.43	279.43	277.21
1964-1965	274.98	272.78	271.28	273.08	273.83	277.38	280.27	281.38	281.06	279.60	277.26	274.89
1965-1966	272.71	270.70	269.01	267.69	266.76	268.84	272.57	272.61	273.71	275.84	274.08	272.00
1966-1967	270.63	269.64	271.24	271.94	274.09	275.21	280.45	283.59	285.27	285.05	284.30	282.48
40 Years Average	277.32	276.11	276.37	277.14	278.21	279.16	281.99	283.16	283.27	282.39	280.66	278.82
40 Years Maximum	282.87	285.21	284.60	284.57	284.20	284.32	285.48	285.62	285.56	285.05	285.14	283.08
40 Years Minimum	269.80	267.58	266.14	264.86	265.82	267.39	272.57	272.61	273.71	275.84	273.86	271.20

TABLE 6

## SCITUATE WATERSHED

(92.8 Square Miles)

DRAFT AND YIELD - YEAR ENDED SEPTEMBER 30, 1967

1966 1967	DRAFT FROM SCITUATE RESERVOIR Million Gallons				WATERSHED YIELD Million Gallons				
	To River Below Over Spill- way	Through Gate- house	Total	To Water Purification Works	Total For Month	Average per Day	For Month	Average per Day 52-Year Mean 1966-1967	1916-1967
October	0	179.55	179.55	1,499.14	1,678.69	54.15	803.69	25.93	43.18
November	0	187.61	187.61	1,374.25	1,561.86	52.06	3,022.86	100.76	98.38
December	0	207.35	207.35	1,396.78	1,604.13	51.75	2,204.13	71.10	125.90
January	0	207.90	207.90	1,455.01	1,662.91	53.64	3,630.91	117.13	145.67
February	0	209.38	209.38	1,331.51	1,540.89	55.03	2,587.89	92.42	158.40
March	0	195.53	195.53	1,476.30	1,671.83	53.93	7,293.83	235.28	240.87
April	0	1,516.49	1,516.49	1,343.61	2,860.10	95.34	7,937.10	264.46	204.28
May	1,069.17	3,051.31	4,120.48	1,406.74	5,527.22	178.30	7,967.22	257.01	124.86
June	270.34	820.10	1,090.44	1,711.95	2,802.39	93.41	2,603.39	86.78	61.82
July	217.01	1,654.32	1,881.33	1,587.20	3,468.53	111.89	2,691.53	86.82	32.78
August	25.44	2,833.96	2,859.40	1,681.34	4,540.74	146.48	2,551.74	82.31	26.53
September	0	1,272.63	1,272.63	1,655.19	2,927.82	97.59	982.82	32.76	36.56
For Year	*1,581.96	**12,346.13	13,928.09	17,919.02	31,847.11	87.19	44,277.11	121.31	107.87

\*Includes Flashboard Leakage.

\*\*Of this amount, 303.66 M.G. were discharged to the Pawtuxet River through the 36-inch blow-off outlet from the south 60-inch steel pipe aqueduct.

TABLE 7

## SCITUATE WATERSHED - REFORESTATION

## NUMBER AND KINDS OF TREES PLANTED IN VARIOUS YEARS

Planted During Calendar Year	Fraser Fir	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	0	160,000	40,000	0	0	0	0	0	0	0	0	200,000
1927	0	0	60,000	150,000	0	0	0	0	0	0	0	0	210,000
1928	0	0	10,000	10,000	0	0	0	0	0	0	0	0	20,000
1929	0	0	10,000	75,000	0	0	0	0	0	0	0	0	85,000
1930	0	0	40,000	40,000	0	0	0	0	0	0	0	0	80,000
1931	0	0	40,000	50,000	0	0	0	0	9,000	0	0	0	99,000
1932	0	0	40,000	40,000	0	0	0	0	20,000	0	0	0	100,000
1933	0	0	0	0	0	0	0	0	0	0	0	0	0
1934 & 1935	0	0	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936	0	0	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937	0	0	481,100	0	0	0	0	0	213,200	0	0	0	694,300
1938	0	0	229,000	21,693	0	0	0	0	0	0	0	0	250,693
1939	0	0	8,000	761,000	0	0	0	50,000	0	0	0	0	819,000
1940	0	0	267,387	618,828	0	45,916	0	67,750	0	0	0	0	999,881
1941	0	0	51,000	295,650	0	0	0	0	34,350	0	0	0	381,000
1942	0	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	0
1944	0	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	0
1946	0	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	0
1948	0	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	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 7 (Continued)

## SCITUATE WATERSHED - REFORESTATION

## NUMBER AND KINDS OF TREES PLANTED IN VARIOUS YEARS

Planted During Calendar Year	Fraser Fir	Balsam Fir	Red Pine	White Pine	Douglas Fir	Austrian Pine	Scotch Pine	Jack Pine	White Spruce	Norway Spruce	Hemlock	Larch	Total Number Planted Yearly
1951	0	0	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952	0	0	20,000	0	0	0	0	0	10,000	0	0	10,000	40,000
1953	0	0	10,000	0	0	0	0	0	6,000	0	0	0	16,000
1954	0	2,000	0	0	2,000	0	0	0	0	0	0	6,000	10,000
1955	0	0	0	5,000	0	0	0	0	0	0	0	5,000	10,000
1956	0	0	0	5,000	0	4,500	0	0	0	0	0	0	9,500
1957	0	0	0	6,000	0	0	0	0	0	0	0	0	6,000
1958	0	0	2,700	2,000	0	0	0	0	0	0	0	0	4,700
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	140	540	6,874	784	405	0	0	3,401	49	0	3,461	15,654
1961	0	0	0	2,300	144	0	0	0	0	0	2,000	0	4,444
1962	0	0	0	5,000	0	0	0	0	150	0	2,000	2,000	9,150
1963	0	0	0	5,000	0	0	0	0	170	0	5,000	5,000	15,170
1964	0	0	0	5,000	0	0	0	0	510	0	5,000	5,000	15,510
1965	1,000	2,000	0	5,000	0	0	0	0	0	0	10,000	5,000	23,000
1966	0	0	0	5,000	0	0	0	0	0	0	5,000	5,000	15,000
1967	0	0	0	1,000	0	0	0	0	0	0	3,000	1,000	5,000
Totals	1,000	4,140	2,638,427	2,830,965	14,928	101,221	136,000	121,750	821,781	219,049	61,000	47,461	6,997,722

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 Narragansett Electric Co.	Payment Received
(Period June 20-30, 1930)	87,000	5,470	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
July 1956-June 1957	2,195,400	466,480	1,608,100	9,648.60
July 1957-June 1958	4,141,000	541,760	3,432,900	**20,597.40
July 1958-June 1959	4,987,600	504,310	4,297,300	25,783.80
July 1959-June 1960	5,754,000	515,280	5,078,000	30,468.00
July 1960-June 1961	4,912,500	583,050	4,159,400	24,956.40
July 1961-June 1962	3,998,900	614,800	3,267,600	19,605.60
July 1962-June 1963	2,116,200	679,400	1,334,800	8,008.80
July 1963-June 1964	2,550,450	735,790	1,716,800	10,418.40
July 1964-June 1965	184,800	759,140	0	0.00
July 1965-June 1966	303,700	746,340	0	0.00
July 1966-June 1967	1,195,100	748,410	283,500	4,857.60

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

\*\*Involves net exchange for portion of previous year.

TABLE 9

## WATER PURIFICATION WORKS

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

	Influent Aerator	Plant Influent		Water Filtered		Wash Water		Plant Effluent		Plant Effluent		Number of Filters	
	Hours Operated	Mil. Gals.	Average per day	Mil. Gals.	Average per Day	Mil. Gals.	Average per Day Filt.	Mil. Gals.	Average per Day	Hours	Max.	Min.	Avg.
1966		Total		Total		Total		Total					
1967													
October	736.8	1,499.143	48.359	1,510.790	48.735	15.059	0.485	1.0	1,495.731	48.249	745.0	11.5	3.0
November	715.3	1,374.253	45.808	1,391.847	46.388	10.549	0.352	0.8	1,381.098	46.037	720.0	11.0	4.5
December	744.0	1,396.777	45.057	1,386.796	44.735	10.108	0.326	0.7	1,376.688	44.409	744.0	12.5	3.5
January	743.5	1,455.011	46.936	1,428.961	46.096	11.066	0.358	0.8	1,417.875	45.738	744.0	14.0	6.0
February	669.3	1,331.505	47.554	1,297.520	46.340	11.844	0.423	0.9	1,285.676	45.917	672.0	12.0	5.0
March	742.5	1,476.301	47.623	1,435.425	46.304	10.766	0.348	0.8	1,424.639	45.956	744.0	13.0	4.5
April	714.3	1,343.608	44.787	1,329.678	44.323	10.636	0.355	0.9	1,319.042	43.968	713.9	13.0	2.0
May	744.0	1,406.744	45.379	1,405.642	45.343	11.314	0.365	0.8	1,394.328	44.978	744.0	11.0	4.5
June	720.0	1,711.953	57.065	1,679.045	55.968	17.434	0.581	1.0	1,661.611	55.387	720.0	14.0	3.5
July	744.0	1,587.199	51.200	1,570.818	50.672	12.308	0.397	0.8	1,558.510	50.275	744.0	13.0	5.0
August	744.0	1,681.342	54.237	1,654.785	53.380	10.137	0.327	0.6	1,644.648	53.053	744.0	13.0	4.0
September	720.0	1,655.186	55.173	1,613.362	53.779	10.674	0.356	0.7	1,602.688	53.423	720.0	13.0	4.5
Totals	8,737.7	17,919.022		17,704.469		141.935			17,562.534		8,754.9		
Average	728.1		49.093		48.505		0.389	0.8		48.116	729.6		8.7

Raw water treated with Ferri-Floc before Influent Aeration.

Quicklime added to Ferri-Floc treated water in conduit to tangential mixer.

Chlorine added to water after filtration from Oct. 1, 1966 to Jan. 22, 1967 and before filtration from Jan. 23 to Sept. 30, 1967.

Sodium Silicofluoride added to water after filtration.

Raw water drawn from lower intake at Gainer Memorial Dam all year.

TABLE 9 (Continued)

## WATER PURIFICATION WORKS

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

	Average Rate of Filtration per Filter			Number of Filters Washed		Average Filter Run		Ferri-Floc Used		Quicklime Used		Chlorine Used		Sodium Silicofluoride Used	
	M.G.D.	Total	Avg. per Day	Total	Avg. per Day	Lbs.	Gr. per Gal.	Lbs.	Avg. per Day	Gr. per Gal.	Lbs.	Avg. per Day	Lbs.	Avg. per Day	Parts per Mil.*
1966															
1967															
October	5.90	104	3.4	59.09		141,766	4,573	0.66			124,989	4,032	0.58	3,672	118
November	5.89	79	2.6	69.47		129,155	4,305	0.66			114,706	3,824	0.58	4,065	136
December	5.16	81	2.6	81.09		124,727	4,023	0.63			113,472	3,660	0.57	3,616	117
January	4.94	98	3.2	69.95		116,323	3,752	0.56			110,334	3,559	0.53	4,878	157
February	4.94	98	3.5	64.26		112,700	4,025	0.59			104,736	3,741	0.55	4,599	164
March	4.92	95	3.1	74.25		141,059	4,550	0.67			126,143	4,069	0.60	5,977	193
April	5.72	92	3.1	63.71		128,305	4,277	0.67			124,314	4,144	0.65	5,910	197
May	5.88	86	2.7	64.18		133,733	4,314	0.67			129,965	4,192	0.65	7,021	226
June	5.86	129	4.3	53.21		162,878	5,429	0.67			158,371	5,279	0.65	9,050	302
July	5.86	90	2.9	71.52		150,583	4,858	0.66			151,001	4,871	0.67	8,049	260
August	5.87	73	2.4	90.51		148,008	4,774	0.62			166,287	5,364	0.69	8,016	259
September	5.88	79	2.6	85.14		132,338	4,411	0.56			163,746	5,458	0.69	4,761	159
Totals		1,104				1,621,575					1,588,064			69,614	
Average	5.56		3.0	69.17			4,443	0.63			4,351	0.62		191	0.47
														572	0.86

Total filter hours for year, 76,489.72; average per day, 209.56.

Average quantity of water filtered per run, 16.02 m. g.

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

TABLE 10

## WATER PURIFICATION WORKS

CHEMICALS USED - YEAR ENDED SEPTEMBER 30, 1967

	Pounds of Chemicals Used Total	Lbs. per Day (Average)	Total Gallons of Water Treated	Cost of Chemicals	Pounds of Chemicals Used per 1,000,000 Gals. of Water Treated (Average)	Cost of Chemicals per 1,000,000 Gals. of Water Treated
Ferri-Floc	1,621,575	4,443	17,914,704,000	\$44,597.35	90.52	\$2.49
Quicklime	1,588,064	4,351	17,915,441,000	16,142.51	88.64	0.90
Chlorine	69,614	191	17,610,061,000	4,698.95	3.95	0.27
Sodium Silicofluoride	208,870	572	17,351,216,000	16,432.21	12.04	0.95
Totals	3,488,123			\$81,871.02		\$4.61

Price of Ferri-Floc--From Oct. 1, 1966 to Sept. 30, 1967--\$55.05 per ton.

Price of Quicklime---From Oct. 1, 1966 to July 18, 1967---\$20.19 per ton;  
from July 19 to Sept. 30, 1967-----\$20.90 per ton.

Price of Chlorine----From Oct. 1, 1966 to Sept. 30, 1967--\$135.00 per ton.

Price of Sodium Silicofluoride--From Oct. 1 to Oct. 31, 1966--\$163.80 per ton;  
from Nov. 1, 1966 to Sept. 30, 1967--\$156.70 per ton.



TABLE 11

## WATER PURIFICATION WORKS

## \*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1967

	Monthly Averages												Avg. for Year
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
pH													
Raw	6.4	6.4	6.3	6.3	6.2	6.0	6.2	6.1	5.9	5.7	5.7	5.7	6.1
Aerated Influent	4.2	4.2	4.2	4.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.2
Treated	10.2	10.3	10.3	10.3	10.2	10.2	10.3	10.2	10.2	10.1	10.1	10.1	10.2
Settled	10.1	10.2	10.2	10.2	10.2	10.1	10.2	10.1	10.1	9.9	10.0	10.0	10.1
Filtered	10.1	10.1	10.2	10.1	10.1	10.0	10.1	10.0	10.1	9.9	10.0	10.0	10.1
**Effluent	10.0	10.1	10.1	10.1	10.1	10.0	10.1	10.1	10.0	9.9	10.0	10.0	10.0
Tap	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
Free CO <sub>2</sub>													
Raw	1.6	1.6	1.5	1.5	1.9	2.9	2.0	1.8	2.4	3.5	5.0	6.5	2.7
Aerated Influent	6.1	6.3	6.7	6.2	6.7	7.7	7.1	6.9	7.2	7.5	7.6	7.7	7.0
Phenolphthalein Alkalinity													
Treated	8.6	9.1	9.6	8.6	8.8	9.0	9.3	9.8	9.3	9.3	10.0	10.1	9.3
Settled	8.4	8.3	8.6	7.9	8.1	8.1	8.3	8.6	8.3	8.1	8.8	9.6	8.4
Filtered	8.1	8.0	8.5	7.7	7.5	7.4	7.5	7.7	7.5	7.8	8.3	9.2	7.9
**Effluent	8.1	8.0	8.4	7.6	7.4	7.3	7.5	7.7	7.5	7.8	8.3	9.1	7.9
Tap	6.1	5.7	6.0	5.5	5.5	5.6	5.8	5.9	5.7	6.1	6.5	7.0	6.0
Methyl Orange Alkalinity													
Raw	4.0	3.9	3.9	3.6	3.5	3.4	3.2	3.0	3.0	3.1	3.3	3.2	3.4
Treated	13.5	13.8	14.8	13.4	13.9	14.4	14.2	14.4	14.1	14.6	15.9	16.3	14.4
Settled	13.4	13.3	13.9	12.8	13.1	13.5	13.5	13.7	13.6	14.0	15.0	16.0	13.8
Filtered	13.3	13.0	13.9	12.5	12.4	12.8	12.8	12.8	12.7	13.4	14.4	15.4	13.3
**Effluent	13.2	13.1	13.8	12.1	12.4	12.7	12.7	12.9	12.6	13.3	14.4	15.3	13.2
Tap	12.1	11.4	12.0	10.9	11.1	11.3	11.6	11.8	11.5	12.2	13.1	14.1	11.9
Color													
Raw	7	7	8	8	10	11	10	12	11	10	10	10	10
Settled	9	8	10	11	14	13	11	11	12	11	10	14	11
**Effluent	3	3	3	3	4	3	3	3	3	3	3	4	3
Tap	4	3	3	3	4	4	3	3	3	4	3	4	3
Turbidity													
Raw	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2
Settled	.1	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.3	.2
**Effluent	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Hardness													
Raw	12	12	12	12	12	12	12	12	12	12	12	12	12
**Effluent	28	28	28	27	28	29	29	29	29	29	30	30	29
Tap	28	28	28	28	28	30	29	30	29	30	30	30	29
Iron													
Raw	0.09	0.08	0.08	0.08	0.09	0.09	0.08	0.06	0.06	0.06	0.07	0.11	0.08
Settled	.28	.25	.30	.44	.55	.48	.38	.35	.40	.32	.28	.49	.38
**Effluent	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.01	.00
Tap	.03	.02	.02	.03	.03	.03	.04	.04	.03	.02	.02	.02	.03
Manganese													
Raw	0.05	0.03	0.04	0.03	0.03	.04	0.05	0.03	0.02	0.03	0.05	0.09	0.04
Settled	.01	.00	.01	.01	.01	.01	.01	.00	.00	.00	.01	.03	.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	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
**Effluent	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15
Tap	1.00	1.00	.99	1.00	1.00	1.00	1.00	1.00	.99	.99	1.00	.99	1.00
Temperature (°F)													
Air Avg.-Daily Max.	62	55	42	43	38	45	56	63	79	82	79	72	60
Air Avg.-Daily Min.	40	38	26	28	17	27	36	42	56	63	60	50	40
Raw	57	50	41	35	34	36	40	48	52	54	53	52	46
Settled	55	51	41	36	33	36	42	50	59	63	61	57	49
Tap	61	55	46	42	40	41	46	53	61	61	65	61	53

\*Parts per million, except pH and Temperature.

\*\*Before treatment with sodium silicofluoride.

TABLE 12

## WATER PURIFICATION WORKS

\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Ponaganset Reservoir	17	20	20	7	8	11	8	8	4	23	23	16	14
Coventry Brook	42	32	22	18	17	23	18	13	64	60	54	18	32
Wilbur Brook	135	70	40	28	28	32	37	54	135	170	115	140	82
Westconnaug Reservoir	27	22	18	12	13	12	18	12	15	31	25	14	18
Barden Reservoir	48	37	27	18	17	17	22	13	36	30	54	67	32
Cork Brook	18	25	12	12	10	13	15	13	33	32	24	11	18
Rush Brook	28	19	27	22	13	14	17	28	76	46	56	17	30
Huntinghouse Brook	32	33	17	14	12	13	13	10	23	22	38	17	20
Harrisdale Brook	17	23	18	17	17	16	17	38	42	40	23	13	23
Blanchard Brook	230	120	95	66	52	65	77	135	325	350	275	120	159
Moswansicut Pond	10	15	13	13	13	13	18	22	50	33	16	12	19
Regulating Reservoir	27	30	15	13	43	12	13	17	32	26	28	22	23
Quonopaug Brook	165	130	80	37	27	37	52	90	200	25	220	210	106
Hemlock Brook	70	48	33	23	13	23	28	32	45	300	54	60	61
Betty Pond Stream	33	20	16	6	13	7	8	8	17	26	27	27	17
Spruce Brook	45	18	30	23	23	28	28	32	74	88	152	40	48
Brandy Brook	65	110	75	44	67	7	48	64	140	105	105	33	72
Moswansicut-South	18	17	11	6	7	9	12	10	34	60	18	28	19
Windsor Brook	27	25	13	10	15	22	17	18	38	38	28	13	22
Paine Pond	27	65	40	13	33	18	23	22	60	115	23	17	38
Unnamed Brook-A	**	75	40	33	27	27	43	110	95	112	85	**	65
Unnamed Brook-B	18	10	7	5	8	8	11	13	28	158	32	25	27
Turbidity													
Ponaganset Reservoir	0.5	0.5	1.3	0.1	0.1	0.1	0.1	0.0	0.2	0.9	0.7	0.2	0.4
Coventry Brook	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Wilbur Brook	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.3	0.2	0.1	0.4	0.2
Westconnaug Reservoir	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2
Barden Reservoir	0.3	0.3	0.4	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.2
Cork Brook	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Rush Brook	1.0	0.7	0.6	0.3	0.1	0.1	0.2	0.2	0.6	0.5	0.8	0.2	0.4
Huntinghouse Brook	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1
Harrisdale Brook	0.0	0.4	0.4	0.1	0.1	0.1	0.2	0.7	0.1	0.1	0.1	0.1	0.2
Blanchard Brook	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.3	0.2
Moswansicut Pond	0.0	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Regulating Reservoir	0.3	0.7	0.5	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Quonopaug Brook	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.8	0.2	1.0	0.3
Hemlock Brook	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.1
Betty Pond Stream	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Spruce Brook	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Brandy Brook	0.2	0.5	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.3	0.2
Moswansicut-South	0.3	0.6	0.6	0.1	0.1	0.1	0.2	0.0	0.1	0.8	0.1	0.2	0.3
Windsor Brook	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Paine Pond	0.5	0.5	0.4	0.2	0.3	0.2	0.4	0.1	0.3	0.3	0.2	0.2	0.3
Unnamed Brook-A	**	0.3	0.2	0.2	0.1	0.1	0.4	0.7	1.0	0.6	0.3	**	0.4
Unnamed Brook-B	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.1	0.4	0.1

\*Parts per million.

\*\*No sample obtained--Dry.

NOTE: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest of the former Foster Nike Site.

TABLE 12 (Continued)

## WATER PURIFICATION WORKS

\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
<b>Iron</b>													
Ponaganset Reservoir	0.28	0.08	0.39	0.03	0.07	0.09	0.02	0.08	0.17	0.52	0.75	0.41	0.24
Coventry Brook	.08	.12	.01	.02	.05	.05	.02	.04	.24	.35	.10	.14	.10
Wilbur Brook	.60	.25	.10	.10	.16	.07	.09	.36	1.15	2.25	.70	.63	.54
Westconnaug Reservoir	.15	.15	.05	.14	.09	.04	.10	.08	.27	.52	.15	.14	.16
Barden Reservoir	.42	.20	.06	.17	.08	.14	.03	.08	.33	.38	.80	1.50	.35
Cork Brook	.02	.01	.00	.01	.01	.05	.02	.06	.16	.28	.15	.10	.12
Rush Brook	.27	.14	.08	.18	.05	.09	.17	.28	.87	.85	.70	.35	.34
Huntinghouse Brook	.09	.03	.01	.03	.01	.04	.18	.05	.14	.08	.30	.13	.09
Harrisdale Brook	.08	.13	.07	.07	.08	.07	.05	.26	.46	.46	.15	.15	.17
Blanchard Brook	1.15	.55	.25	.28	.22	.23	.28	.64	1.25	3.00	1.30	.90	.84
Moswansicut Pond	.07	.00	.00	.02	.01	.02	.06	.11	.32	.35	.15	.10	.10
Regulating Reservoir	.14	.04	.07	.07	.02	.07	.05	.22	.48	.28	1.20	.15	.23
Quonopaug Brook	.85	.12	.20	.12	.15	.14	.42	.23	.63	1.50	1.10	1.20	.56
Hemlock Brook	.36	.14	.10	.10	.08	.10	.18	.16	.48	.70	.50	1.00	.33
Betty Pond Stream	.16	.00	.02	.04	.12	.06	.05	.07	.10	.22	.50	.28	.14
Spruce Brook	.15	.03	.05	.06	.07	.10	.07	.07	.40	.37	.55	.19	.18
Brandy Brook	.36	.26	.17	.22	.36	.07	.18	.26	.76	.94	.40	.20	.35
Moswansicut-South	.13	.33	.11	.04	.02	.23	.08	.07	.67	1.15	2.20	1.80	.57
Windsor Brook	.03	.02	.03	.01	.02	.06	.03	.02	.17	.25	.35	.06	.09
Paine Pond	.11	.70	.15	.12	.52	.12	.10	.12	.75	1.12	.29	.16	.36
Unnamed Brook-A	**	.50	.30	.26	.28	.10	.21	.46	.89	1.06	.56	**	.46
Unnamed Brook-B	.10	.03	.02	.02	.07	.02	.03	.06	.38	1.06	.65	.60	.25
<b>Manganese</b>													
Ponaganset Reservoir	0.21	0.15	0.00	0.00	0.13	0.28	0.16	0.14	0.15	0.14	0.15	0.04	0.13
Coventry Brook	.00	.01	.00	.00	.01	.01	.00	.00	.00	.01	.02	.00	.01
Wilbur Brook	.05	.02	.00	.00	.01	.02	.01	.00	.04	.01	.02	.09	.02
Westconnaug Reservoir	.01	.00	.02	.03	.02	.02	.00	.00	.04	.00	.02	.03	.02
Barden Reservoir	.04	.02	.02	.02	.07	.03	.04	.01	.08	.04	.00	.04	.03
Cork Brook	.01	.00	.00	.00	.00	.04	.03	.02	.01	.02	.04	.01	.02
Rush Brook	.00	.01	.02	.06	.01	.15	.07	.06	.00	.00	.11	.02	.04
Huntinghouse Brook	.01	.00	.00	.00	.00	.04	.05	.04	.05	.00	.02	.00	.02
Harrisdale Brook	.00	.00	.01	.01	.01	.02	.01	.14	.00	.06	.05	.00	.03
Blanchard Brook	.04	.04	.03	.02	.03	.04	.02	.03	.00	.00	.00	.02	.02
Moswansicut Pond	.10	.00	.01	.01	.01	.02	.01	.03	.02	.01	.04	.08	.03
Regulating Reservoir	.03	.02	.01	.01	.00	.02	.01	.08	.06	.00	.00	.00	.02
Quonopaug Brook	.04	.02	.00	.00	.01	.14	.01	.00	.00	.04	.05	.00	.03
Hemlock Brook	.04	.00	.00	.00	.01	.03	.03	.04	.04	.02	.00	.00	.02
Betty Pond Stream	.00	.00	.00	.00	.00	.02	.01	.02	.00	.00	.00	.00	.00
Spruce Brook	.03	.02	.01	.00	.01	.01	.02	.01	.01	.02	.03	.00	.01
Brandy Brook	.00	.00	.00	.00	.01	.01	.02	.00	.00	.04	.04	.00	.01
Moswansicut-South	.01	.03	.02	.01	.00	.10	.04	.00	.00	.00	.00	.32	.04
Windsor Brook	.01	.00	.01	.01	.01	.03	.02	.00	.01	.01	.02	.00	.01
Paine Pond	.12	.15	.10	.02	.10	.09	.08	.01	.05	.00	.02	.03	.06
Unnamed Brook-A	**	.02	.02	.01	.02	.03	.03	.04	.04	.00	.01	**	.02
Unnamed Brook-B	.02	.02	.00	.00	.01	.08	.04	.01	.14	.20	.07	.04	.05

\*Parts per million.

\*\*No sample obtained--Dry.

NOTE: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest of the former Foster Nike Site.

TABLE 12 (Continued)

## WATER PURIFICATION WORKS

\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
pH													
Ponaganset Reservoir	4.9	4.5	5.4	4.8	4.7	4.4	4.7	4.6	4.6	5.1	5.0	4.8	4.8
Coventry Brook	5.9	4.7	6.0	6.0	6.0	5.4	5.7	5.8	5.8	6.0	6.8	6.2	5.9
Wilbur Brook	5.1	5.5	5.9	5.6	5.5	5.1	5.5	5.6	5.5	5.9	6.2	6.2	5.6
Westconnaug Reservoir	6.3	6.2	6.3	6.5	6.3	5.6	6.4	6.2	6.0	6.4	6.2	6.3	6.2
Barden Reservoir	6.0	6.1	6.0	5.9	5.8	5.2	5.3	5.5	5.8	6.0	6.4	6.3	5.9
Cork Brook	5.7	5.8	6.0	5.7	5.5	5.1	5.4	5.6	5.6	6.0	6.3	6.3	5.8
Rush Brook	6.3	6.6	6.4	6.3	6.2	5.5	6.0	6.2	6.2	6.3	6.2	6.1	6.2
Huntinghouse Brook	6.3	6.6	6.4	6.3	6.2	6.0	5.4	6.3	6.4	6.5	6.3	6.4	6.3
Harrisdale Brook	6.9	6.6	6.3	6.5	6.3	5.9	6.1	6.6	6.5	6.5	6.4	6.6	6.4
Blanchard Brook	4.8	4.8	4.9	5.0	4.9	4.7	5.2	5.0	5.2	5.5	5.4	5.3	5.1
Moswansicut Pond	6.4	6.4	6.5	6.6	6.5	5.4	5.9	6.2	6.2	6.2	6.1	6.0	6.2
Regulating Reservoir	6.4	6.4	6.1	6.4	6.3	5.8	5.8	6.3	6.5	6.6	6.3	6.2	6.3
Quonopaug Brook	5.1	5.3	5.3	5.2	5.4	4.8	5.3	5.6	5.5	6.0	5.8	6.1	5.5
Hemlock Brook	5.1	5.4	5.5	5.4	5.4	5.0	5.1	5.3	5.6	5.8	5.8	5.9	5.4
Betty Pond Street	6.0	5.9	5.8	5.7	5.7	5.4	5.5	6.0	6.0	6.1	5.9	5.8	5.8
Spruce Brook	5.3	5.2	5.7	5.4	5.5	5.1	5.2	5.4	5.3	5.7	5.6	6.0	5.5
Brandy Brook	6.7	6.5	6.5	6.7	6.8	6.1	6.4	6.7	6.5	6.5	6.1	6.5	6.5
Moswansicut-South	6.4	6.7	6.7	6.6	6.6	6.0	5.5	6.7	6.3	6.3	6.5	6.3	6.4
Windsor Brook	6.0	6.1	6.6	5.9	5.9	5.2	5.5	5.3	6.0	6.0	6.4	6.5	6.0
Paine Pond	5.1	5.5	5.6	5.1	5.2	5.0	5.5	5.5	5.2	5.9	5.6	5.3	5.4
Unnamed Brook-A	**	5.9	5.8	5.9	5.6	5.6	6.0	6.3	6.3	6.4	6.1	*	6.0
Unnamed Brook-B	5.6	5.3	5.6	5.3	5.3	4.9	5.5	5.3	5.1	5.6	5.6	5.5	5.4
Free CO <sub>2</sub>													
Ponaganset Reservoir	9.0	8.0	10.0	6.5	11.5	1.0	5.0	6.0	6.0	16.5	3.0	3.0	7.1
Coventry Brook	5.5	6.5	4.0	3.0	5.5	2.5	2.0	5.5	5.0	4.5	3.5	3.5	4.3
Wilbur Brook	26.5	9.0	10.0	7.0	8.5	5.5	5.0	10.0	14.5	9.5	15.0	7.0	10.6
Westconnaug Reservoir	3.0	3.5	3.0	2.5	3.0	3.0	1.5	2.5	3.0	2.5	2.5	1.5	2.6
Barden Reservoir	4.5	3.5	4.0	2.5	2.0	3.0	3.5	2.5	2.5	2.5	3.0	2.5	3.0
Cork Brook	6.0	4.5	4.0	3.5	3.5	4.5	3.5	3.0	5.5	4.0	4.5	3.0	4.1
Rush Brook	4.5	5.0	3.0	2.5	1.5	3.0	2.0	3.5	2.5	5.0	2.0	5.0	3.3
Huntinghouse Brook	5.0	4.0	3.0	2.0	1.5	1.5	1.5	2.5	2.0	1.5	2.0	3.0	2.5
Harrisdale Brook	2.0	3.5	3.5	2.5	2.5	3.0	1.0	1.0	3.5	2.0	2.0	2.5	2.4
Blanchard Brook	17.5	11.0	15.0	10.5	2.5	7.0	2.0	8.0	19.0	12.0	13.5	8.0	10.5
Moswansicut Pond	2.5	2.0	2.0	1.5	1.5	3.0	1.5	3.0	5.0	3.0	1.5	2.5	2.4
Regulating Reservoir	5.0	4.0	4.0	3.0	2.5	3.5	1.5	2.0	2.5	2.5	2.0	5.0	3.1
Quonopaug Brook	18.0	11.0	15.0	12.0	2.5	8.5	5.0	9.0	16.0	19.0	13.0	6.5	11.3
Hemlock Brook	6.5	4.5	4.5	3.5	2.5	5.0	4.0	3.5	8.0	3.5	4.5	2.5	4.4
Betty Pond Stream	3.5	4.0	6.5	6.0	2.5	4.0	2.0	5.0	2.5	2.0	3.5	4.0	3.8
Spruce Brook	7.0	7.0	5.0	4.5	1.5	4.0	3.5	1.5	7.0	5.5	6.0	2.5	4.6
Brandy Brook	3.0	4.0	2.5	2.5	2.0	3.0	1.0	0.5	4.0	3.5	2.0	3.5	2.6
Moswansicut-South	5.5	3.5	2.0	3.0	1.0	2.0	1.0	1.0	7.0	4.5	1.5	3.0	2.9
Windsor Brook	4.0	3.5	3.0	2.0	2.5	5.0	2.5	5.0	4.0	3.5	2.0	2.0	3.3
Paine Pond	5.5	8.0	8.0	7.0	16.0	11.0	5.5	5.0	7.5	7.0	6.0	6.0	7.7
Unnamed Brook-A	**	9.0	13.0	10.0	11.0	9.5	6.5	5.0	9.0	7.0	6.0	*	8.6
Unnamed Brook-B	9.0	7.0	6.0	5.5	7.0	2.0	1.5	6.0	9.5	4.5	11.0	16.5	7.1

\*Parts per million, except pH.

\*\*No sample obtained--Dry.

NOTE: Unnamed Brook-A is just north of Scituate Town Dump. Unnamed Brook-B is southwest of the former Foster Nike Site.

TABLE 12 (Continued)

## WATER PURIFICATION WORKS

\*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Ponaganset Reservoir	1.5	1.0	2.0	6.0	1.0	1.5	1.0	1.0	0.0	2.0	4.0	1.0	1.8
Coventry Brook	4.5	1.5	4.0	4.0	4.5	2.5	2.5	3.0	4.0	5.0	4.5	5.0	3.8
Wilbur Brook	3.0	3.5	6.0	3.5	4.0	2.0	3.0	4.0	4.0	5.5	6.0	6.5	4.3
Westconnaug Reservoir	4.5	4.5	6.0	4.5	5.5	3.0	5.0	3.5	3.5	4.5	6.0	6.5	4.8
Barden Reservoir	4.0	4.5	5.0	3.5	3.5	2.5	2.5	2.0	3.0	3.0	4.0	4.0	3.5
Cork Brook	3.0	3.0	4.0	3.5	2.5	2.5	3.0	2.5	3.0	3.0	3.5	4.0	3.1
Rush Brook	7.0	10.5	6.0	5.0	5.0	3.0	3.5	9.0	6.0	5.5	6.0	9.0	6.3
Huntinghouse Brook	6.0	5.5	6.0	5.0	4.5	5.5	6.0	6.0	5.0	4.5	7.0	11.5	6.0
Harrisdale Brook	11.0	7.5	8.0	4.5	7.0	5.0	5.0	7.0	7.0	10.0	5.0	11.0	7.3
Blanchard Brook	5.5	2.5	2.0	7.0	3.0	2.0	2.5	2.0	3.0	4.0	3.0	3.0	3.3
Moswansicut Pond	8.0	7.0	7.0	2.5	6.0	2.5	3.5	5.0	5.5	8.0	7.5	6.0	5.7
Regulating Reservoir	3.5	6.5	6.5	5.5	6.5	4.0	3.0	4.5	6.5	6.5	6.5	7.5	5.6
Quonopaug Brook	3.0	4.5	4.0	2.5	4.5	2.5	2.5	4.0	4.0	9.0	5.0	8.5	4.5
Hemlock Brook	3.5	4.0	3.5	2.0	2.5	2.0	1.5	2.0	3.0	3.0	5.5	3.5	3.0
Betty Pond Stream	2.5	4.0	5.0	4.5	4.5	4.0	3.5	3.0	3.0	3.0	4.5	4.0	3.8
Spruce Brook	3.5	3.0	3.0	2.0	2.5	2.0	2.5	2.0	2.0	3.0	4.0	3.5	2.8
Brandy Brook	7.0	8.5	7.0	6.5	7.5	5.5	5.0	7.0	10.0	9.0	6.0	10.0	7.4
Moswansicut-South	9.5	10.5	10.5	8.0	8.0	6.0	6.5	7.5	10.5	14.5	8.0	8.5	9.0
Windsor Brook	3.5	4.5	4.0	2.5	3.0	2.5	2.0	2.5	2.5	3.5	7.5	5.0	3.6
Paine Pond	2.5	5.0	3.0	2.5	3.5	3.0	2.5	2.5	3.5	4.5	5.5	3.0	3.4
Unnamed Brook-A	**	6.5	6.0	5.5	5.5	4.5	5.5	8.0	10.5	13.0	6.0	*	7.1
Unnamed Brook-B	4.0	3.5	3.0	2.5	3.0	2.5	2.0	2.5	2.0	5.0	7.5	5.0	3.5

\*Parts per million.

\*\*No sample obtained--Dry.

NOTE: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest of the former Foster Nike Site.

TABLE 13

## WATER PURIFICATION WORKS

CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER  
IN VARIOUS PARTS OF THE DISTRIBUTION SYSTEM

YEAR ENDED SEPTEMBER 30, 1967

## Monthly Averages

													Avg. for
pH	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year
Neutaconkanut Reservoir	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
28 Phenix Avenue, Cranston	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
Westminster St., Olneyville	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
1275 Reservoir Ave., Cranston	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
750 Reservoir Ave., Cranston	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
Biltmore Hotel	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
Dexter Manor	9.9	10.0	10.0	10.1	10.1	10.1	10.1	10.0	9.9	9.8	9.8	9.9	10.0
State Office Building	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.8	9.8	9.9	10.0
*Longview Reservoir	10.0	10.0	10.1	10.2	10.1	10.1	10.1	10.0	10.0	9.9	9.9	9.9	10.0
Crown Hotel	9.9	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.8	9.8	9.9	10.0
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir	6.4	5.8	6.0	5.6	5.6	5.5	5.6	5.8	5.6	5.9	6.3	6.8	5.9
28 Phenix Avenue, Cranston	5.9	5.6	5.9	5.2	5.5	5.4	5.5	5.8	5.7	5.9	6.4	7.0	5.8
Westminster Street, Olneyville	6.0	5.7	5.9	5.5	5.6	5.6	5.7	5.9	5.8	6.1	6.4	7.1	5.9
1275 Reservoir Ave., Cranston	6.0	5.7	5.9	5.4	5.6	5.6	5.6	5.8	5.8	6.1	6.4	7.1	5.9
750 Reservoir Ave., Cranston	5.9	5.6	5.9	5.4	5.7	5.6	5.7	5.8	5.8	6.0	6.5	7.1	5.9
Biltmore Hotel	6.0	5.7	6.0	5.5	5.6	5.7	5.8	6.0	5.9	6.1	6.6	7.1	6.0
Dexter Manor	6.0	5.7	5.9	5.8	5.9	5.9	5.9	6.2	5.9	6.3	6.8	7.1	6.1
State Office Building	6.1	5.7	6.0	5.6	5.7	5.7	5.8	6.1	5.9	6.2	6.6	7.1	6.0
*Longview Reservoir	7.7	6.8	7.0	6.5	6.2	6.2	6.3	6.6	6.4	6.8	7.0	7.5	6.8
Crown Hotel	6.0	5.7	5.9	5.5	5.7	5.7	5.7	6.1	5.8	6.1	6.5	7.1	6.0
Methyl Orange Alkalinity													
Neutaconkanut Reservoir	13.0	11.8	12.1	11.1	11.1	11.0	11.4	11.8	11.4	12.0	12.8	13.8	11.9
28 Phenix Avenue, Cranston	11.7	11.2	11.8	10.6	10.9	11.1	11.4	11.6	11.4	12.0	12.8	13.9	11.7
Westminster St., Olneyville	11.7	11.3	11.9	10.7	11.0	11.1	11.4	11.6	11.4	12.0	12.9	14.1	11.8
1275 Reservoir Ave., Cranston	11.7	11.3	11.8	10.6	11.0	11.1	11.3	11.5	11.5	12.1	12.9	14.1	11.7
750 Reservoir Ave., Cranston	11.7	11.3	11.9	10.6	11.1	11.2	11.4	11.6	11.5	12.1	13.0	14.2	11.8
Biltmore Hotel	11.8	11.3	12.0	10.8	11.1	11.3	11.5	11.8	11.6	12.1	13.1	14.2	11.9
Dexter Manor	11.8	11.3	12.0	11.0	11.3	11.5	11.6	11.9	11.7	12.5	13.2	14.2	12.0
State Office Building	11.9	11.3	12.0	10.8	11.2	11.3	11.6	11.8	11.7	12.4	13.2	14.2	12.0
*Longview Reservoir	14.9	13.4	13.7	12.5	12.4	12.2	12.3	13.0	12.6	13.5	13.9	14.7	13.3
Crown Hotel	11.8	11.4	12.0	10.9	11.1	11.3	11.6	11.8	11.5	12.2	13.0	14.1	11.9
Color													
Neutaconkanut Reservoir	3	3	3	3	3	3	3	3	3	3	3	3	3
28 Phenix Avenue, Cranston	3	3	3	3	3	3	3	3	3	3	3	3	3
Westminster St., Olneyville	3	3	3	3	3	3	3	3	3	3	3	3	3
1275 Reservoir Ave., Cranston	3	2	3	3	3	3	3	3	3	3	3	4	3
750 Reservoir Ave., Cranston	3	3	3	3	3	3	3	3	3	3	3	4	3
Biltmore Hotel	3	3	3	3	3	3	3	3	3	3	3	4	3
Dexter Manor	3	3	3	3	3	3	3	3	3	3	3	3	3
State Office Building	3	3	3	3	3	3	3	3	3	3	3	3	3
*Longview Reservoir	4	4	4	3	4	5	4	4	4	5	5	5	4
Crown Hotel	3	3	3	3	4	3	3	3	3	4	3	4	3
Iron													
Neutaconkanut Reservoir	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
28 Phenix Avenue, Cranston	.01	.01	.00	.01	.01	.01	.01	.02	.01	.01	.01	.02	.01
Westminster St., Olneyville	.00	.00	.00	.00	.01	.01	.00	.01	.00	.01	.00	.01	.00
1275 Reservoir Ave., Cranston	.00	.00	.00	.00	.01	.00	.01	.01	.01	.00	.01	.01	.01
750 Reservoir Ave., Cranston	.01	.01	.00	.01	.01	.01	.01	.01	.01	.01	.01	.02	.01
Biltmore Hotel	.01	.01	.01	.02	.02	.02	.02	.02	.01	.02	.01	.02	.02
Dexter Manor	.01	.01	.01	.02	.02	.02	.03	.03	.02	.02	.02	.02	.02
State Office Building	.01	.01	.01	.01	.01	.01	.01	.02	.01	.01	.01	.02	.01
*Longview Reservoir	.05	.05	.03	.05	.04	.05	.06	.05	.05	.06	.05	.05	.05
Crown Hotel	.02	.02	.02	.02	.04	.02	.03	.03	.02	.02	.02	.02	.02

\*Sample obtained at Our Lady of Fatima Hospital, North Providence.

TABLE 15

## WATER PURIFICATION WORKS

## BACTERIOLOGICAL EXAMINATION OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1967

1966-1967	Bacteria per Ml (24 Hours on Agar at 35° C.)											
	Raw-A.M.			Raw-P.M.			Settled			Effluent-A.M.		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
October	55	2	25	85	0	26	3	0	0	15	0	1
November	45	2	15	49	3	20	14	0	2	15	0	1
December	8	0	3	30	0	6	8	0	1	66	0	3
January	10	0	3	20	0	4	29	0	3	15	0	1
February	150	1	14	33	0	7	12	0	1	3	0	0
March	50	2	8	30	0	5	10	0	1	6	0	1
April	10	0	4	12	0	4	34	0	4	4	0	1
May	18	1	6	16	1	5	13	0	2	9	0	1
June	12	1	5	9	2	5	11	0	1	2	0	0
July	75	1	10	140	1	13	80	0	5	20	0	2
August	45	4	21	50	5	21	80	0	4	30	0	2
September	37	1	9	28	2	9	700	0	26	6	0	1
For Year	150	0	10	140	0	10	700	0	4	66	0	1
										30	0	1
										20	0	1

A.M. refers to samples obtained in the morning; P.M. to samples obtained in the afternoon.

TABLE 16

## WATER PURIFICATION WORKS

## BACTERIOLOGICAL EXAMINATION OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1967

## Coliform Bacteria

	Raw-A.M.			Raw-P.M.			Settled			Effluent-A.M.			Effluent-P.M.			Tap		
	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.	No. of 10 ml. Por- tions Tested	No. of Tests Con- firm- ed	Index per ml.
1966																		
October	75	57	0.076	40	34	0.085	50	1	0.002	50	1	0.002	40	0	0.000	125	0	0.000
November	59	68	.099	38	38	.100	45	1	.002	46	0	.000	38	0	.000	115	0	.000
December	78	78	.100	42	42	.100	52	0	.000	52	0	.000	42	2	.005	130	0	.000
January	75	65	.087	42	41	.098	50	5	.010	50	0	.000	42	0	.000	125	0	.000
February	69	50	.072	38	30	.079	45	0	.000	46	0	.000	38	0	.000	115	0	.000
March	81	4	.005	44	4	.009	54	0	.000	54	0	.000	44	0	.000	135	0	.000
April	75	9	.012	40	6	.015	50	2	.004	50	0	.000	40	0	.000	125	0	.000
May	75	13	.017	42	11	.026	50	0	.000	50	0	.000	42	1	.002	125	0	.000
June	78	24	.031	44	12	.027	52	8	.015	52	0	.000	44	0	.000	130	1	.001
July	75	12	.016	40	11	.028	50	3	.006	50	0	.000	40	0	.000	125	0	.000
August	78	12	.015	44	7	.016	52	3	.006	52	0	.000	44	0	.000	130	0	.000
September	75	28	.037	40	9	.023	50	2	.004	50	0	.000	40	0	.000	125	0	.000
For Year	903	420	.047	494	245	.050	602	25	.004	602	1	.000	494	3	.001	1,505	1	.000

A.M. refers to samples obtained in the morning, P.M. refers to samples obtained in the afternoon.



TABLE 17

## WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analysis	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria per Ml. 48 Hours on Agar at 20°C.													
Ponaganset Reservoir	1,250	800	3,700	180	140	90	40	10	500	330	170	420	636
Coventry Brook	2,000	200	170	90	110	90	150	180	320	520	300	720	404
Wilbur Brook	6,500	220	240	130	90	80	300	700	2,700	600	700	1,800	1,172
Westconnaug Reservoir	1,400	150	500	300	180	130	200	300	780	420	440	320	427
Barden Reservoir	4,500	200	400	100	110	190	125	50	160	360	320	450	580
Cork Brook	750	270	180	120	70	60	200	240	500	450	750	360	329
Rush Brook	4,000	640	333	700	100	110	260	420	1,200	1,100	3,000	880	1,062
Huntinghouse Brook	2,700	300	300	150	90	100	500	300	240	1,000	1,300	1,100	673
Harrisdale Brook	520	330	500	210	130	160	280	450	900	900	500	550	453
Blanchard Brook	700	300	200	110	150	120	250	650	800	640	800	1,200	493
Moswansicut Pond	1,250	50	100	80	20	110	160	300	700	350	220	400	312
Regulating Reservoir	1,500	300	450	200	170	600	170	120	240	120	110	850	403
Quonopaug Brook	1,100	120	130	90	40	80	120	230	710	750	330	480	348
Hemlock Brook	1,000	200	180	150	150	60	190	170	330	180	170	200	248
Betty Pond Stream	170	150	160	70	210	130	75	1,300	400	520	900	420	375
Spruce Brook	3,500	750	300	200	130	90	150	400	810	480	750	720	690
Brandy Brook	1,700	500	190	250	360	250	750	550	1,300	540	480	270	595
Moswansicut-South	2,000	600	2,200	1,250	250	400	2,100	2,100	1,900	1,800	90	1,500	1,349
Windsor Brook	1,800	250	140	150	125	130	130	340	720	360	440	1,100	471
Paine Pond	1,500	210	200	200	220	100	200	160	700	600	360	250	392
Unnamed Brook--A	*	650	400	750	170	300	800	150	3,600	1,200	780	*	880
Unnamed Brook--B	400	240	180	150	70	100	120	200	680	500	300	1,200	345
Bacteria per Ml. 24 Hours on Agar at 35°C.													
Ponaganset Reservoir	320	170	120	25	10	10	15	2	230	160	180	520	147
Coventry Brook	70	25	20	10	20	12	35	14	150	180	200	190	77
Wilbur Brook	200	40	50	15	15	15	40	200	1,400	520	640	400	295
Westconnaug Reservoir	75	75	30	25	15	12	25	45	500	240	300	120	122
Barden Reservoir	150	45	20	50	35	15	20	15	80	300	180	130	85
Cork Brook	60	35	15	20	6	30	20	50	250	200	540	70	108
Rush Brook	155	110	40	40	15	15	25	55	1,000	640	1,200	250	295
Huntinghouse Brook	100	30	17	10	10	13	80	70	150	540	600	350	163
Harrisdale Brook	75	50	40	25	25	25	25	700	600	400	330	300	216
Blanchard Brook	85	40	45	40	30	30	110	35	450	450	480	420	185
Moswansicut Pond	175	25	15	8	5	20	30	25	330	180	160	140	93
Regulating Reservoir	250	120	70	35	15	25	35	60	210	100	35	1,100	171
Quonopaug Brook	90	25	15	10	10	12	25	50	650	400	270	250	151
Hemlock Brook	100	30	13	15	20	15	30	170	140	110	160	110	76
Betty Pond Stream	70	25	30	10	40	10	70	100	250	380	700	320	167
Spruce Brook	80	35	20	20	9	30	20	200	170	280	300	130	108
Brandy Brook	110	40	45	40	50	140	330	20	480	360	210	60	157
Moswansicut-South	150	90	1,100	200	40	170	600	3,000	1,800	1,600	50	700	792
Windsor Brook	70	30	3	13	15	12	15	40	270	240	400	140	104
Paine Pond	300	60	22	20	14	15	50	60	280	550	350	130	154
Unnamed Brook--A	*	70	14	20	15	18	45	40	2,700	500	600	*	402
Unnamed Brook--B	120	12	16	7	8	12	10	20	380	350	320	350	134

\*No Sample Obtained--Dry.

NOTE: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest of the former Foster Nike Site.

TABLE 17 (Continued)

## WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS BROOKS AND RESERVOIRS  
ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1967

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Coliform Bacteria Index per 100 Ml.												
Ponaganset Reservoir	6	0	5	25	6	6	0	0	70	0	6	6
Coventry Brook	70	110+	6	110+	70	0	5	6	70	110+	110+	110+
Wilbur Brook	70	13	25	70	6	0	0	25	110+	70	110+	70
Westconnaug Reservoir	70	6	6	6	25	6	25	25	110+	110+	110+	70
Barden Reservoir	110+	13	0	6	6	25	0	0	0	6	70	25
Cork Brook	70	25	0	25	6	25	70	6	25	25	110+	25
Rush Brook	70	110+	25	25	6	25	0	70	110+	110+	110+	70
Huntinghouse Brook	110+	25	6	25	0	0	25	25	25	110+	110+	110+
Harrisdale Brook	110+	110+	25	70	13	13	6	25	70	110+	110+	70
Blanchard Brook	25	110+	70	70	70	70	110+	110+	70	110+	110+	110+
Moswansicut Pond	25	6	6	0	6	70	20	70	110+	70	110+	110+
Regulating Reservoir	110+	70	6	25	0	25	0	6	25	25	6	6
Quonopaug Brook	70	70	13	6	6	0	70	6	70	110+	110+	110+
Hemlock Brook	110+	25	6	70	0	70	6	6	25	25	70	6
Betty Pond Stream	6	0	6	0	0	6	0	6	25	25	110+	110+
Spruce Brook	70	0	25	25	5	110+	6	25	70	110+	110+	110+
Brandy Brook	70	0	5	110+	6	25	25	70	25	110+	110+	70
Moswansicut-South	25	25	110+	70	110+	110+	110+	110+	110+	20	25	110+
Windsor Brook	70	0	6	25	70	25	0	6	70	110+	110+	110+
Paine Pond	43	23	4	4	3-	3.6	9.1	240	240	93	460	240
Unnamed Brook--A	*	29	15	15	3.6	9.1	9.1	93	1100	1100+	1100+	*
Unnamed Brook--B	25	6	6	25	5	0	0	5	70	25	110+	110+

\*No sample obtained--Dry.

NOTE: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest of the former Foster Nike Site.

TABLE 18

## WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS PARTS  
OF THE DISTRIBUTION SYSTEM

YEAR ENDED SEPTEMBER 30, 1967

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria per Ml. 48 Hours on Agar at 20° C.													
Neutaconkanut Reservoir	0	0	1	0	114	173	429	498	0	0	0	0	101
28 Phenix Avenue, Cranston	1	0	0	0	0	3	2	1	0	0	0	0	1
Westminster St., Olneyville	0	0	0	0	0	0	1	1	0	0	0	0	0
1275 Reservoir Ave., Cranston	1	0	0	0	0	3	2	0	0	0	0	3	1
750 Reservoir Ave., Cranston	1	0	0	0	1	3	4	1	4	0	0	1	1
Biltmore Hotel	0	0	0	0	16	8	9	18	1	0	0	0	4
Dexter Manor	0	0	0	7	25	18	24	9	1	0	0	4	7
State Office Building	0	1	0	0	17	5	8	43	0	0	0	0	6
*Longview Reservoir	0	0	0	0	216	31	134	254	0	0	0	0	53
Crown Hotel	0	1	0	0	16	4	15	6	0	0	0	0	4
Bacteria per Ml. 24 Hours on Agar at 35° C.													
Neutaconkanut Reservoir	0	1	1	1	1	3	1	1	0	0	0	0	1
28 Phenix Avenue, Cranston	1	1	0	0	1	0	0	1	0	0	0	0	0
Westminster St., Olneyville	1	1	0	2	0	1	0	1	1	0	0	0	1
1275 Reservoir Ave., Cranston	1	1	0	1	0	1	0	1	0	1	0	0	1
750 Reservoir Ave., Cranston	1	1	0	1	0	0	1	0	2	0	0	0	1
Biltmore Hotel	0	0	0	0	2	1	1	1	2	0	0	1	1
Dexter Manor	0	1	1	1	2	0	2	1	0	0	0	0	1
State Office Building	0	1	0	1	1	1	1	0	0	0	0	0	0
*Longview Reservoir	0	1	0	1	1	1	0	0	0	1	0	0	0
Crown Hotel	0	1	0	2	1	1	1	2	0	0	0	0	1
Coliform Bacteria Index per Ml.													
Neutaconkanut Reservoir	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28 Phenix Avenue, Cranston	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Westminster St., Olneyville	.000	.000	.000	.001	.000	.002	.000	.000	.000	.000	.000	.004	.001
1275 Reservoir Ave., Cranston	.000	.000	.001	.002	.000	.000	.000	.002	.001	.000	.000	.000	.000
750 Reservoir Ave., Cranston	.000	.000	.001	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel	.000	.000	.001	.000	.000	.000	.000	.005	.000	.000	.000	.000	.000
Dexter Manor	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
State Office Building	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000
*Longview Reservoir	.000	.000	.002	.000	.000	.000	.000	.000	.002	.000	.000	.000	.000
Crown Hotel	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

\*Sample obtained at Our Lady of Fatima Hospital, North Providence.

TABLE 19  
WATER PURIFICATION WORKS  
MINERAL ANALYSIS OF WATER - YEAR ENDED SEPTEMBER 30, 1967

Parts per Million	Raw Water*					Tap Water				
	1966 Oct.- Dec.	1967 Jan.- Mar.	1967 Apr.- June	1967 July- Sept.	Avg.	1966 Oct.- Dec.	1967 Jan.- Mar.	1967 Apr.- June	1967 July- Sept.	Avg.
Aluminum	0.01	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02
Arsenic		0.00		0.00	0.00		0.00		0.00	0.00
Calcium	4.4	3.9	4.0	3.2	3.9	11.0	9.7	11.3	11.0	10.8
Chloride	6.3	6.5	7.3	8.1	7.1	6.5	6.7	7.9	8.9	7.5
Copper	0.02	0.02	0.02	0.06	0.03	0.00	0.00	0.00	0.00	0.00
Fluoride	0.15	0.15	0.15	0.15	0.15	1.00	1.00	1.00	0.99	1.00
Hardness	12	12	12	12	12	28	29	29	30	29
Iron	0.08	0.09	0.07	0.08	0.08	0.02	0.03	0.04	0.02	0.03
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Magnesium	0.20	0.60	0.50	0.97	0.57	0.10	0.20	0.20	0.62	0.28
Manganese	0.04	0.03	0.03	0.06	0.04	0.00	0.00	0.00	0.00	0.00
Phenolic Compounds		0.000		0.000	0.000		0.000		0.000	0.000
Selenium		0.00		0.00	0.00		0.00		0.00	0.00
Silica	4.1	2.6	4.0	3.7	3.6	4.2	2.4	4.1	4.0	3.7
Sulphate	8.4	10.6	9.3	8.1	9.1	14.4	14.4	14.6	13.4	14.2
Total Solids	44	47	49	46	46	57	66	65	64	63
Loss on Ignition	17	20	24	19	20	21	26	23	20	22
Total Alkalinity	3.9	3.5	3.1	3.2	3.4	11.8	11.1	11.6	13.1	11.9
Phenolphthalein Alkalinity	0.0	0.0	0.0	0.0	0.0	5.9	5.5	5.8	6.5	6.0
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 SEPTEMBER 30, 1967

1966 1967	Ammonia			Raw Water*			Dissolved Oxygen			Ammonia			Tap Water			Dissolved Oxygen			Loss on Igni- tion
	Free	Alb.	Ni- trites	Ni- trates	Chlo- rides	P.P.M.	%	Total Solids	Free	Alb.	Ni- trites	Ni- trates	Chlo- rides	P.P.M.	%	Total Solids			
October	0.044	0.065	0.001	0.02	6.0	9.3	89.4	46	21	0.012	0.042	0.000	0.03	6.4	---	55	26		
November	.030	.065	.000	.02	6.4	10.0	88.5	36	11	.008	.040	.000	.04	6.5	---	61	23		
December	.020	.065	.000	.02	6.5	12.0	93.8	49	18	.010	.036	.000	.03	6.5	---	56	13		
January	.027	.074	.001	.03	6.5	13.6	99.6	48	22	.030	.043	.000	.03	6.5	---	66	24		
February	.023	.066	.000	.04	6.5	12.1	88.6	45	18	.012	.040	.001	.04	6.7	---	72	30		
March	.017	.066	.000	.03	6.6	12.7	92.7	48	19	.023	.060	.001	.04	6.9	---	61	23		
April	.014	.079	.000	.06	6.6	12.7	95.5	50	25	.023	.060	.001	.05	7.1	---	67	21		
May	.007	.074	.000	.05	7.4	10.8	96.1	49	18	.013	.057	.001	.04	7.9	---	59	15		
June	.044	.066	.000	.03	8.0	9.3	85.4	49	29	.030	.063	.001	.04	8.7	---	69	33		
July	.032	.048	.000	.03	8.1	9.0	83.3	48	20	.020	.040	.001	.04	9.0	---	66	20		
August	.044	.060	.000	.05	8.2	8.0	73.5	47	18	.028	.042	.001	.05	9.0	---	67	20		
September	.040	.077	.000	.05	8.1	5.7	53.3	42	20	.031	.051	.000	.05	8.7	---	60	19		
Averages	0.029	0.067	0.000	0.04	7.1	10.4	86.6	46	20	0.020	0.048	0.001	0.04	7.5	---	63	22		

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

TABLE 21

## WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1967

Source of Water Tested	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year				
		Chemical	Bacteri- ological	Micro- scopical	Sanitary Chemical	Miscel- aneous Mineral Total
I Brooks and Streams on Watershed Fourteen Brooks, Two Streams and One Pond	Monthly	1,904	2,995		184	5,083
II Smaller Storage Reservoirs on Watershed						
Regulating Reservoir	Monthly	84	92			176
Westconnaug Reservoir	Monthly	84	100			184
Barden Reservoir	Monthly	84	91			175
Moswansicut Pond	Monthly	84	102			186
Ponaganset Reservoir	Monthly	84	86			170
III Scituate Reservoir						
Surface Water	Bi-Weekly	208	348	24	144	724
Subsurface Water (See Purif. Wks.--Raw Water)						
IV Pawtuxet River--Below Gainer Dam						
Gainer Dam Meter Chamber	Bi-Weekly	182			144	326
Fiskeville, R. I.	Bi-Weekly	182			144	326
Twelve Other Locations on Pawtuxet River	Bi-Weekly	2,340	2,163		2,184	6,687
V Water Purification Works						
Raw Water (from Bottom of Scituate Reservoir)	Daily	2,990	3,922		1,444	8,717
Raw Water (from Bottom of Scituate Reservoir)	Bi-Weekly			24	26	50
Raw Water (from Bottom of Scituate Reservoir)	Monthly				72	72
*Raw Water (from Bottom of Scituate Reservoir)	Every 13 weeks					36
Aerated Influent	Daily	722				722
Nixer	Daily	1,827				1,827
Settled	Daily	2,468	1,235			4,064
Settled	Bi-Weekly			24	26	50
Settled	Monthly	1,083			48	48
Filtered	Daily				248	1,331
Filtered	Monthly				48	48
Effluent	Daily	3,189	1,205		1,692	6,086
Effluent	Bi-Weekly			24	26	50
Effluent	Monthly				24	24
Raw Water (from Bottom of Scituate Reservoir)	Daily at 3:00 P.M.	984	1,243		985	3,212
Unchlorinated Effluent	Daily at 3:00 P.M.	984	990		985	2,959

\*Composite of 13 Weekly Samples.

TABLE 21 (Continued)

## WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1967

Source of Water Tested	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year					Total
		Chemical	Bacteriological	Microscopical	Sanitary Chemical	Miscellaneous	
VI Neutaconkanut Distribution Reservoir Sample from nearby Tap Sample from nearby Tap	Daily Bi-Weekly	1,488 24	1,739		1,161		4,388 24
VII Longview Distribution Reservoir Sample from nearby Tap Sample from nearby Tap	Daily Bi-Weekly	1,488 24	1,740		992		4,220 24
VIII Distribution System Providence Journal Bldg. Tap Water Providence Journal Bldg. Tap Water Providence Journal Bldg. Tap Water Providence Journal Bldg. Tap Water *Sectional Tests **Sectional Tests Consumers' Complaints (52 during the year) Disinfection of Newly Laid Mains ***Sectional Tests	Daily Bi-Weekly Monthly Every 13 Weeks Monthly Daily	2,408 24 768 666 11,862	2,108 24 840 56 826 13,862		1,505 60 360 120 76 8,156	301 24 60 32 1,968 842 902 33,880	6,322 24 60 32 1,968 842 902 33,880
IX Miscellaneous Tests Coagulation Tests to Determine Chemical Dosages Analysis of Ferri-Floc used for Treatment Analysis of Quicklime used for Treatment Analysis of Sod. Silicofluoride Used for Treatment Water, Filter Sand and Other Materials		48 51 16 5 1,524				24 17 32 100 1,196	72 68 48 5 6,360
Totals		39,807	39,729	168	21,604	68	1,196 102,572

\*Composite of 13 Weekly Samples.

\*\*Samples from 10 Random Dwellings (location changed monthly).

\*\*\*Samples from eight fixed locations.

TABLE 22

## WATER DISTRIBUTION SYSTEM

## NEUTACONKANUT HIGH SERVICE PUMPING STATION

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

1966 1967	Electrically-Driven Pumps						Gasoline Engine-Driven Pump					
	No. 1 10" Pump 2700 GPM. TDH 90'		No. 2 12" Pump 3800 GPM. TDH 104'		No. 3 16" Pump 7000 GPM. TDH 96'		Power Used*		No. 4 16" Pump 7000 GPM. TDH 96'		Gas. Used Gals.	Oil Used Qts.
	Operated Hours and Days	Minutes	Operated Hours and Days	Minutes	Operated Hours and Days	Minutes	KWH	Cost	**Operated Hours and Days	Minutes		
October	8	189-30	26	549-30	0	0-00	72,000	\$1,104.77	3	3-00	56	0
November	12	233-00	25	482-30	0	0-00	73,500	1,118.70	0	0-00	0	0
December	14	245-00	25	499-00	0	0-00	66,000	1,045.31	0	0-00	10	0
January	10	236-00	25	508-00	0	0-00	67,000	1,053.67	0	0-00	9	0
February	4	94-00	26	576-30	0	0-00	73,000	1,118.44	0	0-00	0	0
March	1	2-00	31	738-30	0	0-00	82,500	1,206.68	0	0-00	0	0
April	0	0-00	30	719-00	0	0-00	80,000	1,171.73	0	0-00	52	0
May	0	0-00	31	744-00	0	0-00	77,500	1,153.29	0	0-00	0	0
June	3	18-30	30	630-30	8	83-30	79,000	1,249.81	0	0-00	0	0
July	4	4-30	31	658-15	8	76-00	90,500	1,360.27	2	2-00	0	0
August	0	0-00	31	735-00	1	4-00	78,500	1,239.35	5	5-00	93	0
September	2	8-30	30	684-30	5	20-15	80,000	1,245.45	4	4-00	100	0
Totals	58	1,031-00	341	7,522-15	22	183-45	919,500	\$14,067.47	14	14-00	320	0

\*Narragansett Electric Co. Power Rate G.

\*\*Engine Test Run.



TABLE 22 (Continued)

## WATER DISTRIBUTION SYSTEM

## NEUTACONKANUT HIGH SERVICE PUMPING STATION

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

	Electrically-Driven Pumps		Gasoline Engine-Driven Pump		Total Water Pumped Mil. Gals.	Avg. per Day
	No. 1 10" Pump 2700 GPM. TDH 90'	No. 2 12" Pump 3800 GPM. TDH 104'	No. 3 16" Pump 7000 GPM. TDH 96'	No. 4 16" Pump 7000 GPM. TDH 96'		
1966-1967	Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	For Month	
October	33.25	156.13	0	1.10	109.48	3.53
November	41.72	136.65	0	0	178.37	5.95
December	43.17	141.77	0	0	184.94	5.97
January	41.14	144.72	0	0	185.86	6.00
February	16.42	164.07	0	0	180.49	6.45
March	0.35	210.85	0	0	211.19	6.81
April	0	204.60	0	0	204.60	6.82
May	0	212.68	0	0	212.68	6.86
June	3.34	176.32	35.24	0	214.90	7.16
July	1.23	185.88	32.52	0.72	220.35	7.11
August	0	210.31	1.72	2.27	214.30	6.91
September	1.69	191.67	8.53	1.71	203.60	6.79
Totals	182.31	2,135.65	78.01	5.80	2,320.76	6.35

TABLE 23  
WATER DISTRIBUTION SYSTEM  
BATH STREET HIGH SERVICE PUMPING STATION  
OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

	Electrically-Driven Pumps						Gasoline Engine-Driven Pump		
	Pump No. 1 2500 GPM. TDH 100'	Pump No. 2 2500 GPM. TDH 100'		Power Used*			Pump No. 3 5000 GPM. TDH 100'; 150 HP Climax Engine		
1966	Operated		Operated				**Operated		
1967	Days	Hours and Minutes	Days	Hours and Minutes	KWH	Cost	Days	Hours and Minutes	Gas. Used Gals.
October	28	263-30	28	259-30	37,100	\$671.46	2	2-00	31
November	27	236-00	29	258-00	26,740	563.37	5	5-00	81
December	24	223-30	23	229-45	22,260	509.68	4	4-00	64
January	23	248-00	22	227-00	30,940	606.18	5	5-00	106
February	15	153-15	19	182-30	24,220	537.86	4	4-00	64
March	18	173-30	14	130-00	18,480	455.14	4	4-00	76
April	16	164-30	14	141-00	19,880	451.43	4	4-00	54
May	24	211-00	19	161-00	21,420	498.08	5	5-00	0
June	29	318-30	25	298-30	31,920	616.30	4	4-00	63
July	26	228-30	24	237-30	31,640	609.84	1	1-00	0
August	26	266-15	28	257-15	28,140	583.12	1	1-00	141
September	29	274-30	27	276-30	34,300	636.88	3	3-00	76
Totals	285	2,761-00	272	2,658-30	327,040	\$6,739.34	42	42-00	756

\*Narragansett Electric Co. Power Rate G.  
\*\*Engine Test Run.

TABLE 23 (Continued)

WATER DISTRIBUTION SYSTEM

BATH STREET HIGH SERVICE PUMPING STATION

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

	Electrically-Driven Pumps		Gasoline Engine-Driven Pump	Total Water Pumped  Mil.Gals.	Avg. per Day
	Pump No. 1 2500 GPM. TDH 100'	Pump No. 2 2500 GPM. TDH 100'	Pump No. 3 5000 GPM. TDH 100' 150 HP Climax Engine		
	Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	For Month	
1966					
1967					
October	37.92	37.42	0.50	75.93	2.45
November	34.53	37.71	1.42	73.66	2.46
December	33.45	34.44	1.12	69.01	2.23
January	37.29	33.95	1.43	72.67	2.34
February	23.45	27.70	1.14	52.30	1.87
March	27.42	20.40	1.15	48.96	1.58
April	26.05	22.18	1.13	49.36	1.65
May	32.13	24.19	1.46	57.78	1.86
June	44.94	41.44	1.17	87.55	2.92
July	32.41	34.46	0.27	67.14	2.17
August	36.91	35.89	0.28	73.09	2.36
September	38.50	38.49	0.90	77.89	2.60
Totals	405.00	388.27	11.97	805.24	2.20

TABLE 24

## WATER DISTRIBUTION SYSTEM

## AQUEDUCT DISTRIBUTION RESERVOIR\*

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

1966 1967	7 A.M. Statistics on First Day of Month		Water Level			Storage-Mil. Gals.			Operating Characteristics During Month			Daily Storage Fluctuation-M.G.		
	Water Level	Storage Mil.Gals.	Max.	Min.	Avg.	Max.	Min.	Avg.**	Max.	Min.	Avg.	Max.	Min.	Avg.
October	228.95	39.95	230.16	225.69	229.13	42.00	34.35	40.25	3.45	1.40	2.30	5.91	2.40	3.94
November	229.56	40.99	230.05	226.44	229.32	41.82	35.64	40.58	3.61	0.81	2.14	6.18	1.39	3.69
December	229.18	40.34	230.12	225.57	229.86	41.94	34.15	39.79	3.32	1.14	2.29	5.68	1.96	3.93
January	227.65	37.72	230.02	226.07	229.91	41.77	35.01	39.88	2.98	1.11	2.09	5.10	1.91	3.58
February	229.57	41.01	230.02	226.22	228.94	41.77	35.26	39.93	2.48	1.37	2.03	4.26	2.35	3.48
March	229.73	41.28	229.73	226.05	229.03	41.28	34.97	40.08	3.14	1.45	2.13	5.48	2.49	3.65
April	228.92	39.90	230.13	223.44	229.10	41.96	30.49	40.20	4.12	1.20	2.57	7.06	2.06	4.41
May	228.85	39.78	229.82	225.76	229.00	41.43	34.47	40.03	3.34	1.43	2.26	5.73	2.46	3.89
June	229.35	40.53	230.35	225.95	229.49	42.32	34.85	40.87	4.09	1.27	2.64	7.01	2.18	4.51
July	229.20	40.37	230.29	226.14	229.42	42.22	35.13	40.75	4.09	1.34	2.48	6.99	2.30	4.25
August	230.11	41.92	230.17	226.19	229.43	42.02	35.12	40.77	3.30	0.46	2.16	5.65	0.79	3.71
September	229.15	40.29	230.25	225.84	229.53	42.16	34.61	40.94	3.91	1.51	2.33	6.70	2.58	3.99
For Year			230.35	223.44	229.18	42.32	30.49	40.34	4.09	0.45	2.29	7.06	0.79	3.92

\*Storage capacity at overflow elevation of 231.00=43,400,000 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

## NEUTAONKANUT DISTRIBUTION RESERVOIR

## OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

1966 1967	7 A.M. Statistics on First Day of Month			Operating Characteristics During Month									
	Water Level	Storage		Water Level		Storage-Mil. Gals.		Daily Water Level Fluctuation-Ft.		Daily Storage Fluctuation-M.G.		Avg.	
		Mil.	Gals.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
October	226.47	41.16		226.90	223.45	226.36	226.36	41.93	35.85	40.97	3.45	0.95	1.76
November	226.39	41.02		226.88	224.17	226.39	226.39	41.90	37.12	41.02	2.51	0.42	1.46
December	226.21	40.71		226.71	223.59	226.24	226.24	41.59	36.10	40.76	2.74	0.77	1.61
January	225.86	40.09		226.67	224.00	226.28	226.28	41.52	36.82	40.83	2.53	0.61	1.39
February	226.38	41.00		226.69	224.04	226.24	226.24	41.55	36.89	40.76	2.29	0.92	1.42
March	226.37	40.98		226.83	223.95	226.27	226.27	41.81	36.73	40.81	2.88	0.80	1.50
April	226.50	41.21		226.84	223.00	226.32	226.32	41.82	35.06	40.90	2.87	0.63	1.61
May	226.31	40.88		226.61	223.47	226.29	226.29	41.41	35.89	40.84	3.01	0.69	1.61
June	226.37	40.98		226.89	222.53	226.24	226.24	41.91	34.23	40.76	3.75	1.20	2.48
July	226.36	40.97		226.82	222.62	226.33	226.33	41.79	34.39	40.91	3.62	0.31	1.94
August	226.25	40.77		226.92	223.08	226.28	226.28	41.97	35.20	40.83	3.84	0.88	2.06
September	225.99	40.32		226.66	223.03	226.29	226.29	41.50	35.11	40.84	3.60	0.54	1.90
For Year				226.92	222.53	226.29	226.29	41.97	34.23	40.84	3.84	0.31	1.73
											6.77	0.54	3.04

\*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 26

## WATER DISTRIBUTION SYSTEM

## LONGVIEW DISTRIBUTION RESERVOIR\*

OPERATING STATISTICS - YEAR ENDED SEPTEMBER 30, 1967

7 A.M. Statistics on First Day				Operating Characteristics During Month										
1966 1967	Water Level	Storage		Water Level		Storage-Mil.Gals.		Daily Water Level Fluctuation-Ft.		Daily Storage Fluctuation-M.G.				
		Mil. Gals.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Avg.		
	304.86	11.87	305.37	302.71	304.81	12.11	10.88	11.85	2.28	0.91	1.56	1.06	0.43	0.73
	305.13	12.00	305.30	302.00	304.47	12.08	10.55	11.69	2.82	0.60	1.60	1.06	0.28	0.73
	304.65	11.78	305.52	302.72	304.69	12.18	10.88	11.79	2.27	0.96	1.51	1.05	0.45	0.70
	304.16	11.55	305.35	302.75	304.70	12.10	10.90	11.80	2.35	0.82	1.57	1.09	0.38	0.73
	304.85	11.87	305.46	302.12	304.96	12.15	10.61	11.92	2.86	1.36	1.71	1.15	0.32	0.76
	304.75	11.82	305.35	302.71	304.80	12.10	10.88	11.85	2.64	1.25	1.71	1.22	0.58	0.80
	305.42	12.13	305.74	303.16	305.22	12.28	11.08	12.04	2.29	1.27	1.72	1.05	0.59	0.80
	305.15	12.01	305.36	302.03	304.45	12.10	10.56	11.68	2.72	0.79	1.74	1.26	0.36	0.80
	304.40	11.66	305.27	301.10	304.32	12.06	10.13	11.62	3.50	1.24	1.94	1.62	0.57	0.90
	304.71	11.80	305.52	301.47	304.28	12.18	10.30	11.60	2.98	1.04	1.74	1.38	0.47	0.80
	303.00	11.01	305.31	301.41	304.35	12.08	10.27	11.63	2.86	0.49	1.48	1.33	0.22	0.69
	304.58	11.74	305.35	302.34	304.54	12.10	10.71	11.72	2.94	1.12	1.68	1.35	0.29	0.76
			305.74	301.10	304.63	12.28	10.13	11.77	3.50	0.49	1.66	1.62	0.22	0.77

\*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 27  
WATER PIPE LAID, REMOVED AND ADDED  
YEAR ENDED SEPTEMBER 30, 1967

City or Town	Pipe Laid in Feet								Total
	6"	8"	10"	12"	16"	20"	24"	30"	
Providence	3,641.33	8,779.98	0	5,172.50	2,817.69	0	0	0	20,411.50
Cranston	2,677.00	14,557.91	0	867.20	0	0	0	0	18,102.11
Johnston	1,726.00	5,596.28	0	0	0	0	0	0	7,322.28
North Providence	687.30	7,618.73	0	535.20	0	0	0	0	8,841.23
Totals	8,731.63	36,552.90	0	6,574.90	2,817.69	0	0	0	54,677.12

City or Town	Pipe Removed in Feet								Total
	6"	8"	10"	12"	16"	20"	24"	30"	
Providence	14,356.41	5,510.26	0	1,006.85	3,084.26	0	0	0	23,957.78
Cranston	706.10	2,273.45	0	475.22	0	0	0	0	3,454.77
Johnston	6.70	510.75	0	0	0	0	0	0	517.45
North Providence	0	0	0	0	0	0	0	0	0
Totals	15,069.21	8,294.46	0	1,482.07	3,084.26	0	0	0	27,930.00

City or Town	Net Length Added to Distribution System								Total
	6"	8"	10"	12"	16"	20"	24"	30"	
Providence	-10,715.08	3,269.72	0	4,165.65	-266.57	0	0	0	-3,546.28
Cranston	1,970.90	12,284.45	0	391.98	0	0	0	0	14,647.34
Johnston	1,719.30	5,085.53	0	0	0	0	0	0	6,804.83
North Providence	687.30	7,618.73	0	535.20	0	0	0	0	8,841.23
Totals	-6,337.58	28,258.44	0	5,092.83	-266.57	0	0	0	26,747.12

PUBLIC WATER MAINS IN USE ON SEPTEMBER 30, 1967

*Special High Pressure Fire Ser ice Included	
The length of 6-inch mains tabulated for Providence includes	691.45 feet in Pawtucket.
" " " 12-inch mains "	" " " 44.47 "
" " " 12-inch mains "	" Johnston " 146.00 "
" " " 6-inch mains "	" North Providence " 179.30 "
	" Pawtucket.



TABLE 29

GATES IN USE ON SEPTEMBER 30, 1967

Stop Gates												Gates on Public Fire Hydrants			Gates on Unwatering Hydrants			Gates on Blow-offs			Total Number of Gates		
6"	8"	10"	12"	16"	20"	24"	30"	36"	42"	48"	60"	Total	6"	8"	Total	6"	8"	12"	Total				
PROVIDENCE																							
4453	975	16	660	273	28	72	39	6	3	10	0	6,535	1,481	1,517	2,998	8	14	22	1	2	1	4	9,559
CRANSTON																							
1731	893	0	216	9	0	11	16	13	13	4	1	2,907	1,052	5	1,057	3	5	8	0	2	3	5	3,977
JOHNSTON																							
332	376	1	31	12	6	5	0	0	0	2	0	765	274	11	285	3	0	3	0	0	2	2	1,055
NORTH PROVIDENCE																							
449	276	0	73	0	0	5	1	1	0	0	0	805	308	0	308	0	3	3	0	0	0	0	1,116
TOTALS																							
6965	2520	17	980	294	34	93	56	20	16	16	1	11,012	3,115	1,533	4,648	14	22	36	1	4	6	11	15,707

NOTE: The above table includes all gates in the special high pressure fire system in Providence and gates on Neutaconkanut Conduit and Scituate Aqueduct east of the Siphon Chamber.

TABLE 30

SERVICE PIPES INSTALLED AND REMOVED--YEAR ENDED SEPTEMBER 30, 1967

City or Town	INSTALLED			Total	REMOVED			Total
	General	Fire Supply	Fire Supply		General	Fire Supply	Fire Supply	
	Copper 3/4"-2"	Cast Iron 4"-12"	Cast Iron 4"-12"		Lead or Copper 1/2"-2"	Cast Iron 4"-12"	Cast Iron 4"-12"	
Providence	246	21	19	286	264	15	13	292
Cranston	250	2	2	254	70	0	0	70
Johnston	126	0	0	126	6	0	0	6
North Providence	164	2	0	166	1	0	0	1
Totals	786	25	21	832	341	15	13	369

TABLE 31

NUMBER AND SIZE OF ACTIVE SERVICES--YEAR ENDED SEPTEMBER 30, 1967

	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	24"	30"	Totals
Providence	223	24,988	7,463	1,709	510	376	543	6	991	986	81	4	8	2	0	0	37,790
Cranston	5	6,940	7,910	1,705	41	357	308	0	90	83	27	0	4	0	1	1	17,472
Johnston	0	764	2,227	764	9	166	59	0	8	11	2	0	0	0	0	0	4,010
North Providence	0	1,075	2,378	772	6	211	71	0	20	8	4	0	2	0	0	0	4,547
Totals	228	33,767	19,978	4,950	566	1,110	981	6	1,109	988	114	4	14	2	1	1	63,819

TABLE 32

## PUBLIC FIRE HYDRANTS

HYDRANT ACTIVITIES DURING YEAR ENDED SEPTEMBER 30, 1967

	Providence	Cranston	Johnston	North Providence	Totals
Post Hydrants Installed	127	56	3	12	198
Post Hydrants Removed	23	12	1	3	39
Flush Hydrants Removed	106	0	0	0	106

## HYDRANTS IN DISTRIBUTION SYSTEM ON SEPTEMBER 30, 1967

Post Hydrants	2,689	1,101	301	320	4,411
Flush Hydrants	447	0	0	0	447
Totals	3,136	1,101	301	320	4,858*

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

TABLE 33  
NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES  
YEAR ENDED SEPTEMBER 30, 1967

Size	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	24"	Total
PROVIDENCE														
Make														
Trident	26,952	2,907	864	1,124	1,493	86	64	59	16	5	-	-	-	33,570
Thomson	3,494	313	212	45	109	-	3	-	-	-	-	-	-	4,176
Empire	37	-	8	33	14	-	-	-	-	-	-	-	-	92
Crown	14	4	2	2	-	-	-	-	-	-	-	-	-	22
Hersey	-	-	-	2	3	2	13	68	6	-	-	-	-	94
Venturi	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Totals	30,497	3,224	1,086	1,206	1,619	88	80	127	22	5	-	2	-	37,956

*CRANSTON														
Make														
Trident	14,583	1,045	409	254	291	2	6	13	4	-	1	-	-	15,608
Thomson	743	25	16	8	11	-	-	-	-	-	-	-	-	803
Hersey	-	-	-	-	1	-	-	3	4	-	-	-	-	8
Venturi	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Dallsert	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Totals	15,326	1,070	425	262	303	2	6	16	8	-	3	-	1	17,422

\*Includes 1-6" Trident Compound Meter supplying City of Warwick  
2-6" Trident Protectus Meters supplying City of Warwick  
1-12" Trident Crest Meter supplying Kent County Water Authority  
1-12" Venturi Meter supplying Kent County Water Authority at Water Purification Works  
1-24 Dallsert Flow Tube Meter supplying City of Warwick

*JOHNSTON														
Make														
Trident	3,155	507	97	50	45	-	-	-	1	-	-	-	-	3,855
Thomson	143	5	3	-	-	-	-	-	-	-	-	-	-	151
Totals	3,298	512	100	50	45	-	-	-	1	-	-	-	-	4,006

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

*NORTH PROVIDENCE														
Make														
Trident	3,508	495	212	54	36	1	2	3	-	-	1	-	-	4,312
Thomson	218	5	3	1	1	-	-	-	-	-	-	-	-	228
Empire	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Hersey	-	-	-	-	-	-	-	5	-	-	-	-	-	5
Venturi	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Totals	3,726	500	215	56	37	1	2	8	-	-	2	-	-	4,547

\*Includes 1-12" Trident Crest Meter supplying East Smithfield Water Co.  
1-12" Venturi Meter supplying Town of Smithfield

TABLE 34  
CAPACITY AND CONSUMPTION

Year Ended Sept. 30	Purification Works Capacity M.G.D.	Total During Year M.G.	Average M.G.D.	Consumption			Rate in M.G.D.	Maximum Hour	
				Total M.G.	Maximum Day Percent of Plant Capacity	Percent of Average Day		Percent of Plant Capacity	Percent of Average Day
1941	61.6	11,020.9	30.2	40.8	66.2	135.1	66.7	108.3	220.9
1942	61.6	11,409.3	31.3	38.3	62.2	122.4	54.7	88.8	174.8
1943	61.6	11,586.8	31.7	46.7	75.8	147.3	77.0	125.0	242.9
1944	61.6	12,538.9	34.3	49.5	80.4	144.3	69.8	113.3	203.5
1945	61.6	12,528.9	34.3	43.6	70.8	127.1	71.3	115.7	207.9
1946	61.6	12,685.3	34.8	50.5	82.0	145.1	82.1	133.3	235.9
1947	61.6	13,169.0	36.1	49.8	80.8	138.0	71.8	116.6	198.7
1948	61.6	13,644.7	37.3	54.7	88.8	146.6	82.3	133.6	220.6
1949	61.6	13,510.3	37.0	60.2	97.7	162.7	89.3	145.0	241.4
1950	61.6	13,373.8	36.6	62.0	100.6	169.4	98.4	159.7	268.9
1951	61.6	13,721.6	37.6	56.4	91.6	150.0	91.2	148.1	242.6
1952	61.6	13,829.3	37.8	70.0	113.6	185.2	110.4	179.2	292.1
1953	61.6	14,182.8	38.9	66.4	107.8	170.7	100.8	163.6	259.1
1954	105.0	13,840.6	37.9	68.6	65.3	181.0	118.1	112.5	311.6
1955	105.0	14,933.0	40.9	70.2	66.9	171.6	117.1	111.5	286.3
1956	105.0	15,145.2	41.4	68.8	65.5	166.2	103.6	98.7	250.2
1957	105.0	15,963.8	43.7	84.7	80.7	193.8	131.0	124.8	299.8
1958	105.0	14,761.0	40.4	68.5	65.2	169.6	108.7	103.5	269.1
1959	105.0	15,430.0	42.3	71.1	67.7	168.1	111.5	106.2	263.6
1960	105.0	15,859.0	43.3	77.4	73.7	178.8	120.3	114.6	277.8
1961	105.0	16,495.9	45.2	69.3	66.0	153.3	112.3	107.0	248.5
1962	105.0	16,687.5	45.7	73.8	70.3	161.5	112.5	107.1	246.2
1963	105.0	17,488.8	47.9	87.2	83.0	182.0	129.3	123.1	269.9
1964	105.0	18,383.0	50.2	86.0	81.9	171.3	139.6	133.0	278.1
1965	105.0	19,470.6	53.3	88.5	84.3	166.0	134.1	127.7	251.6
1966	105.0	18,425.5	50.5	82.3	78.4	163.0	118.9	113.2	235.4
1967	105.0	17,561.3	48.1	74.2	70.7	154.3	108.6	103.4	225.8

TABLE 35

## CONSUMPTION OF WATER - MILLION GALLONS

YEAR ENDED SEPTEMBER 30, 1967

	Low Service (1)			High Service (2)			Total Service (1,2)					
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total
1966												
1967												
October	46.86	28.90	39.63	1,228.52	9.40	7.54	8.59	266.18	56.10	37.06	48.22	1,494.70
November	46.04	26.58	37.67	1,130.04	9.08	7.39	8.41	252.24	54.64	34.11	46.08	1,382.28
December	42.86	25.06	36.32	1,125.98	8.89	6.79	8.20	254.18	51.42	31.85	44.52	1,380.16
January	42.99	24.47	37.26	1,155.15	8.96	6.82	8.33	258.20	51.76	31.29	45.59	1,413.35
February	42.61	28.35	37.59	1,052.64	8.80	7.56	8.32	232.83	51.14	35.91	45.91	1,285.47
March	42.15	26.18	37.60	1,165.64	9.09	7.18	8.38	259.84	51.22	33.49	45.98	1,425.48
April	42.89	25.80	35.52	1,065.54	9.01	7.58	8.47	254.07	51.76	34.08	43.99	1,319.61
May	42.77	26.48	36.22	1,122.92	9.69	7.46	8.74	270.81	52.26	33.94	44.96	1,393.73
June	60.01	28.63	45.31	1,359.44	13.24	7.81	10.08	302.30	74.23	36.44	55.39	1,661.74
July	55.07	28.49	40.96	1,269.68	11.38	7.75	9.30	288.27	66.11	36.38	50.26	1,557.95
August	52.42	24.43	43.85	1,359.34	10.67	7.06	9.25	286.66	62.21	31.49	53.10	1,646.00
September	55.53	28.77	43.98	1,319.40	10.89	7.07	9.38	281.45	66.17	35.84	53.36	1,600.85
For Year	60.01(a)	24.43(b)	39.32	14,354.29	13.24(c)	6.79(d)	8.79	3,207.03	74.23(e)	31.29(f)	48.11	17,561.32
	(a) June 16; (b) Aug. 13			(c) June 17 (d) Dec. 25			(e) June 16; (f) Jan. 1					

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

(2) Includes water supplied to East Smithfield Water Co. and Smithfield Water Department.

WATER SOLD TO STATE INSTITUTIONS AND CITY OF WARWICK

YEAR ENDED SEPTEMBER 30, 1967

1966- 1967	STATE INSTITUTIONS				CITY OF WARWICK				Average Gallons per Day	
	S.S. 50, 767 Sockanosset Rd.	S.S. 24, 215A East St.	S.S. 47, 269 Pettet- consett Cranston 24" Dall- sert Flow Meter	S.S. 47, 475 Pawtuxet Bridge Cranston 6" Tri- Comp. Meter	S.S. 61, 515 Oaklawn Avenue Cranston 6" Tri- Protectus Meter	S.S. 61, 780 Dresden Street Cranston 6" Tri- Protectus Meter				
							Gallons per Month	Total Gallons per Month		Average Gallons per Day
October	39,526,000	6,150	39,532,150	1,275,231	129,553,650	1,448,250	3,982,750	4,729,425	139,614,075	4,503,680
November	35,652,000	2,850	35,654,850	1,188,495	130,083,000	259,500	3,324,550	5,058,525	138,925,575	4,630,853
December	34,213,000	14,700	34,227,700	1,104,119	122,685,000	Closed 11/7	3,444,600	5,546,850	131,676,450	4,247,622
January	37,086,000	975	37,086,975	1,196,354	134,886,000		3,707,175	5,976,900	144,570,075	4,663,551
February	31,742,000	2,175	31,744,175	1,133,721	123,472,000		3,252,375	4,730,850	131,455,225	4,694,829
March	35,757,000	2,175	35,759,175	1,153,522	124,115,000		3,812,475	5,998,875	133,926,350	4,320,205
April	32,682,833	5,325	32,688,158	1,089,605	110,027,000		3,592,950	5,893,425	119,513,375	3,983,779
May	36,958,000	2,925	36,960,925	1,192,288	137,143,000		4,867,250	9,939,525	151,749,775	4,895,154
June	36,470,000	0	36,470,000	1,215,667	174,422,000		10,605,150	22,423,425	207,450,575	6,915,019
July	39,066,000	1,425	39,067,425	1,260,240	145,963,000		5,985,000	14,570,775	166,518,775	5,371,573
August	39,851,000	675	39,851,675	1,285,538	148,952,000		6,119,400	12,268,650	167,340,050	5,398,066
September	38,654,000	44,850	38,698,850	1,289,962	151,359,222		6,254,850	14,292,225	171,906,297	5,730,210
For Year	437,657,833	84,225	437,742,058	1,199,293	1,632,660,872	1,707,750	58,948,525	111,429,450	1,804,646,597	4,944,237

TABLE 37

WATER SOLD TO EAST SMITHFIELD WATER COMPANY, SMITHFIELD WATER DEPARTMENT  
AND KENT COUNTY WATER AUTHORITY

YEAR ENDED SEPTEMBER 30, 1967

	EAST SMITHFIELD WATER COMPANY				SMITHFIELD WATER DEPT.				KENT COUNTY WATER AUTHORITY			
	S.S. 51, 198		S.S. 52, 403		S.S. 71, 980		S.S. 58, 985		S.S. 60, 757			
	Waterman Street	12" Tri-Crest Meter	Dean Avenue	8" Tri-Crest Meter	Smithfield North	Providence 12" Flow Meter	Oaklawn Avenue	12" Tri-Crest Meter	Purification Works	Scituate		
	Gallons per Month	Gallons per Month	Gallons per Month	Gallons per Month	Gallons per Month	Average Gallons per Day	Gallons per Month	Gallons per Month	Gallons per Month	Gallons per Month	Total Gallons per Month	Average Gallons per Day
1966-1967												
October	12,225,000	4,486,500	16,711,500	539,081	775,400	25,013	6,711,750	12,841,000	19,552,750	630,734		
November	9,253,500	2,916,000	12,169,500	405,650	795,700	25,523	6,849,750	12,799,000	19,648,750	654,958		
December	9,786,750	3,226,500	13,013,250	419,782	711,700	22,958	7,857,000	13,972,000	21,829,000	704,161		
January	10,214,250	3,470,250	13,684,500	441,435	845,500	27,274	8,100,750	14,832,000	22,932,750	739,766		
February	9,618,000	3,149,250	12,767,250	455,973	780,300	27,858	6,777,750	14,361,000	21,138,750	754,955		
March	10,364,242	5,326,477	15,690,719	506,152	722,500	23,306	7,002,750	15,994,000	22,996,750	741,831		
April	11,006,677	4,823,257	15,829,934	527,664	734,100	24,470	4,180,500	15,968,000	20,148,500	671,617		
May	12,059,250	5,757,000	17,816,250	574,718	931,800	30,058	4,587,750	16,313,000	20,900,750	674,218		
June	11,597,250	4,087,500	15,684,750	522,825	952,300	31,743	6,330,750	20,889,000	27,219,750	907,325		
July	9,714,000	3,585,750	13,299,750	429,024	894,000	28,839	8,334,000	13,305,000	21,639,000	698,032		
August	10,882,500	3,833,250	14,715,750	474,702	870,300	28,074	8,408,250	14,567,000	23,075,250	744,363		
September	10,598,250	3,774,750	14,373,000	479,100	1,006,100	33,537	8,592,750	12,538,000	21,130,750	704,358		
For Year	127,319,669	48,436,484	175,756,153	481,524	10,019,700	27,451	83,733,750	178,479,000	262,212,750	718,391		



TABLE 38

## 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	9.06	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

\*Average for 9 months.

TABLE 36 (Continued)

## 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
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	27.95	31.00	28.77	26.39	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	26.15	28.49	30.10	31.57	28.96	28.54
1941	29.55	27.86	28.36	28.67	29.02	28.78	29.07	29.91	31.74	32.87	32.66	33.78	30.19
1942	32.74	31.44	31.84	31.34	31.21	29.84	29.18	29.76	31.34	32.13	32.14	32.11	31.26
1943	29.88	29.27	30.40	29.93	30.67	30.35	30.05	29.65	35.13	36.35	35.47	33.71	31.74
1944	31.87	31.25	32.35	32.29	32.52	32.95	31.51	34.27	36.80	39.10	40.60	35.43	34.26
1945	33.77	32.77	33.33	34.89	34.57	33.78	33.37	33.23	35.44	35.73	36.34	34.67	34.32
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	41.38
1957	40.78	38.65	36.74	39.14	38.43	36.98	38.50	44.48	60.45	57.12	48.16	45.16	43.74
1958	42.22	38.27	38.42	39.09	38.20	37.40	40.03	38.60	42.57	45.05	43.60	41.63	40.44
1959	40.35	38.01	39.35	39.34	39.46	38.65	39.04	44.02	45.05	45.16	51.33	47.28	42.27
1960	41.93	40.00	39.63	39.48	40.19	39.72	40.34	42.06	51.75	49.75	49.49	45.57	43.33
1961	42.22	42.53	40.99	41.24	43.54	42.26	41.00	42.96	51.71	51.06	52.80	50.01	45.19
1962	43.66	41.94	40.90	42.42	41.91	42.38	42.74	46.45	53.07	51.39	54.38	47.10	45.72
1963	45.66	44.44	43.38	44.26	44.81	44.80	45.77	47.96	55.81	55.87	54.40	47.58	47.91
1964	46.77	42.66	43.07	45.45	45.81	46.23	46.54	56.23	63.98	57.44	53.33	55.16	50.23
1965	51.52	49.17	47.99	47.66	47.94	46.33	46.89	53.98	65.25	63.33	63.37	56.32	53.34

TABLE 38 (Continued)

## 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
1966	50.11	47.17	44.67	44.73	44.94	45.77	46.82	48.47	59.32	61.74	59.88	51.70	50.48
1967	48.22	46.08	44.52	45.59	45.91	45.98	43.99	44.96	55.39	50.26	53.10	53.36	49.11

TABLE 39

## FUEL OIL CONSUMPTION

YEAR ENDED SEPTEMBER 30, 1967

1963-1967	Administration and Operations Building Gallons Used No. 6	Water Purification Plant Gallons Used No. 2	Forestry and Maintenance Building Gallons Used No. 2	Neutaconkanut Pumping Station Gallons Used No. 2	Bath Street Pumping Station Gallons Used No. 2	Total	
						No. 2	No. 6
October	3,129	98	116	167	0	381	7,667
November	4,096	0	756	331	208	1,295	9,556
December	7,017	0	2,511	582	330	3,423	15,517
January	3,143	40	2,260	686	240	3,226	11,417
February	5,647	0	2,530	684	375	3,589	13,266
March	7,135	0	2,311	636	275	3,222	15,331
April	3,870	0	1,535	395	0	1,930	10,101
May	3,009	257	442	196	182	1,077	7,550
June	563	961	173	69	0	1,203	888
July	512	1,277	200	7	0	1,484	512
August	409	1,408	109	19	0	1,536	509
September	1,242	1,289	226	0	0	1,515	1,907
Totals	39,172	5,330	13,169	3,772	1,610	23,881	94,221

TABLE 40  
INCOME STATEMENT  
YEAR ENDED SEPTEMBER 30, 1967

Operating Revenues		
Sales of Water		\$3,033,036.68
Hydrant Rental		105,801.36
Electric Power		0.00
Setting Meters		6,458.00
Repairing Meters		936.87
Repairs to Water Services		3,348.69
Repairs to Distribution Mains		9,917.51
Repairs to Hydrants		2,680.98
Repairs to Gates and Valves		60.71
Installation of New Fire Supplies		11,316.00
Installation of New Water Services		78,727.00
Installation of New Mains		116,110.50
Water Meters-Revolving Fund		11,513.68
Sale of Pulpwood, Logs and Miscellaneous Timber Products		4,040.13
Total Operating Revenue		<u>\$3,383,948.11</u>
Operating Expenses		
Administrative	\$187,909.94	
Source of Supply	340,938.81	
Transmission and Distribution	977,804.29	
Accounting and Commercial	225,739.05	
Taxes	519,832.83	
Employees Retirement System	68,330.00	
Social Security	39,327.47	
Total		<u>*\$2,359,882.39</u>
Operating Income		<u>\$1,024,065.72</u>
Add Non-Operating Income		
Rental of Real Estate	\$ 542.22	
Sale of Scrap Material	7,611.98	
Sale of Material	811.37	
Sale of Abandoned Mains	8,385.22	
Other	1,649.27	
Total Non-Operating Income		<u>\$ 19,000.06</u>
Sub-Total		<u>\$1,043,065.78</u>
Less Non-Operating Expense		
Interest on Floating Debt	\$ 3,115.88	
Interest on Bonded Debt	154,818.75	
Retirement-Serial Bonds	75,000.00	
Retirement-Floating Debt	59,350.00	
Total Non-Operating Expense		<u>\$ 292,284.63</u>
Net Income before Payment to Depreciation and Extension Fund		<u>\$ 750,781.15</u>
Payment to Depreciation and Extension Fund		350,000.00
Net Income or Payment to Sinking Fund		<u>\$ 400,781.15</u>

\*See Table 41 for detailed account of Operating Expense.

TABLE 41

## WATER SUPPLY BOARD OPERATING EXPENSES

YEAR ENDED SEPTEMBER 30, 1967

## ADMINISTRATIVE

Salaries:		
001	Officials	\$35,853.40
	Clerical-Chief Engineer's Office	5,455.04
	Clerical-Accounting	24,374.11
	Engineering	60,178.91
	Labor-General	14,922.98
008	Sick Leave Payrolls	3,646.45
009	Vacation Payrolls	5,868.20
025	Injured Employees' Payrolls	48.99
034	Holiday Payrolls	82.00
Total		\$150,430.08
Services Other Than Personal:		
102	Expert Consultant and Other Service Fees	\$ 135.00
109	Fees Not Otherwise Classified	28.00
111	Telephone and Telegraph	2,300.00
112	Postage, Freight and Express	227.84
115	Transportation of Persons - Conventions	194.91
117	Travel Subsistence - Conventions	348.00
118	Travel Subsistence - Other	66.39
121	Printing, Binding & Reproduction Services	197.10
131	Light and Power	1,800.00
141	Repairs - Office Machinery	451.06
142	Repairs - Automobiles	771.67
146	Repairs - Plant Equipment	54.45
150	Repairs - Structures and Improvements	7,317.50
151	Maintenance and Servicing	188.65
181	Laundry and Cleaning	108.00
183	Dues and Subscriptions	159.35
184	Hospitalization	20.00
199	Miscellaneous Services	11,053.62
Total		\$ 25,421.54
Materials and Supplies:		
201	Stationery and Office Supplies	\$ 1,184.76
211	Motor Fuel	923.22
213	Tires and Tubes	142.06
214	Repair Parts and Supplies - Trucks and Autos	299.66
231	Medical, Chemical and Laboratory Supplies	9.34
241	Fuel	1,064.41
244	Housekeeping Supplies and Minor Equipment	128.63
252	Seeds, Fertilizer, Trees and Shrubs	74.00
267	Paint and Painters' Supplies	43.29
268	Plumbing and Electrical Supplies	96.01
299	Miscellaneous Materials and Supplies	42.00
Total		\$ 3,997.38
Special Items:		
350	Blue Cross and Physicians Service	\$ 4,641.00
Total		\$ 4,641.00

Capital Outlay:

501 Office Furniture, Machinery and Equipment	\$ 743.70
502 Books, Maps and Charts	6.00
591 Equipment Not Otherwise Classified	1,857.00

Total	\$ 2,606.70
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Outstanding Commitments-Services Other Than Personal	131.20
Outstanding Commitments-Materials and Supplies	183.72
Outstanding Commitments-Capital Outlay	498.32

Total-Administrative	\$187,909.94
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SOURCE OF SUPPLY

Hydro-Electric Station:

Salaries:

001 Labor-Operation	\$ 6,941.48
Repairs-Machinery and Equipment	489.64
Total	\$ 7,431.12

Services Other Than Personal:

111 Telephone and Telegraph	\$ 349.77
146 Repairs - Plant Equipment	11,527.33
151 Maintenance and Servicing	761.57
161 Rental of Automotive and Construction Equipment	1,058.75
Total	\$ 13,697.42

Materials and Supplies:

201 Stationery and Office Supplies	\$ 136.00
202 Small Tools and Shop Supplies	46.73
212 Lubricants	122.28
222 Repair Parts and Supplies-Plant Equipment	461.46
268 Plumbing and Electrical Supplies	28.80
272 Valves and Fittings	16.29
Total	\$ 811.56

Water Purification Plant:

Salaries:

001 Supervision	\$21,590.94
Labor-Operation	53,606.83
Technical	25,019.84
Clerical	5,373.39
Repairs-Machinery and Equipment	194.50
Repairs-Care of Grounds and Buildings	4,323.36
Total	\$110,108.86

Services Other Than Personal:

102 Expert Consultant and Other Service Fees	\$ 15.00
111 Telephone and Telegraph	934.82
112 Postage, Freight and Express	9.43
115 Transportation of Persons - Conventions	122.91
116 Transportation of Persons - Other	74.41
117 Travel Subsistence - Conventions	135.00
118 Travel Subsistence - Other	375.00
131 Heat, Light and Power (Gas)	143.10
141 Repairs - Office Machinery	50.16

142	Repairs - Trucks and Autos	\$	28.95	
143	Repairs - Construction & Other Automotive Equipment		39.85	
146	Repairs - Plant Equipment		1,711.13	
150	Repairs - Buildings		250.00	
151	Maintenance and Servicing		1,245.12	
159	Repairs - Other Structures		325.00	
181	Laundry and Cleaning		1,393.99	
183	Dues and Subscriptions		5.25	
199	Miscellaneous Services		176.20	
Total				\$ 7,035.32
Materials and Supplies:				
201	Stationery and Office Supplies	\$	287.08	
202	Small Tools and Shop Supplies		1,129.84	
204	Wearing Apparel and Personal Supplies		96.43	
212	Lubricants		15.65	
213	Tires and Tubes		25.02	
214	Repair Parts and Supplies-Trucks and Autos		82.08	
222	Repair Parts and Supplies-Plant Equipment		686.96	
231	Ferric Sulphate		33,153.87	
231	Lime		16,267.08	
231	Chlorine		4,590.00	
231	Sodium Silicofluoride		16,515.50	
231	Miscellaneous Laboratory Supplies		2,047.11	
241	Fuel		3,651.07	
244	Housekeeping Supplies		685.18	
252	Seeds, Fertilizer, Trees and Shrubs		307.50	
265	Fabricated Metal Products		25.70	
266	Lumber and Hardware		80.51	
267	Paint and Painters' Supplies		63.55	
268	Plumbing and Electrical Supplies		175.64	
299	Miscellaneous Materials and Supplies		112.14	
Total				\$ 79,997.91
Special Items:				
302	Liability Insurance	\$	125.00	
Total				\$ 125.00
Capital Outlay:				
501	Office Furniture, Machinery and Equipment	\$	403.23	
502	Books, Maps and Charts		146.25	
541	Medical and Laboratory Equipment		470.00	
Total				\$ 1,019.48
Scituate Reservoir:				
Salaries:				
001	Labor-Operation	\$	5,172.02	
	Repairs-Care of Grounds		4,725.29	
Total				\$ 9,897.31
Services Other Than Personal:				
111	Telephone and Telegraph	\$	102.07	
159	Repairs-Other Structures		136.53	
Total				\$ 238.60
Materials and Supplies:				
213	Tires and Tubes	\$	50.77	
214	Repair Parts & Supplies-Automotive Equipment		77.11	



252	Seeds, Fertilizer, Trees and Shrubs	\$	450.38	
299	Miscellaneous Materials and Supplies		280.00	
Total				\$ 858.26
Other Reservoirs:				
Salaries:				
001	Labor-Operation	\$	5,535.55	
	Repairs-Care of Grounds		1,636.50	
	Repairs - Structures and Improvements		31.84	
Total				\$ 7,203.89
Services Other Than Personal:				
142	Repairs-Trucks and Autos	\$	147.24	
Total				\$ 147.24
Materials and Supplies:				
213	Tires and Tubes	\$	89.85	
214	Repair Parts and Supplies-Trucks and Autos		45.53	
Total				\$ 135.38
Forestry and Maintenance:				
Salaries:				
001	Supervision	\$12,596.96		
	Labor-Operation	2,325.05		
	Repairs-Care of Grounds	9,295.77		
Total				\$24,217.78
Services Other Than Personal:				
102	Expert Consultant and Other Service Fees	\$	81.00	
109	Fees Not Otherwise Classified		5.00	
111	Telephone and Telegraph		220.65	
115	Transportation of Persons-Conventions		6.32	
116	Transportation of Persons-Other		23.77	
117	Travel Subsistence-Conventions		92.60	
118	Travel Subsistence-Other		33.35	
142	Repairs-Trucks and Autos		293.45	
143	Repairs-Construction & Other Automotive Equipment		81.00	
149	Repairs-Other Equipment		102.29	
151	Maintenance and Servicing		122.83	
183	Dues and Subscriptions		23.00	
184	Hospitalization		52.90	
199	Miscellaneous Services		53.80	
Total				\$ 1,191.96
Materials and Supplies:				
201	Stationery and Office Supplies	\$	29.00	
202	Small Tools and Shop Supplies		468.08	
204	Wearing Apparel and Personal Supplies		325.67	
212	Lubricants		161.30	
213	Tires and tubes		338.84	
214	Repair Parts and Supplies-Trucks and Autos		326.77	
229	Repair Parts and Supplies-Other Equipment		103.65	
231	Medical, Chemical and Laboratory Supplies		45.44	
241	Fuel		1,496.72	
244	Housekeeping Supplies & Minor Equipment		38.80	
252	Seeds, Fertilizer, Trees and Shrubs		756.67	
259	Other Agricultural, Horticultural and Landscaping Supplies		1,773.69	
266	Lumber and Hardware		123.21	
267	Paint and Painters' Supplies		211.46	

268 Plumbing and Electrical Supplies	\$ 7.80	
271 Pipe	111.60	
299 Miscellaneous Materials and Supplies	150.50	
Total		\$ 6,469.20
Capital Outlay:		
502 Books, Maps and Charts	\$ 39.65	
512 Trucks and Tractors	1,857.00	
561 Shop and Plant Equipment	428.50	
571 Agricultural and Landscaping Equipment	1,961.41	
Total		\$ 4,286.56
General:		
Salaries:		
001 Clerical	\$ 1,938.07	
Labor-Operation	10,369.31	
Repairs-Structures and Improvements	59.98	
Repairs-Machinery and Equipment	139.30	
Repairs-Care of Grounds	9,352.17	
Repairs-Care of Grounds-Rockland Cemetery	460.52	
008 Sick Leave Payrolls	3,461.53	
009 Vacation Payrolls	8,490.22	
025 Injured Employees' Payrolls	409.76	
034 Holiday Payrolls	3,865.28	
Total		\$38,546.14
Services Other Than Personal:		
102 Expert Consultant and Other Service Fees	\$ 14.00	
109 Fees Not Otherwise Classified	34.00	
111 Telephone and Telegraph	9.45	
112 Postage, Freight and Express	174.55	
121 Printing and Binding	507.10	
142 Repairs-Trucks and Autos	60.60	
143 Repairs-Construction and Other Automotive Equipment	239.92	
151 Maintenance and Servicing	596.20	
162 Rental Automotive & Construction Equipment	43.00	
Total		\$ 1,678.82
Materials and Supplies:		
201 Stationery and Office Supplies	\$ 203.34	
202 Small Tools and Shop Supplies	113.22	
211 Motor Fuel	2,478.36	
212 Lubricants	80.60	
213 Tires and Tubes	149.08	
214 Repair Parts and Supplies-Trucks and Autos	243.49	
231 Medical, Chemical and Laboratory Supplies	5.39	
241 Fuel	55.25	
244 Housekeeping Supplies and Minor Equipment	11.07	
252 Seeds, Fertilizer, Trees and Shrubs	450.00	
266 Lumber and Hardware	46.45	
268 Plumbing and Electrical Supplies	35.50	
272 Valves and Fittings	12.50	
299 Miscellaneous Materials and Supplies	315.00	
Total		\$ 4,199.25
Special Items:		
350 Blue Cross and Physicians Service	\$ 6,373.25	
Total		\$ 6,373.25

Capital Outlay:		
591 Equipment Not Otherwise Classified	\$ 3,567.50	
Total		\$ 3,567.50
Outstanding Commitments-Services Other Than Personal		\$ 1,192.00
Outstanding Commitments-Materials and Supplies		\$ 1,509.00
Outstanding Commitments-Capital Outlay		\$ 9,000.00
Total - Source of Supply		\$340,938.81

TRANSMISSION AND DISTRIBUTION

Pumping Station:		
Salaries:		
001 Labor-Operation	\$ 22,555.48	
Repairs-Machinery and Equipment	398.12	
Total		\$ 22,953.60

Services Other Than Personal:		
109 Fees Not Otherwise Classified	\$ 90.76	
111 Telephone and Telegraph	648.91	
131 Light and Power	21,812.01	
146 Repairs-Plant Equipment	404.50	
150 Repairs-Buildings	152.00	
151 Maintenance and Servicing	245.86	
181 Laundry and Cleaning	48.00	
199 Miscellaneous Services	40.00	
Total		\$ 23,442.04

Materials and Supplies:		
201 Stationery and Office Supplies	\$ 125.00	
211 Motor Fuel	139.15	
241 Fuel	500.44	
252 Seeds, Fertilizer, Trees and Shrubs	204.50	
Total		\$ 969.09

Pipe Lines:		
Salaries:		
001 Supervision	\$ 9,467.28	
Clerical	8,750.44	
Labor-Operation	118,867.51	
Repairs-Trucks and Autos	6,757.15	
Repairs-Care of Grounds & Buildings	8,548.74	
Repairs-Transmission Mains	522.75	
Repairs-Distribution Mains	15,986.86	
Repairs-Gates and Valves	19,652.93	
Repairs-Hydrants	12,305.59	
Repairs-Services	18,434.40	
New Work-Distribution Mains	3,190.07	
New Work-Gates and Valves	2,352.28	
New Work-Hydrants	20,592.04	
New Work-Services	48,496.83	
Retirement Work-Distribution Mains	1,054.39	
Retirement Work-Gates and Valves	84.64	
Retirement Work-Services	5,402.50	
Total		\$300,466.40

Services Other Than Personal:

102	Expert Consultant and Other Service Fees	\$	392.00	
109	Fees Not Otherwise Classified		98.60	
111	Telephone and Telegraph		431.09	
112	Postage, Freight and Express		72.58	
121	Printing and Binding		172.90	
131	Light and Power		410.76	
141	Repairs-Office Machinery		36.50	
142	Repairs-Trucks and Autos		1,283.75	
143	Repairs-Construction & Other Automotive Equipment		1,347.50	
146	Repairs-Plant Equipment		795.74	
150	Repairs-Buildings		23.25	
151	Maintenance and Servicing		238.38	
153	Repairs-Street Openings		33,262.02	
159	Repairs-Other Structures		36.00	
162	Rental-Automotive & Construction Equipment		276.00	
163	Rental-Other Equipment		1,273.60	
165	Rental of Land		273.00	
181	Laundry and Cleaning		350.93	
184	Hospitalization		138.55	
199	Miscellaneous Services		701.85	
Total				\$ 41,615.00

Materials and Supplies:

201	Stationery and Office Supplies	\$	168.37	
202	Small Tools and Shop Supplies		2,665.47	
204	Wearing Apparel and Personal Supplies		201.01	
211	Motor Fuel		4,842.67	
212	Lubricants		269.34	
213	Tires and Tubes		1,027.10	
214	Repair Parts and Supplies-Trucks & Autos		3,639.89	
231	Medical, Chemical and Laboratory Supplies		425.62	
232	Pharmaceuticals		11.52	
241	Fuel-Kerosene Oil		144.00	
244	Housekeeping Supplies and Minor Equipment		60.95	
261	Gravel, Sand and Stone		578.87	
262	Cement, Plaster and Related Products		415.05	
265	Fabricated Metal Products		61.30	
266	Lumber and Hardware		505.89	
267	Paint and Painters' Supplies		51.74	
268	Plumbing and Electrical Supplies		3,382.59	
269	Construction & Maintenance Materials and Supplies Not Classified		36.14	
271	Pipe - Cast Iron		2,984.89	
271	Pipe - Services		13,458.92	
271	Pipe - Asbestos Cement		3,506.01	
271	Pipe - Other		43.22	
272	Hydrants, Valves and Fittings		97,055.02	
272	Gates and Valves		20,773.02	
273	Special Castings		500.00	
279	Water System Materials and Supplies Not Otherwise Classified		3.22	
299	Miscellaneous Materials and Supplies		120.00	
Total				\$156,951.82

Special Items:

331	Payment of Claims and Damages	\$	502.23	
Total				\$ 502.23

Capital Outlay:	
502 Books, Maps and Charts	\$ 12.00
512 Trucks and Tractors	34,456.00
521 Construction & Engineering Equipment	375.00
561 Shop and Plant Equipment	287.04
571 Agricultural & Landscaping Equipment	100.59
591 Equipment Not Otherwise Classified	13,927.50
Total	\$ 49,158.13
Other Structures and Improvements:	
721 New Main Extensions:	\$235,712.00
Total	\$235,712.00
Distribution Reservoirs:	
001 Labor-Operation	\$ 65.79
Total	\$ 65.79
Services Other Than Personal:	
111 Telephone and Telegraph	\$ 120.00
131 Light and Power	127.81
146 Repairs-Plant Equipment	25.00
Total	\$ 272.81
Materials and Supplies:	
201 Stationery and Office Supplies	\$ 61.90
222 Repair Parts and Supplies - Plant Equipment	86.70
252 Seeds, Fertilizer, Trees and Shrubs	90.00
266 Lumber and Hardware	46.45
Total	\$ 285.05
Metering:	
Salaries:	
001 Supervision	\$ 8,335.67
Labor-Operation	15,213.13
Repairing Meters	11,546.50
Removing and Setting Meters	22,237.45
Testing Meters	4,892.57
Inspection-Services	4,414.64
Total	\$ 66,639.96
Services Other Than Personal:	
102 Expert Consultant and Other Service Fees	\$ 70.00
142 Repairs-Trucks and Autos	470.70
150 Repairs-Building	95.40
184 Hospitalization	12.40
Total	\$ 648.50
Materials and Supplies:	
202 Small Tools and Shop Supplies	\$ 163.87
204 Wearing Apparel and Personal Supplies	158.00
214 Repair Parts and Supplies-Trucks & Autos	151.62
231 Medical, Chemical and Laboratory Supplies	22.89
268 Plumbing and Electrical Supplies	162.09
Total	\$ 658.47

## General:

## Salaries:

001	Labor-Operation	\$ 144.18
	Repairs-Trucks and Autos	3,321.88
	Repairs-Structures & Improvements	75.30
008	Sick Leave Payrolls	12,000.13
009	Vacation Payrolls	16,879.72
025	Injured Employees' Payrolls	3,063.02
034	Holiday Payrolls	9,234.92

Total

\$ 44,719.15

## Services Other Than Personal:

109	Fees Not Otherwise Classified	\$ 24.00
142	Repairs-Trucks and Autos	14.00
151	Maintenance and Servicing	49.50
162	Rental-Automotive & Construction Equipment	258.00
169	Rentals Not Otherwise Classified	156.10
181	Laundry & Cleaning	108.00
197	Highway-Shops Revolving Fund	6.33
199	Miscellaneous Services	36.00

Total

\$ 651.93

## Materials and Supplies:

214	Repair Parts and Supplies-Trucks & Autos	\$ 58.75
241	Fuel	534.21
244	Housekeeping Supplies & Minor Equipment	73.85

Total

\$ 666.81

## Special Items:

350	Blue Cross and Physicians Service	\$ 13,839.35
361	Expenses for Various Ceremonies	1,804.63

Total

\$ 15,643.98

Outstanding Commitments-Services Other Than Personal

9.00

Outstanding Commitments-Materials and Supplies

2,650.13

Outstanding Commitments-New Main Extensions

13,122.40

Total-Transmission and Distribution

\$977,804.29

## ACCOUNTING AND COMMERCIAL

## Salaries:

001	Supervision	\$ 6,858.04
	Clerical	82,684.67
	Labor-Operation	3,400.60
	Meter Reading	46,494.65
008	Sick Leave Payrolls	7,924.87
009	Vacation Payrolls	6,415.86
025	Injured Employees' Payrolls	1,598.99

Total

\$155,377.68

Services Other Than Personal:

102	Expert Consultant and Other Service Fees	\$	435.00
109	Fees Not Otherwise Classified		1.50
111	Telephone and Telegraph		2,000.00
112	Postage, Freight and Express		962.50
116	Transportation of Persons-Carfares		987.05
121	Printing and Binding		887.00
131	Light and Power		1,749.44
141	Repairs-Office Machinery, Furniture and Furnishings		1,370.26
142	Repairs-Trucks and Autos		143.75
146	Repairs-Plant Equipment		49.50
150	Repairs-Structures and Improvements		36.93
151	Maintenance and Servicing		370.79
161	Rental - Office Machinery & Equipment		105.22
181	Laundry and Cleaning		1,795.44
183	Dues and Subscriptions		12.00
184	Hospitalization		97.60
190	Data Processing Division		8,789.84
199	Miscellaneous Services		29,184.50

Total

\$ 48,978.32

Materials and Supplies:

201	Stationery and Office Supplies	\$	2,332.00
202	Small Tools and Shop Supplies		205.51
204	Wearing Apparel and Personal Supplies		21.76
211	Motor Fuel		1,619.02
212	Lubricants		77.95
213	Tires and Tubes		19.54
214	Repair Parts and Supplies-Trucks & Autos		469.81
231	Medical, Chemical and Laboratory Supplies		55.85
241	Fuel		914.60
244	Housekeeping Supplies & Minor Equipment		360.90
266	Lumber and Hardware		116.31
268	Plumbing and Electrical Supplies		1,038.95
271	Pipe		125.00
272	Valves and Fittings		494.30
274	Meter Parts		3,392.39
279	Water System Materials Not Otherwise Classified		3.21
299	Miscellaneous Materials and Supplies		132.12

Total

\$ 11,379.22

Special Items:

331	Payment of Claims and Damages	\$	104.50
350	Blue Cross and Physicians Service		5,402.25

Total

\$ 5,506.75

Capital Outlay:

501	Office Furniture, Machinery and Equipment	\$	890.50
591	Equipment Not Otherwise Classified		1,830.00

Total

\$ 2,720.50

Outstanding Commitments-Services Other Than Personal  
Outstanding Commitments-Materials and Supplies

\$ 134.46  
1,642.12

Total - Accounting and Commercial

\$ 225,739.05

Taxes  
Employees' Retirement System  
Social Security F.O.A.S.I.

\$ 519,832.83  
68,330.00  
39,327.47

Total Operating Expense

\$2,359,882.39



TABLE 42  
SUMMARY OF ANNUAL WATER WORKS REVENUES 1930-1967

Fiscal Years Ended September 30	Receipts from Sale of Water	Miscellaneous 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
1957	2,262,879.80	322,948.62	2,585,828.42
1958	2,273,583.77	318,752.87	2,592,336.64
1959	2,255,865.23	374,493.67	2,630,358.90
1960	2,528,805.97	330,120.32	2,858,926.29
1961	2,758,603.26	351,179.65	3,109,782.91
1962	2,794,556.45	440,769.75	3,235,326.20
1963	2,947,872.00	366,756.30	3,314,628.30
1964	2,986,556.95	441,238.98	3,427,795.93
1965	3,113,868.26	362,201.67	3,476,069.93
1966	3,149,078.53	373,307.57	3,522,386.10
1967	3,033,036.68	369,911.49	3,402,948.17

TABLE 43  
STATEMENT OF REVENUE - ESTIMATED AND ACTUAL  
YEAR ENDED SEPTEMBER 30, 1967

Account	Estimated Revenue	Actual Revenue
Water Rents	\$2,990,000.00	\$3,033,036.68
Hydrant Rental	103,000.00	105,801.36
Electricity	0.00	0.00
Stores Account (Meters)	9,000.00	11,513.68
Repairing and Setting Meters	7,000.00	7,394.87
Fire Supplies and Miscellaneous Repairs	12,000.00	27,323.89
New Service Installations	90,000.00	78,727.00
New Main Extensions	115,000.00	116,110.50
Rentals	600.00	542.22
Other Miscellaneous Receipts	18,500.00	22,497.97
Total	\$3,345,100.00	\$3,402,948.17

TABLE 44  
STATEMENT OF WATER WORKS DEPRECIATION AND EXTENSION FUND  
YEAR ENDED SEPTEMBER 30, 1967

	Investment	Cash	Due from Other Funds	Total
Balance-Sept. 30, 1966	\$200,000.00	\$452,536.91	\$500,000.00	\$1,152,536.91
Increase during Year ended Sept. 30, 1967	820,000.00	1,122,792.36		
Disbursements during year ended Sept. 30, 1967	637,000.00	1,570,000.00	500,000.00	
Accounts Receivable year ended Sept. 30, 1967			350,000.00	
Balance-Sept. 30, 1967	\$383,000.00	\$5,329.27	\$350,000.00	\$738,329.27

TABLE 45

STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING AND  
SINKING FUND REQUIREMENTS ON A 3% BASIS

YEAR ENDED SEPTEMBER 30, 1967

Bonds Payable from Sinking Fund	Rate of Interest %	Year of Issue	Year of Maturity	Issued	Outstanding	Sinking Fund Requirements on a 3% Basis
Water Supply	4	1928	1968	\$1,500,000.00	\$1,500,000.00	\$1,469,082.38
Total Water Supply Debt and Sinking Fund Requirements						\$1,469,082.38
Sinking Fund Assets Allocated to Water Supply Debt per City Controller's Report on Sinking Fund September 30, 1967 (Includes \$400,781.15 Water Operating Balance for Year Ended September 30, 1967, plus Prior Year Adjustments of \$1,368.47 or a total of \$402,149.62.)						\$3,309,279.10
Amount of Surplus of Requirements on 3% Basis						\$1,840,196.72

TABLE 46

## STATEMENT OF SERIAL BONDS OUTSTANDING

YEAR ENDED SEPTEMBER 30, 1967

Description	Rate of Interest %	Year of Issue	Year of Maturity	Serial Requirement	Issued	Bonds Outstanding
Additions, Alterations and Improvements to the Water Purification Works	3 $\frac{1}{4}$	1962	1992	\$25,000.00	\$1,100,000.00	\$1,015,000.00
New 40 Million Gallon Distribution Reservoir	3 $\frac{1}{4}$	1962	1992	50,000.00	2,050,000.00	1,865,000.00
Total Serial Bonds and Requirements				\$75,000.00	\$3,150,000.00	\$2,880,000.00

TABLE 47

## STATEMENT OF FLOATING DEBT OUTSTANDING

YEAR ENDED SEPTEMBER 30, 1967

	Issued	Interest	Principal	Outstanding
Water Purification Improvements II Note No. 9977	\$273,000.00	\$2,886.50	\$54,600.00	\$54,600.00
Water Purification Improvements II Note No. 10023	19,000.00	249.37	4,750.00	4,750.00
Totals-Floating Debt	\$292,000.00	\$3,115.87	\$59,350.00	\$59,350.00

TABLE 48

## A SUMMARY OF INVENTORIES OF PERSONAL PROPERTY

YEAR ENDED SEPTEMBER 30, 1967

REMOVABLE PROPERTY INVENTORY		\$220,836.40
SOURCE OF SUPPLY:		
Purification Works	\$28,573.47	
Laboratory	3,172.26	
General and Reforestation	10,018.37	41,764.10
TRANSMISSION AND DISTRIBUTION:		
Pipe Lines	\$163,837.34	
Pumping Stations	568.62	
Garage	6,713.55	171,119.51
METERING		56,573.08
SUPPLIES		4,413.45
Total Personal Property Inventory		\$494,706.54

TABLE 49

## STATEMENT OF STORES REVOLVING FUND

YEAR ENDED SEPTEMBER 30, 1967

Cash Balance		\$10,000.00
Outstanding Commitments - September 30, 1966		11,565.90
Receipts - October 1, 1966 to September 30, 1967		87,944.67
Total Available		\$109,510.57
Disbursements - September 30, 1967	\$64,843.47	
Outstanding Commitments - September 30, 1967	23,153.42	
Transferred as Income to General Fund September 30, 1967	11,513.68	
Total Disbursements		\$99,510.57
Cash Balance - September 30, 1967		\$10,000.00

TABLE 50

## STATEMENT OF THE MISCELLANEOUS WATER MAIN EXTENSIONS ACCOUNT

YEAR ENDED SEPTEMBER 30, 1967

Transferred from Depreciation and Extension Fund - July 29, 1957		\$15,000.00
Transferred from Depreciation and Extension Fund - July 15, 1958		50,000.00
Transferred from Depreciation and Extension Fund - May 21, 1959		60,000.00
Transferred from Depreciation and Extension Fund - July 7, 1961		35,000.00
Transferred from Depreciation and Extension Fund - July 24, 1962		75,000.00
Transferred from Depreciation and Extension Fund - January 11, 1963		60,000.00
Transferred from Depreciation and Extension Fund - September 13, 1963		15,000.00
Transferred to Acc't. 3-91 Purification Works - December 26, 1963		-1,014.57
Total Available		\$308,985.43
Disbursements - September 30, 1967	\$307,108.83	
Outstanding Commitments - September 30, 1967	Nil	
Total Disbursements		\$307,108.83
Cash Balance - September 30, 1967		\$1,876.60

TABLE 51

## STATEMENT - ACCOUNT FOR INSERTING NEW VALVES

Transferred from Depreciation and Extension Fund - May 12, 1958		\$10,000.00
Transferred from Depreciation and Extension Fund - May 13, 1959		30,000.00
Transferred from Depreciation and Extension Fund - July 7, 1961		65,000.00
Transferred from Depreciation and Extension Fund - May 25, 1962		60,000.00
Total Available		\$165,000.00
Disbursements - September 30, 1967	\$154,488.77	
Outstanding Commitments - September 30, 1967	Nil	
Total Disbursements		\$154,488.77
Cash Balance - September 30, 1967		\$10,511.23

TABLE 52

CONSTRUCTION OF MAJOR IMPROVEMENTS TO WATER SUPPLY SYSTEM  
SUPPLEMENTAL TUNNEL AND AQUEDUCT

Authorized Bond Issue (Chapter 46 P.L. of R.I.) Approved April 26, 1965		\$13,000,000.00
Minus Adjustment to Land Condemnation & Easement Acc't. Res. No. 742		171,000.00
Minus Adjustment to Rapid Sand Filters Account Res. No. 257		2,500,000.00
Balance		\$10,329,000.00
Disbursements - September 30, 1967	\$2,437,616.19	
Transferred to Federal Program EDA July 14, 1967	425,000.00	
Transferred to Federal Program EDA August 15, 1967	380,000.00	
Transferred to Federal Program EDA September 9, 1967	530,000.00	
Total Disbursements		\$3,772,616.19
Unexpended Balance of Authorized Bond Issue - September 30, 1967		\$6,556,383.81

TABLE 53

## CONSTRUCTION OF RAPID SAND FILTERS - PURIFICATION PLANT

Transferred from Tunnel and Aqueduct Account - April 12, 1967		\$2,500,000.00
Disbursements-September 30, 1967	\$86,383.81	
Outstanding Commitments - September 30, 1967	Nil	
Total Disbursements		86,383.81
Balance		\$2,413,616.19

TABLE 54

## RAW WATER BOOSTER PUMPING STATION

Transferred from Depreciation and Extension Fund Res. No. 617 - Oct. 26, 1965	\$750,000.00
Transferred from Depreciation and Extension Fund Res. No. 164 - Feb. 20, 1967	750,000.00
Received from U. S. Government (EDA) Fiscal Year Ended September 30, 1967	407,077.00
Received from Interest on Investments Fiscal Year Ended September 30, 1967	12,797.49
<b>Total Available</b>	<b>\$1,919,874.49</b>
Disbursements - Construction	\$865,025.46
Outstanding Commitments - Construction	235,340.40
Disbursements - Architectural and Engineering	42,501.98
Outstanding Commitments - Architectural and Engineering	4,800.00
Outstanding Commitments - Legal and Administrative	950.00
<b>Total Disbursements</b>	<b>\$1,148,617.84</b>
<b>Unexpended Balance - September 30, 1967</b>	<b>\$771,256.65</b>

TABLE 55

## FEDERAL PROGRAMS

## SUPPLEMENTAL TUNNEL AND AQUEDUCT (EDA 01-1-00087)

	Allotments	Encumbrances	Expenditures	Unencumbered Balance
Land Condemnations and Easements	\$ 189,000.00		\$ 88,052.34	\$ 100,947.66
Construction	11,409,500.00	\$5,165,491.15	3,267,730.93	2,976,277.92
Architectural and Engineering	488,000.00	141,782.09	399,207.63	-52,989.72
Legal and Administrative	1,500.00		100.00	1,400.00
<b>Totals (EDA 01-1-00087)</b>	<b>\$12,088,000.00</b>	<b>\$5,307,273.24</b>	<b>\$3,755,090.90</b>	<b>\$3,025,635.86</b>

## RAPID SAND FILTERS - PURIFICATION PLANT (EDA 01-1-00088)

Construction	\$2,417,900.00	\$1,150,294.40	\$11,741.19	\$1,255,664.41
Architectural and Engineering	82,100.00	11,100.00	71,000.00	0.00
<b>Totals (EDA 01-1-00088)</b>	<b>\$2,500,000.00</b>	<b>\$1,161,394.40</b>	<b>\$82,741.19</b>	<b>\$1,255,664.41</b>

## RAW WATER BOOSTER PUMPING STATION (EDA 01-1-00089)

Construction	\$1,148,000.00	\$235,340.40	\$865,025.46	\$47,634.14
Architectural and Engineering	44,200.00	4,800.00	42,125.88	-2,725.88
Legal and Administrative	1,000.00	950.00	0.00	50.00
Project Contingency	6,800.00	0.00	0.00	6,800.00
<b>Totals (EDA 01-1-00089)</b>	<b>\$1,200,000.00</b>	<b>\$241,090.40</b>	<b>\$907,151.34</b>	<b>\$51,758.26</b>

TABLE 56

## TAXES PAID TO VARIOUS CITIES AND TOWNS

(OCTOBER 1, 1966 TO SEPTEMBER 30, 1967)

Location of Property	Land Area (Acres)	ASSESSED VALUATIONS			TAX	
		Land	Buildings and Improvements	Total	Rate per \$100	Amount Paid
City of Warwick	0.060	\$ 160.00	\$ 0	\$ 160.00	\$3.30	\$ 6.13
City of Cranston	110.627	47,720.00	942,340.00	990,060.00	----	39,327.65
Town of Foster	1,994.280	198,920.00	3,000.00	201,920.00	5.10	10,297.92
Town of Glocester	73.300	14,980.00	0	14,980.00	4.32	647.14
Town of Johnston	103.130	42,163.00	321,937.00	364,100.00	4.20	15,292.20
Town of North Providence	8.529	30,900.00	185,100.00	216,000.00	3.80	8,208.00
Town of Scituate	13,149.552	1,112,500.00	9,250,000.00	10,375,000.00*	----	444,828.12
Town of West Warwick	8.940	14,970.00	280.00	15,250.00	----	1,165.75
Total Real Estate	15,448.418			\$12,177,470.00		\$519,772.91**

\*Includes \$12,500.00 Tangible Personal

\*\*In addition to this amount, \$53.32 was paid to the West Glocester Fire District and \$6.60 to the Harmony Fire District.

Notes: Cranston was paid three installments totalling \$28,486.48 @ \$3.90 per \$100 tax rate and one payment of \$10,841.17 @ \$4.38 per \$100 tax rate.

Scituate was paid three installments totalling \$322,921.87 @ \$4.15 per \$100 tax rate and one payment of \$121,906.25 @ \$4.70 per \$100 tax rate.

West Warwick was paid one payment of \$510.00 @ \$3.40 per \$100 tax rate for previous year's tax and one payment of \$655.75 @ \$4.30 per \$100 tax rate.

## Land Areas Changed as Follows:

## Cranston

Interstate Route 295 Condemnation, Plat 1441 - Reduced 2.38 acres  
Parcels 11, 20 and 21

TABLE 57  
SUMMARY OF STATISTICS  
PROVIDENCE WATER SUPPLY BOARD  
YEAR ENDED SEPTEMBER 30, 1967

PROVIDENCE* (City or Town)	PROVIDENCE (County)	RHODE ISLAND (State)
GENERAL STATISTICS		
Estimated population of Providence (1967)		184,909
Estimated population supplied in suburbs (1967)		203,511
Total population supplied		388,420
Date of construction	1870-76; 1915-28; 1935; 1938-40; 1954; 1960-1962	
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	81.8% by gravity; 18.2% by pumping	

STATISTICS OF CONSUMPTION OF WATER

1. Estimated population supplied	388,420
2. Total raw water influent for the year, gallons	17,919,022,000
3. Average daily raw water influent, gallons	49,093,000
4. Raw water consumption per capita, gallons daily	126.4
5. Total consumption for the year, gallons	17,561,320,000
6. Total registration on customers' meters, gallons	16,747,480,000
7. Percentage of consumption accounted for on customers' meters	95.4%
8. Average daily consumption, gallons	48,113,000
9. Per capita consumption, gallons daily	123.9
10. Gallons per day to each tap	754

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



TABLE 57 (Continued)  
SUMMARY OF STATISTICS  
PROVIDENCE WATER SUPPLY BOARD  
YEAR ENDED SEPTEMBER 30, 1967

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 Sodium Silicofluoride
5. Total water filtered during year, gallons	17,704,469,000
6. Average quantity filtered per day, gallons	48,505,000
7. Total filtered water delivered to the distribution system during the year, gallons	17,562,534,000

STATISTICS RELATING TO THE DISTRIBUTION SYSTEM

1. Kind of pipe	Astestos-Cement, Cast Iron, Steel and Concrete
2. Sizes	From 6 to 66 inches
3. Installed	54,677.12 feet
4. Removed	27,930.00 feet
5. Net increase	26,747.12 feet
6. Total now in use	803.22 miles
7. Number of leaks per mile	0.08
8. Range of pressure on mains	14 to 95 pounds
9. Range of pressure on mains (special high pressure fire service)	94 to 130 pounds
10. Number of hydrants installed	198
11. Number removed	145
12. Net increase	53
13. Number of hydrants now in use	4,858
14. Number of stop gates installed	193
15. Number removed	106
16. Net increase	87
17. Number of stop gates now in use	11,012

TABLE 57 (Continued)

SUMMARY OF STATISTICS

PROVIDENCE WATER SUPPLY BOARD

YEAR ENDED SEPTEMBER 30, 1967

STATISTICS RELATING TO THE DISTRIBUTION SYSTEM  
(Continued)

18. Kind of services	Lead, Copper and Cast Iron
19. Sizes	$\frac{1}{2}$ -inch to 30 inches
20. Number of service taps installed	832
21. Number removed	369
22. Net increase	463
23. Number of services now in use	63,819
24. Number of meters installed	1,484
25. Number removed or condemned	839
26. Net increase	645
27. Number of meters now in use	63,931*
28. Per cent of services metered	100

\*Many large services have batteries of meters.

99  
CITY COUNCIL FINAL PAPERS  
1 9 6 8

*Smead*

No. K527-34ST

HASTINGS, MINN., LOGAN, OHIO U.S.A.

THE CITY OF PROVIDENCE  
STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

CHAPTER 68 - 12

No. 99 AN ORDINANCE APPROVING AND ADOPTING THE OFFICIAL REDEVELOPMENT  
PLAN FOR MOUNT HOPE PROJECT NO. R.I. R-18

Approved March 13, 1968

Be it ordained by the City of Providence:

WHEREAS, the Providence Redevelopment Agency (hereafter sometimes called "Local Public Agency") pursuant to the provisions of Title 45, Chapters 31-33 (inclusive) of the General Laws of Rhode Island, 1956, as amended, entitled "Redevelopment act of 1956", has formulated and submitted to the City Council on December 21, 1967 for its consideration, a Redevelopment Plan approved by the Local Public Agency, for a project area which said redevelopment plan is entitled, "Redevelopment Plan for Mount Hope Project No. R.I. R-18" and comprises a report consisting of 34 pages of text, 8 maps and 2 exhibits; and 2.6.11 2-7-68

WHEREAS, a general plan has been prepared by the City Plan Commission and is recognized and used as a guide for the general development of the City of Providence as a whole; and

WHEREAS, the said redevelopment plan concerns itself with areas which has been designated Redevelopment Areas by the City Council of the City of Providence by Chapter 103 of the Ordinances of the City of Providence, approved July 6, 1948, as amended by Chapter 1159 of the Ordinances of the City of Providence, approved November 22, 1957, and as amended by Chapter 1798 of the Ordinances of the City of Providence approved November 7, 1966, in conformity with the provisions of Section 22 of Chapter 1802 of the Public Laws of Rhode Island 1946, as amended, and Title 45, Chapter 32, Section 4 of the General Laws of Rhode Island, 1956, as amended; and

WHEREAS, a copy of said Redevelopment Plan was transmitted to the City Plan Commission on January 9, 1968; and

WHEREAS, the City Plan Commission, which is the duly designated and acting official planning body for the City, has submitted to the City Council its report and recommendations respecting the Redevelopment Plan for the Project Area and has certified that said Redevelopment Plan conforms to the said general plan for the City as a whole, and the City Council has duly considered said report, recommendation and certification of the planning body; and

WHEREAS, the Plan indicates that an inspection of the dwelling units in the area by trained housing inspectors, using the "Appraisal Method for Measuring the Quality of Housing" developed by the American Public Health Association and recommended for use by the United States Public Health Service and supplemented by the Providence Building Code for all residential buildings, and an evaluation of non-residential structures performed by the inspectors of the Providence Building Inspection Department indicate that the area is a deteriorated blighted area under the provisions of Title 45, Chapter 13, Section 8 (4).

WHEREAS, the plan indicates that a survey, based upon a detailed inspection of 478 of the 509 structures within the said project area was made.

(1) Of the 458 residential structures within the area, 429 or 93.3% were inspected. These inspections revealed the following: basic dwelling deficiencies: 273 or 29% of the 955 dwelling units inspected were found to have at least one basic deficiency in essential dwelling facilities; 154 or 30% of the 509 total buildings were determined to be either deficient or substandard. Basic deficiencies include serious deterioration, serious overcrowding, lack of dual egress, lack of sanitary facilities and serious inadequacies in lighting and ventilation. A basic deficiency indicates a serious violation of minimum standards for continued dwelling occupancy and building safety which ordinarily would justify removing occupants from the dwelling until the violation was corrected.

(2) Surveying the non-residential structures were investigators who were inspectors of the Providence Department of Building Inspection. The standard of evaluation employed was the Providence Building Code.

Of the 49 non-residential structures surveyed, only 17 or 35% were found to be standard; 14 or 28% were found to be deficient; 18 or 35% were found to be substandard.

Of the total number of the project's structures, 509, 154 or 30% were found to be substandard, seriously deficient or unsafe.

WHEREAS, the plan as submitted contains a finding that the area included in the proposed redevelopment plan qualified as a deteriorated area under the provisions of Title I of the United States Housing Act of 1949, as amended, (hereafter sometimes called "Housing Act:") and as a deteriorated blighted area within the meaning of the "Redevelopment Act of 1956" as amended to date, because there exist in the area buildings or improvements, used or intended to be used for living, commercial, industrial or other purposes, which by reason of (1) dilapidation, deterioration, age or obsolescence, (2) inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities, (3) defective design or unsanitary or unsafe character or condition or physical construction, (4) defective or

inadequate street and lot layout, (5) mixed character, deterioration or shifting of uses to which they are put, or any combination of such factors and characteristics are conducive to the further deterioration and decline of the area and to injuriously effect the entire area. The project area is not restricted, nor does it consist entirely of, lands, buildings, or improvements which of themselves are detrimental but is an area in which such conditions exist, and injuriously affect the entire area.

WHEREAS, the Providence Redevelopment Agency has prepared a plan for the relocation of families that may be displaced as a result of carrying out the Project in accordance with said Redevelopment Plan and has submitted to the City Council a Relocation Plan for the Project, identified as "Relocation Plan for the Mount Hope Project No. R.I. R-18"; and

WHEREAS, there have also been presented to the City Council information and data respecting the Relocation Plan which have been prepared by the Providence Redevelopment Agency as a result of studies, surveys and inspections in the Project Area and the assembling and analysis of the data and information obtained from such studies, surveys, and inspections; and

WHEREAS, the members of this Body have general knowledge of the conditions prevailing in the Project area and the availability of proper housing in the locality for the relocation of families that may be displaced from the Project area and, in the light of such knowledge of local housing conditions, have carefully considered and reviewed such Relocation Plan; and

WHEREAS, under the provisions of Title I of the Housing Act of 1949, as amended, the United States Department of Housing and Urban Development is authorized to provide financial assistance to local public agencies for undertaking and carrying out of urban renewal projects; and

WHEREAS, the Providence Redevelopment Agency has applied for financial assistance under said Housing Act and has entered into a planning contract for financial assistance under said act with the United States of America, acting by and through the Secretary of the Department of Housing and Urban Development pursuant to which act Federal funds have been provided for the project; and

WHEREAS, the Providence Redevelopment Agency has applied for additional financial assistance under the Housing Act and proposes to enter into an additional contract or contracts with the Department of Housing and Urban Development for the undertaking of, and for making available additional financial assistance for the Project; and

WHEREAS, it is provided in said Act that contracts for financial aid under the Housing Act shall require that the redevelopment plan for the project area be approved by the governing body of the locality in which the project is situated and that such approval include findings by the governing body that (1) the financial aid to be provided in the contract is necessary to enable the land within the project area to be redeveloped in accordance with the redevelopment plan; (2) the redevelopment plans for the redevelopment areas in the locality as a whole, for the redevelopment of such areas by private enterprise; and (3) the redevelopment plan conforms to a general plan for the development of the locality as a whole; and

WHEREAS, there has also been presented to the City Council information and data respecting redevelopment plans for the redevelopment areas in the City of Providence including the following: Capital Improvement Programs for 1950-1956, 1951-1957, 1952-1958, 1953-1959, 1954-1960, 1955-1961, 1956-1962, 1957, 1963, 1958-1964, 1959-1965, 1960-1966 and 1961-1967, 1962-1968, 1963-1969, 1964-1970, 1965-1971 and the Annual Reports of the Providence Redevelopment Agency for 1948 through 1966 (inclusive); and

WHEREAS, at a public hearing held on January 24, 1968 following notice of the date, time, place and purpose of such hearing, the City Council Committee on Urban Redevelopment, Renewal and Planning duly considered the Redevelopment Plan, and all evidence and testimony for and against the adoption of such Plan in accordance with the provisions of the "Redevelopment act of 1956"; and

WHEREAS, said Redevelopment Plan for the Project Area prescribes certain land uses for the Project Area, and will require, among other things, but not by way of limitation, the widening, vacation and removal of streets, the construction and installation of streets, curbs and sidewalks grading and other public facilities and other public actions; and

WHEREAS, it is necessary that the City Council take appropriate official action respecting the Relocation Plan and said Redevelopment Plan for the Project, in conformity with the requirements of the "Redevelopment act of 1956" and the contract or contracts for financial assistance between the Providence Redevelopment Agency and the U.S.A. acting by and through the Secretary of Housing and Urban Development;

NOW, THEREFORE, be it ORDAINED by the CITY OF PROVIDENCE:

1. The project is hereby designated as "Mount Hope Project No. R.I. R-18".

2. It is hereby found and determined that for the purposes of the Redevelopment Plan the Mount Hope Project No. R.I. R-18 comprises that certain tract of land situated in the City of Providence and State of Rhode Island, which is bounded and described on Exhibit A, which is attached hereto and made a part hereof as if more fully set forth herein.

3. It be and hereby is found and determined in relation to the Mount Hope Project No. R.I. R-18 on the basis of the facts set forth in the reports and documents mentioned in the Preamble of this Ordinance and upon the basis of evidence and testimony presented at the public hearing on said plan:

(a) That within the Mount Hope Project No. R.I. R-18:

(1) 30% of the structures are substandard or seriously deficient or unsafe in that these structures contain serious deterioration, lack of dual egress, lack of sanitary facilities, serious inadequacies in lighting and ventilation, serious overcrowding.

(b) That within the Mount Hope Project No. R.I. R-18:

(2) There exists the following environmental deficiencies:

- a. Defective or Inadequate Street and/or Lot Layout.
- b. Incompatible or Shifting Uses.
- c. Obsolete or Aged Buildings, Not Suitable for Improvement or Conversion.
- d. Inadequate Provision for Ventilation, Light, Sanitation, Open Space and Recreation Facilities.
- e. Defective Design or Insanitary or Unsafe Character or Condition of Physical Construction.

4. It be and hereby is found and determined that because of predominance of conditions of dilapidation, deterioration, obsolescence, inadequate provision for light and sanitation, unsanitary and unsafe character and condition of physical construction, mixed character of uses which injuriously affect the entire area and constitute a menace to the public health, safety and welfare of the inhabitants of the area and of the community generally, said Project Area is a deteriorated and blighted area within the meaning of Section 2-8 inclusive of Chapter 31 of the "Redevelopment act of 1956" as amended, and that said Mount Hope Project No. R.I. R-18 is hereby determined to be a deteriorated blighted area.

5. It be and hereby is found that the Mount Hope Project No. R.I. R-18 requires clearance, replanning, redevelopment, and improvement and rehabilitation under the provisions of the "Redevelopment act of 1956".

6. It be and hereby is declared to be the purpose and intent of this body to eliminate the deteriorated and substandard conditions existing in the Mount Hope Project No. R.I. R-18, and the replacement of such conditions by a well-planned area in accordance with and by the means provided in the "Redevelopment act of 1956".



7. It is hereby found, declared and determined that:

(a) The Redevelopment Plan for Mount Hope Project No. R.I. R-18 will redevelop said Project Area in conformity with the provisions of the "Redevelopment act of 1956"; will effectuate the purposes and policy of said Act; and will promote the public health, safety, morals and welfare of the City of Providence.

(b) The Redevelopment Plan for said Project Area conforms to the general or master plan for the City of Providence as a whole.

(c) The Redevelopment Plan for said Project Area is feasible and the financial aid provided pursuant to the contract or contracts for financial assistance pertaining to the Project between the Providence Redevelopment Agency and the Secretary of the Department of Housing and Urban Development under provisions of Title I of the United States Housing Act of 1949, as amended, is necessary to enable the land in the Project Area to be redeveloped in accordance with the Redevelopment Plan for the Project Area.

(d) The acquisition of the real property in accordance with the said Plan for the Mount Hope Project No. R.I. R-18 is in the public interest.

(e) Adequate provision for payment for property which may be acquired by the exercise of eminent domain has been made in the Redevelopment Plan.

(f) The Redevelopment Plan contains adequate safeguards to assure the carrying out of the work of redevelopment in accordance with the Redevelopment Plan.

(g) The Redevelopment Plan provides for the retention of controls and the establishment of restrictions and covenants which may run with the land.

(h) The Redevelopment Plan will afford maximum opportunity, consistent with the sound needs of the City as a whole, for the redevelopment of other areas of the City by private enterprise.

8. The Providence Redevelopment Agency shall sell, lease or dispose of land in the project area only in accordance with the terms of the redevelopment plan and subject to the restrictions, covenants and conditions set forth therein and which are hereby found and declared to be necessary to effectuate the purposes of the "Redevelopment act of 1956".

9. In enacting this Ordinance, the City Council intends to comply with the provisions of the "Redevelopment act of 1956" which relate to adoption of a redevelopment plan for an approved project area so that the blighted and substandard conditions in this Project Area can be eliminated and the Project Area can be redeveloped in accordance with the Redevelopment Plan to attain the public purposes

and policy of the "Redevelopment act of 1956" and thereby to protect and promote and be in the interest of the public health, safety, morals and general welfare of the people in the State as a whole and particularly the people of this City.

10. The Redevelopment Plan for the Mount Hope Project No. R.I. R-18 which is attached hereto consists of a booklet containing a table of contents, 34 pages of text, 2 exhibits and 7 maps is hereby approved, adopted and designated as the Official Redevelopment Plan for Mount Hope Project No. R.I. R-18 and is herein incorporated by reference, made a part hereof and designated as "Exhibit B".

11. The Providence Redevelopment Agency is hereby fully authorized to carry out this Official Redevelopment Plan. Provided, however, that the Agency shall not enter into any contracts for disposition of property in the project area until at least ten days after the City Council of the City of Providence has received at a regular or special meeting a report from the Providence Redevelopment Agency concerning the proposed sale or lease.

12. In order to implement and facilitate the effectuation of the redevelopment plan hereby approved it is found and determined that certain official action must be taken by this body with reference to, among others, the vacation and removal of street, the relocation of sewer and water mains and other public facilities and, accordingly, this body hereby:

(a) Pledges its cooperation in helping to carry out said Official Redevelopment Plan;

(b) Requests the various officials, departments, boards and agencies of the City of Providence having administrative responsibilities in the premises likewise to cooperate to such end and to exercise their respective functions and powers in a manner consistent with said Redevelopment Plan;

(c) Declares that it will institute proceedings for the opening, closing, widening or changing the grade of streets and other modifications of the street layout as set forth in the Official Redevelopment Plan;

(d) Declares that it will provide the City's share of the Net Project Cost of the redevelopment of the Project Area, and hereby allocates, out of \$11,000,000 of the general obligation bonds authorized for redevelopment purposes in the referendum of November 1960, the amount of \$272,183 representing the estimated amount of its share of Net Project Cost;

(e) Authorizes the Mayor, upon the execution of a Loan and Grant Contract between the Providence Redevelopment Agency and the Secretary of Housing and Urban Development to convey to the Agency all of its rights, title and interest in the parcels of land or any building or structure thereon described below and

shall receive credit on its obligations hereunder for the full and fair market value thereof as approved by the government, now estimated at Thirty Six Thousand Six Hundred and Twenty Five (\$36,625) Dollars.

Parcel 10-1 (A.P. 5 - Lot 198)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the northeasterly corner of Assessor's Lot 198, Assessor's Plat 5 dated December 31, 1966;

thence, running southerly a distance of one hundred and twenty two (122) feet, more or less to a point;

thence, turning and running westerly a distance of thirty one (31) feet, more or less to a point;

thence, turning and running northerly a distance of one hundred and twenty one (121) feet, more or less to a point;

thence, turning and running easterly a distance of forty (40) feet to the point and place of beginning.

Said tract herein described contains four thousand, two hundred ninety five (4,295) square feet of land, more or less.

Parcel 9-5 (A.P. 5 - Lot 190)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the southwesterly corner of Assessor's Lot 190, Assessor's Plat 5 dated December 31, 1966;

thence, running northerly a distance of eighty (80) feet, to a point;

thence, turning and running easterly a distance of eighty (80) feet to a point;

thence, turning and running southerly a distance of eighty (80) feet to a point;

thence, turning and running westerly to the point and place of beginning.

Said tract herein described contains six thousand, four hundred (6,400) square feet of land, more or less.

Parcel 9-11 (A.P. 5 - Lot 265)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the southwesterly corner of Assessor's Lot 265, Assessor's Plat 5 dated December 31, 1966;

thence, running northerly a distance of eighty (80) feet, to a point;

thence, turning and running easterly a distance of forty (40) feet, to a point;

thence, turning and running southerly to a point on the northerly street line of Abbott Street;

thence, turning and running westerly along the northerly line of Abbott Street to the point and place of beginning.

Said tract herein described contains three thousand (3,000) square feet of land, more or less.

Parcel 14-15 (A.P. 5 - Lots 458, 459, 460 and 461)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the southeasterly corner of Assessor's Lot 458, Assessor's Plat 5 dated December 31, 1966;

thence, running westerly a distance of two hundred (200) feet, to a point;

thence, turning and running northerly a distance of eighty seven and 92/100 (87.92) feet, to a point;

thence, turning and running easterly to the northeasterly corner of Lot 458;

thence, turning and running southerly a distance of eighty nine and 47/100 (89.47) feet, more or less to the point and place of beginning.

The above tract may be further described as being all of lots 458, 459, 460 and 461. Said tract herein described contains seventeen thousand, seven hundred forty one (17,741) square feet of land, more or less.

Parcel 9-7 (A.P. 9 - Lot 7)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the southwesterly corner of Assessor's Lot 358, Assessor's Plat 5 dated December 31, 1966;

thence, running northerly a distance of forty (40) feet to a point;

thence, turning and running easterly a distance of eighty (80) feet, to a point;

thence, turning and running southerly a distance of forty (40) feet, to a point;

thence, turning and running westerly a distance of eighty (80) feet, to the point and place of beginning.

Said tract herein described contains three thousand, two hundred (3,200) square feet of land, more or less.

Parcel 15-1 (A.P. 5 - Lots 445 and 163)

That certain tract of land situated in the City of Providence, State of Rhode Island bounded and described as follows:

Beginning at a point, said point being the southwesterly corner of Assessor's Lot 163, Assessor's Plat 5 dated December 31, 1966;

thence, running northerly to a point, said point being the southwesterly corner of Lot 464;

thence, turning and running easterly a distance of seventy eight and 10/100 (78.10) feet, more or less to a point;

thence, turning and running northerly a distance of one hundred (100) feet, to a point;

thence, turning and running easterly a distance of two hundred eighty and 34/100 (280.34) feet, more or less to a point;

thence, turning and running southwesterly and southerly for a distance of two hundred thirteen and 18/100 (213.18) feet, more or less to a point;

thence, turning and running westerly to the point and place of beginning.

The above tract may be further described as being Lots 163 and 445. Said tract herein described contains fifty six thousand, seven hundred twenty eight (56,728) square feet of land, more or less.

(g) Declares that in addition it will furnish \$96,035 which sum represents a portion of the total estimated cost of the following public and supporting facilities: the Cypress Street Playground and the Pleasant Street Park.

(h) Declares that after completion of all street construction, and facilities, water line, storm and sanitary sewer construction the Redevelopment Plan, all ways within the Project Area scheduled to become public ways and all the aforementioned facilities and utilities shall be dedicated by the Agency to the public and the City shall accept such dedication.

(i) Stands ready to consider and take appropriate action upon any other proposals and measures designed to effectuate said Redevelopment Plan.

13. It is further found and determined that the method and means set forth in the Redevelopment Plan for relocating families who are to be displaced by the project is feasible; and that the proposals set forth in the Relocation Plan for the proper relocation of the families displaced in carrying out the Project in decent, safe, and sanitary dwellings in conformity with acceptable standards are feasible and can be reasonably and timely affected to permit the proper prosecution and completion of the Project; and that such dwellings or dwelling units available or to be made available to such displaced families are at least equal in number of the number of displaced families, are not generally less desirable in regard to public utilities and public and commercial facilities than the dwellings of the displaced families in the Project area, are available at rents or prices within the financial means of the displaced families, and are reasonably accessible to their places of employment.

14. That it is hereby found and determined that the objectives of the Official Redevelopment Plan for the Mount Hope Project No. R.I. R-18 cannot be achieved through more extensive rehabilitation of the area described, referred to in and made a part of said Official Redevelopment Plan.

15. It is hereby found and determined that the Official Redevelopment Plan gives due consideration to the provision of adequate park and recreational areas and facilities as may be desirable for neighborhood improvement with special consideration for health, safety and the welfare of children residing in the general vicinity of the site covered by said Plan.

16. It is hereby found and determined that there are educational institutions and a hospital located in or near the area covered by the Plan, and it is further found and determined that in addition to the elimination of slums and blight from such area, the undertaking of the Redevelopment Plan in such area

will further promote the public welfare and the proper development of the community (1) by making land in such area available for disposition, for uses in accordance with the Official Redevelopment Plan, to such educational institutions or hospital for redevelopment in accordance with the use or uses specified in the Official Redevelopment Plan, (2) by providing, through the redevelopment of the area in accordance with the Official Redevelopment Plan, a cohesive neighborhood environment compatible with the functions and needs of such educational institutions or hospital, or (3) by any combination of the foregoing.

17. It is hereby further found and determined that consideration has been given in the Official Redevelopment Plan for the project area to the development of a sewer system to serve the project area which will, to the maximum extent feasible, provide for effective control of storm and sanitary wastes.

18. To obtain the additional financial assistance under the provisions of Title I of the "Housing act of 1949", as amended, necessary to carry out the Official Redevelopment Plan for said Project Area, the filing by the Providence Redevelopment Agency of any application or applications for such additional financial assistance under Title I of the "Housing act of 1949" as amended, is hereby approved.

19. This Ordinance shall take effect on its passage and shall be filed with the City Clerk who is hereby authorized and directed to forward a certified copy of this Ordinance to the Providence Redevelopment Agency.

IN CITY  
COUNCIL  
FEB 15 1968  
FIRST READING  
READ AND PASSED  
*Vincent A. DeGisi*  
CLERK

APPROVED

MAR 13 1968

MAYOR

IN CITY  
COUNCIL

MAR 7 - 1968

FINAL READING  
READ AND PASSED

PRESIDENT

CLERK

IN CITY  
COUNCIL

DEC 21 1967

FIRST READING  
REFERRED TO COMMITTEE ON  
URBAN REDEVELOPMENT  
RENEWAL & PLANNING  
*Wm. J. Coopers* CLERK

THE COMMITTEE ON URBAN REDEVELOPMENT  
RENEWAL & PLANNING

Approves Passage of  
The Within Ordinance

*Wm. J. Coopers* Clerk  
Feb. 7, 1968 Chairman

DEPT. OF CITY CLERK  
PROVIDENCE, R.I.

DEC 18 1 57 PM '67

FILED

EXHIBIT A

Beginning at the most southwesterly corner of the area herein described at the intersection of the northerly line of Doyle Avenue and the easterly line of North Main Street;

thence running northerly along said easterly line of North Main Street to its intersection with the southeasterly extension of the northeasterly line of Branch Avenue;

thence running northwesterly along said southeasterly extension of the northeasterly line of Branch Avenue to its intersection with the westerly line of North Main Street;

thence running northerly along said westerly line of North Main Street to its intersection with the northerly line of Rochambeau Avenue;

thence running easterly along said northerly line of Rochambeau Avenue to its intersection with the easterly line of Camp Street;

thence running southerly along said easterly line of Camp Street to its intersection with the northerly line of Doyle Avenue;

thence running westerly along said northerly line of Doyle Avenue to the point and place of beginning.



Proposed Redevelopment Plan

MOUNT HOPE REHABILITATION PROJECT

Project No. R.I. R-18

Providence Redevelopment Agency  
Providence, Rhode Island

**IN CITY  
COUNCIL**

DEC 21 1967

FIRST READING  
REFERRED TO COMMITTEE ON URBAN REDEVELOPMENT  
RENEWAL & PLANNING

*Vincent Vespa*  
CLERK

THE COMMITTEE ON

*Urban Redevelopment, Renewal and Planning*

Approves Passage of  
The Within Ordinance

*Vincent Vespa*  
Feb 7, 1968  
Chairman

**APPROVED**

MAR 13 1968

*Joseph A. Poorley*  
MAYOR

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PROJECT NO. R. I. R-18

MOUNT HOPE PROJECT

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THE REDEVELOPMENT PLAN

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Introduction

The Mount Hope Project Area originally formed the major portion of one of six treatment areas selected for residential conservation by the Community Renewal Program prepared in 1964, and was then tentatively known as "Camp Street 2". The renewal project itself originated at a later date with the reported and confirmed readiness of area residents to participate in a needed program of neighborhood rehabilitation, and with the availability of a local grant-in-aid from a portion of the construction cost of the Lippitt Hill School which will serve the Mount Hope Area.

The project lies within an area bounded by Doyle Avenue, North Main Street, Rochambeau Avenue, and Camp Street, and at the time of the adoption of this Plan is located within Redevelopment Area D-7. With the designation of this area for urban renewal action, the last remaining portion of the Community Renewal Program treatment area on the East Side of the City will be included in a renewal program.

The Mount Hope Area contains a substantial amount of structures in a physically deficient, substandard or deteriorated condition. The Agency's housing and non-residential building inspections indicate that 153 or 30% of the 509 structures in the project area were in such condition as described more fully in section B-2 entitled "The Project Area as a Blighted Area".

B. Description of Project Area

1. Boundaries of Urban Renewal Area

(a) The project area boundaries are delineated on Map No. 1, "Existing Land Use and Zoning".

(b) A legal description of the boundaries of the project area is attached as Exhibit A.

The project area boundaries have been established without regard to race, creed, color, or national origin of area residents.

## 2. Redevelopment Plan Objectives

(a) The project area as a blighted area

The Mount Hope Project Area is a deteriorated, blighted area under the definition of the "Redevelopment Act of 1956" as amended to date since there exists in the project area buildings or improvements, either used or intended to be used for living, commercial, industrial, or other purposes, or any combination of such uses, which by reasons of (1) dilapidation, deterioration, age or obsolescence, (2) inadequate provision for ventilation, light, sanitation, open spaces, and recreational facilities, (3) high density of population and overcrowding (4) unsafe character or condition of physical construction, (5) defective or inadequate street and lot layout, (6) mixed character, shifting or deterioration of uses to which they are put, or any combination of such factors and characteristics, are conducive to the further deterioration and decline of the area to the point where it might become a slum blighted area, are detrimental to the public health, safety, morals, and welfare of the inhabitants of the community and state generally. The project area is not restricted, nor does it consist entirely of land, buildings, or improvements which of themselves are detrimental or inimical to the public health, safety, morals, or welfare, but is an area in which such conditions exist and injuriously affect the entire area.

Evidence of physical deterioration and deficiencies was compiled from data produced with the use of (1) the A.P.H.A.'s Appraisal Method for Measuring the Quality of Housing, supplemented by the Providence Building Code for all residential buildings, and (2) an evaluation of non-residential structures performed by the Inspectors of the Providence Building Inspection Department using standards which were derived from the Building Ordinance of the City of Providence.

The results obtained from the use of these criteria are summarized as follows:

APHA Appraisal Method for Residential Structure Quality

	<u>No.</u>	<u>%</u>
1. <u>Total Residential Buildings</u>	<u>458</u>	<u>100</u>
Number Standard	336	74
Number Deficient	89	19
Number Substandard	33	7
<u>Total Dwelling Units</u>	<u>955</u>	<u>100</u>
Without Deficiencies	682	71
With Deficiencies	273	29
2. <u>Total Related Public Buildings</u>	<u>2</u>	<u>100</u>
Number Standard	2	100

Evaluation for Non-Residential Buildings

	<u>No.</u>	<u>%</u>
3. <u>Total Non-Residential Buildings</u>	<u>49</u>	<u>100</u>
Number Standard	17	35
Number Deficient	14	28
Number Substandard	18	37

Total Building Condition in the Mount Hope Area

<u>Total Buildings</u>	<u>All Bldgs.</u>		<u>Res.</u>		<u>Non-Res.</u>		<u>Rel. Pub.</u>	
	<u>509</u>	<u>100%</u>	<u>458</u>	<u>100%</u>	<u>49</u>	<u>100%</u>	<u>2</u>	<u>100%</u>
Number Standard	355	70	336	74	17	35	2	100
Number Deficient	103	20	89	19	14	28		
Number Substandard	51	10	33	7	18	37		
Number Substandard & Deficient	154	30	122	26	32	66		

As indicated above, 154 or 30% of the 509 total buildings in the project area were determined to be either deficient or substandard. Of the 955 total dwelling units inspected, 273 or 29% were found to have at least one or more basic deficiencies in essential dwelling facilities.

Basic deficiencies that have been found to exist in residential buildings include serious deterioration, serious overcrowding, lack of sanitary facilities, and inadequacies in heating and electrical facilities. A substandard residential building indicates a serious violation of minimum standards for continued dwelling occupancy and building safety that would justify the removal of occupants from the dwelling until the violation was corrected.

Deficiencies that have been found to exist in non-residential buildings include serious deterioration of roof and chimney, general exterior and interior, and foundation. Other deficiencies include inadequacy of wiring, plumbing, heating, and sprinkler system.

Of the 49 non-residential buildings surveyed, 17 were found to be standard, 14 were considered deficient, and 18 were considered as substandard.

Environmental deficiencies within the Project Area include the following:

Overcrowding of Buildings on Land

The Providence Zoning Ordinance states that every lot which is located in a R-3 General Residence Zone shall have a minimum width of 50 feet and a minimum area of 5000 square feet. Of the 618 residential lots in the Project Area, 453 or 73% are between 4,999 square feet and 3,000 square feet; and 93 or 15% are under 3,000 square feet. Moreover, of the 509 main buildings in the Project Area, 93 or 18% are 10 feet or closer to any other main or auxiliary structure.

Poorly Designed, Unpaved Streets

There are poorly designed and unpaved streets in the Project Area. Many dead-end, unimproved streets characterize the southerly one-third of the area, while the remainder of the area contains lots with poor access, streets having poor connections or poorly designed relationship to the topography.

Inadequate Provision for Open Space and Recreation

Inadequate public open space and recreational facilities exist in the Project Area. Small children are in need of localized tot lots exclusively for their age groups, which are presently non-existent in the area. Older children are also in need of recreational facilities to suit their needs. Moreover, the area does not contain any parks or other passive recreation areas for the enjoyment of the area residents.

Other Identified Health Hazards

1. Physical Condition

Storm drainage now combines with sanitary sewage throughout the project area, causing frequent dumping of raw sewage into the Moshassuck River.



separation of these lines is necessary to end this unhealthy condition and the threatened nuisance and hazards of sewage backflow from lines normally loaded to capacity.

## 2. Social Indices

The impact which blighted and substandard condition in the area may have on public health, safety, morals, and welfare is indicated by the following evidence of social breakdown assembled for recent periods from the records of public health and welfare agencies. The findings for the area bounded by Doyle Avenue, North Main Street, Rochambeau Avenue, and Camp Street are compared to the incidence of the same items for the city as a whole.

Ill Health - January 1961 - December 1965, 1.13 times the incidence of tuberculosis.

Transmission of Disease - January 1961 - December 1965, 3.12 times the incidence of venereal disease.

Illigitimate Births - January 1963 - December 1965, 6.94 times the incidence of illegitimate births.

Public Assistance - January 1961 - December 1965, 1.80 times the incidence of public assistance.

### (b) Redevelopment Plan Objectives

This plan sets forth an outline for the redevelopment of land in the Mount Hope Project Area in accordance with the provisions of Chapter 31-33 inclusive of Title 45 of the General Laws of Rhode Island, 1956, as amended, referred to in this Plan by its short title, "Redevelopment Act of 1956", and with the provisions of the Housing Act of 1949 as amended to date. This plan constitutes an Urban Renewal Plan for the project area within the meaning of the Housing Act of 1949 as amended to date.

The project undertaking outlined by this Plan is designed to attain the purposes of the Redevelopment Act of 1956 by eliminating and preventing the recurrence of blighted and substandard conditions in the project area and by insuring the replacement of such conditions by the development of well-planned, integrated, stable, safe and healthful neighborhood(s).

Accordingly, specific objectives of this Plan shall include:

1. Maintenance of the present variety of physically adequate housing in residential sections;
2. Prevention of the spread and recurrence of blight;
3. Renewal of deteriorating areas to a long term sound condition;
4. Wherever necessary, feasible, and/or desirable the: 1) modernization of kitchen and bathroom facilities; 2) provision of 100amp electrical service; 3) paving or repaving and landscaping of walks, drives, parking areas, and yards; 4) elimination of asphalt siding; 5) provision of central heating facilities; 6) provision or replacement of fencing; and 7) provision or replacement of garages;
5. Improvement of structural condition and maintenance throughout the area by providing for the intensification of the enforcement of City code standards and the encouragement of the attainment of higher-than-code standards in the rehabilitation of structures; wherever possible a degree of rehabilitation higher than such project standards.
6. Rehabilitation by the Agency for demonstration purposes or disposition by the Agency for private rehabilitation of deteriorated structures;
7. Clearance of those deteriorated structures not rehabilitated;

8. Relocation of rehabilitable or standard structures where necessary and feasible;

9. Displacement of as few as possible of the current residents except when clearance is necessary for: a) the elimination of deteriorated structures which are not rehabilitated; and b) the provision of community facilities, necessary commercial or institutional uses, new residential development, or other project improvements;

10. Provision of sites for the expansion or development of necessary public community facilities, private institutional facilities, and public recreational facilities;

11. Provision of sites for appropriate new development replacing inadequate or inappropriate existing development;

12. Assistance in the orderly growth of major institutions in or adjacent to the area and the protection of existing residential development;

13. Substantial improvement in the quality of individual properties and living conditions so as to justify the construction or reconstruction of public facilities and improvements;

14. Establishment of a continuing program to maintain the renewed individual properties, public facilities, and improvements;

15. Retention in residential portions of the project of existing non-residential uses serving the neighborhoods involved;

16. Promotion of sound development and redevelopment in the Area by the provision and enforcement of controls governing the use and maintenance of land;

17. Enhancement of the physical environment of the Area by the separation of incompatible land uses and, where necessary, by the removal of incompatible land uses;

18. Improvement of circulation in the Area by the establishment of off-street parking requirements for developers in clearance sections;

19. Use of vacant land acquired or of other sites cleared by the Agency for:

- a) Off-street parking
  - b) Open space
  - c) Relocated structures
20. Requirements for appropriate new construction
21. Provision of street trees and public green spaces
22. New sidewalks throughout the Project Area
23. Separation of storm and sanitary sewer lines
24. Repaving of streets

In the execution of this Project the Agency shall give due consideration to the foregoing objectives. Where conflict among the objectives exists, the Agency shall consider those objectives which, in its opinion, best carry out the objectives of the Urban Renewal Plan.

### 3. Types of Proposed Renewal Actions

Proposed redevelopment activities shall include, but not be limited to:

(a) acquisition of either land or buildings or both; (b) rehabilitation of both residential and non-residential properties; (c) relocation of site occupants; (d) demolition and clearance; (e) installation of site improvements; (f) expansion of recreational and institutional facilities;

(g) changes in zoning; (h) intensified enforcement of local ordinances; and (i) disposition of land and/or buildings; (j) relocation of rehabilitated or standard structures.

(a) Private Improvements

The major activity in the Mount Hope Project Area will be the rehabilitation of residential and non-residential structures with some spot clearance. However, the clearance spots are not extensive and the entire project area is considered as a rehabilitation project. Therefore, no formal clearance program is proposed. The project area possesses residential qualities, desirable location, organized citizens' groups, and other evidences of vitality assuring that conservation activities will restore this area to be a sound condition. Minimum Property Standards have been established jointly by this Agency and the Federal Housing Administration (see Exhibit B) for residential rehabilitation throughout the area.

(1) Changes in rights-of-way including new streets to be established, proposed street widenings and other street adjustments, and utility easements to be extinguished and established are shown on Map No. 4, "Right-of-Way Adjustments".

(2) Modifications in public utility systems serving the project area including retention, abandonment, extension and improvement of sewer,

water and the fire and police alarm systems are shown on the following maps:

Map No. 5, "Public Utilities - Storm Drains and Sanitary Sewers".

Map No. 6, "Public Utilities - Water Distribution"

Map No. 7, "Public Utilities - Fire and Police"

All new public utilities will be placed underground.

(3) There will be street trees planted along all existing streets to remain, and along new streets, and public walkways.

(4) New concrete sidewalks will be provided where there is not presently a concrete or asphalt sidewalk in good condition .

(5) Separation of storm drainage from sewerage lines is to be carried out throughout the project area so as to end the dumping of raw sewage into the Moshassuck River, and to reduce the load on sewer lines that are now filled to capacity.

(6) Public walkways with appropriate street furniture and landscaping will be located generally within the rights-of-way of portions of Steele Street, York Street, Knowles Street, Abbott Street, Pleasant Court, and Bugbee Court. Other walkways will be provided within residential blocks, park and recreational areas so as to complete the pedestrian walkway system. (See Map No. 8, "Site Improvements").

Standards for the design and construction of site improvements are to conform with the standards and practices in effect in the City of Providence in the construction of municipal public works. Approval of plans for the installation of all public works are to be obtained from the Public Works Department, or other City agencies responsible for the improvements.

C. LAND USE PLAN

1. Land Use Map

See Map No. 2, "Proposed Land Use and Zoning"

2. Land Use Provisions and Building Requirements

a. Statement of Uses to be Permitted

In order to achieve the objectives of this Redevelopment Plan, the following controls shall restrict the use and development of those areas acquired for demolition or subject to rehabilitation. The various permitted land use categories are depicted on Map No. 2 "Proposed Land Use and Zoning". The construction of new public housing units is not contemplated for the project area.

(1) R-3 General Residence Zone

(a) Permitted Uses - Permitted uses shall be limited to:

((1)) One family, two family, row or multiple dwelling, park, playground or community center or other institutional or semi-public uses owned and operated by the government agency or by a charitable or non-profit agency provided that the same shall not be used for private profit; parking garages, and other such buildings and uses necessary and customarily incidental to these permitted uses; parking area where the area adjoins a commercial zone, as an accessory use to a commercial building, provided such transitional use does not extend more than 100 feet from the boundary of the less restricted zone;

((2)) The following uses will be allowed if their location is first approved by the Agency and then by the Zoning Board of Review:

Nursing or rest home.

(b) Development Controls

((1)) Maximum Dwelling Density - The maximum dwelling density shall not exceed twenty-one (21) family living units per acre.

((2)) Minimum Lot Size - The minimum lot size for single-family detached housing shall be 6,000 square feet; for two-family detached housing 7,000 square feet. The minimum frontage for single family detached housing shall be 60 feet; for two family detached housing, 65 feet.

If row housing is to be constructed and attached dwellings and premises are to be subsequently disposed of for single-family or two-family use in separate ownership, the minimum lot area requirements shall be 5,000 square feet per dwelling unit.

((3)) Maximum Land Coverage - Not more than 40 per cent of the area of lot may be covered by buildings or structures.

((4)) Minimum Building Setback - For one-or-two family structures the setback distances shall be (1) at least 15 feet from building to street line, (2) at least 10 feet from building to side lot line, and (3) at least 25 feet from building to rear lot line.

For all other permitted structures the setback distance from any dwelling structure or principal building shall be (1) at least 15 feet from building to street line or parking area (2) at least 15 feet from building to side lot or side site line; provided, however, that no such setback shall be required where the party wall of an attached dwelling is located on such lot line, and (3) at least 15 feet from building to rear lot line; provided, however, that where the building wall contains living room



windows, the setback from side or rear lot lines shall be at least 25 feet.

The minimum distance between principal buildings shall be 12 feet.

((5)) Maximum Building Height - Maximum 2 stories or 40 feet above the average grade of the adjoining ground along the front wall of the building.

((6)) Minimum Building Construction - The construction of buildings shall conform to the regulations set forth in Chapter 1079 of the Ordinances of the City of Providence known as the "Building Ordinance of the City of Providence" adopted December 21, 1956, as amended, and all future amendments thereto.

((7)) Minimum Dwelling Accommodations - All living units shall be full family dwelling accommodations having separate and private access, and complete bathroom and kitchen, and shall be otherwise in full conformity with the requirements of Chapter 1040, Ordinances of the City of Providence, "An Ordinance Providing Minimum Standards for Housing", as approved July 19, 1956 and as amended to the date of approval of this Redevelopment Plan by the City Council.

((8)) Permitted Signs - any exterior sign displayed shall pertain only to a use conducted on the premises, and shall not extend above the roof level.

No sign shall be flashing or animated. No freestanding sign shall be permitted.

In residential areas, one name plate for each dwelling unit not exceeding 1 1/2 square feet in area indicating the name of the occupant or any permitted occupation shall be permitted.

Wall signs shall not extend or project beyond any building line more than 12 inches or exceed four (4) square feet in area for every foot occupied by the front of the building displaying such sign.

All signs must be suitably integrated with the architectural design of the structure which they identify. The size, design, placement and number of signs must be specified in all Redevelopment proposals. All proposed signs as well as exceptions to the above controls, or the placement or replacement of any sign during the duration of the plan must be approved by the Redevelopment Agency.

((9)) Minimum Off-Street Parking - Off-street parking shall be provided in the ratio of one automobile space for (1) each individual or family dwelling accommodation, (2) every ten (10) seats in that portion of the building used as a place of assembly, (3) every 200 square feet of that portion of a building used as a place of assembly where there are no fixed seats, (4) every 500 square feet in that portion of a building used for office space related to public and/or institutional uses.

((10)) Minimum Off-Street Parking Space Construction - All off-street parking and loading areas on these sites including drives and other access ways, shall be adequately paved with bituminous or cement concrete or other equivalent surfacing material, and shall be provided with appropriate bumper and wheel guards where needed; driveways extending into the right-of-way shall be paved in concrete only, and illumination shall be so arranged as to shield the light source from adjoining lots and abutting streets;

((11)) Screening of Uses and Premises - The following uses shall be screened from the view of adjoining residential uses and streets by solid wall, compact evergreen screen, or uniformly painted board fences not less than 4 feet in height which will be approved by the Providence Redevelopment Agency; (1) off-street parking areas, containing 3 or more parking

spaces; (2) commercial parking areas which extend into or abut the R-3 General Residence Zone; (3) outdoor storage and utility areas.

((12)) Landscaping and On-Site Improvements and Maintenance -

All sites shall be properly graded and drained. All unbuilt areas of the site shall be provided where needed with suitable walks and access drives properly designed and constructed. All unbuilt and unpaved areas of the site shall be suitably planted and permanently maintained with either grass, ground cover, shrubs, and trees. After fully developed, the land, buildings and other improvements in all sites of the project area shall be maintained in good repair and in clean and sanitary condition. Sufficient and suitable refuse and garbage storage and disposal facilities, including structural enclosures where appropriate, shall be provided and properly maintained.

(2) C-4 Heavy Commercial Zone

(a) Permitted Uses - Permitted uses shall be limited to

((1)) Park, playground or community center; parking; bank; bird store, pet shop or taxidermist; blueprinting or photostating; catering establishment; department, furniture or radio store; film exchange, funeral parlor, interior decorating store, medical or dental clinic or laboratory; parking garage, pawnshop, self-service laundry, supermarket, theatre, wholesale merchandise broker excluding wholesale storage;

((2)) The following uses shall be conducted wholly within a building except for such off-street loading and automobile parking as shall be required by these regulations: bakery, barber shop or beauty parlor;

book or stationery store; clothes cleaning agency or pressing establishment; club, lodge (non profit) or fraternal association; confectionery store, custom dressmaking or millinery shop; drug store, dry goods or notion store; florist or gift shop; grocery, fruit, or vegetable store; hardware or electric appliance store; jewelry store, laundry agency, meat market or delicatessen; music store or newsstand; office, business or professional; package liquor store, photographer, restaurant, tea room or cafe; shoe store or shoe repair shop; tailor, clothing or wearing apparel store; variety store; local government enterprises;

((3)) The following uses shall be conducted wholly within a building except for such off-street loading and automobile parking as shall be required by these regulations: art or antique shop; second hand store; upholstering shop;

((4)) Greenhouse, nursery, flower or plant - provided all incidental equipment is kept wholly within a building;

((5)) Public Service - including electric distributing sub-station, fire or police station, telephone exchange and the like;

((6)) Sign painting or tire shop - provided all activities shall be conducted wholly within a building;

((7)) The following uses provided they shall be conducted wholly within a building except for such off-street loading of delivery

vehicles and automobile parking as shall be required by these regulations, and provided further, that where such uses are within 50 feet of a lot in an R Zone, the building wall facing said R Zone shall have no openings other than stationery window openings unless the same are necessary for emergency egress:

a. Carpenter, cabinet shop, laundry or dry cleaning establishment, printing and binding establishment, plumbing or sheet metal shop, garage repair shop, but excluding manufacture, and provided not more than a one horsepower motor may be used with any one machine and not more than a total of three horsepower per shop and further provided that said shops shall be at least 200 feet from any lot in an R Zone and such uses shall not be noxious or offensive by reason of the emission of odor, dust, smoke, gas, noise or vibration;

b. Building material sales office and accessory storage of materials with a floor area not to exceed 3,000 square feet and including incidental millwork.

(b) Development Controls

((1)) Maximum Land Coverage - The total ground floor coverage of buildings shall not exceed 50 percent of the lot area.

((2)) Minimum Building Setback - No setback is required between any building line and street line. All buildings on lots abutting the R-3 Zone shall have a setback of 20 feet from building to line of R Zone.

((3)) Maximum Building Height - Buildings shall not exceed a height of 3 stories or 45 feet in height above the average grade of the adjoining ground along the front wall of the building.

((4)) Minimum Building Construction - Same as paragraph C-2-a-(1)-((6)) above.

((5)) Permitted Signs - Same as paragraph C-2-a-(1)-((8)) above.

((6)) Minimum Off-Street Parking and Loading Space - The redeveloper must demonstrate that off-street parking and loading facilities are adequate in number, size, location, access and arrangement to meet the operational requirements of the land and building uses proposed; provided, however, that in lieu of such demonstration, off-street parking space shall be provided in the ratio of at least one square foot of total lot(s) area for every one square foot of gross floor area; and shall include in addition at least one off-street loading space of adequate size for access, maneuverability, and operational use for every 20,000 square feet or fraction thereof in excess of 4,000 square feet of floor area devoted to a use that involves the receipt or distribution by vehicles of material or merchandise.

((7)) Minimum Off-Street Parking and Loading Space Construction - Same as paragraph C-2-a-(1)-((10)) above.

((8)) Screening of Uses and Premises - Off-Street Parking, loading and outdoor storage and utility areas shall be screened from residential uses and in the manner described in paragraph C-2-a-(1)-((11)) above.

((9)) Landscaping and On-Site Improvement and Maintenance - Same as paragraph C-2-a-(1)-((12)) above.

b. Additional Regulations, Controls or Restrictions to be Imposed by the Plan on the Sale, Lease or Retention of Real Property to be Acquired

(1) Wherever the controls in this Plan restricting the use and development of areas acquired for redevelopment conflict with the provisions of the Zoning Ordinance of the City of Providence as approved September 21, 1951 and has amended to the date of approval of this Redevelopment Plan by the City Council, the higher standards of this Redevelopment Plan or of the Zoning Ordinance shall govern.

(2) The Agency may, when it deems it advisable, file a petition with the Zoning Board for exceptions or variances to the Zoning Ordinance as provided in said Ordinance.

(3) Land sold to an adjoining owner shall first be utilized to satisfy requirements of this Plan with respect to his adjoining non-acquired property.

(4) The purchaser of land from the Agency shall obligate himself to provide for the necessary rehabilitation of his property in the Area not acquired by the Agency to the standards established by this Plan (See Exhibit B); and, after receipt of notice from the purchaser to the Agency that he has complied with requirements as noted above, and after the Agency has made a finding of such fact, the Agency will tender to the purchaser a certificate of completion suitable for recording with the recorder of deeds.

(5) The priorities for the use of scattered sites made available by the Agency shall be: 1) as sites for residential structures relocated from clearance sites in the Project Area; 2) as sites for off-street parking; 3) as sites for such other use and development as is consistent with this Plan.

(6) A report concerning the proposed sale or lease of any land within the Area shall be submitted to the City Council as a regular or special meeting at least ten (10) days prior to the execution of said sale or lease.

(7) In all sections, all structures housing non-conforming uses which uses, in the opinion of the Agency, are neighborhood-oriented and/or are not a blighting influence on the neighborhood shall be allowed to remain.

(8) In all sections, all structures housing conforming uses which uses, in the opinion of the Agency, are a blighting influence on the neighborhood shall be removed.

(9) Architectural and landscaping plans and specification as well as any other information as may be necessary shall be submitted prior to the sale of land by all redevelopers to the Providence Redevelopment Agency for its approval to insure their conformance with the provisions of this Redevelopment Plan.

c. Statement on the Effective Date and Duration of the Land Use Provisions and Building Requirements

The Providence Redevelopment Agency shall obligate redevelopers and their successors and assigns by deed or contract containing restrictive covenants running with the land which shall commence on the date of adoption of the redevelopment plan by the City Council and shall run for a period of forty (40) years thereafter, except that the restriction mentioned in sub-paragraph c (3) below shall run for a perpetual length or period of time;

(1) To use and devote such real property only for the purposes and in the manner stated in the Redevelopment Plan.

(2) To comply with such terms and conditions relating to the use and maintenance of the real property as in the opinion of the Providence Redevelopment Agency are necessary to carry out the provisions of the Redevelopment Plan.



(3) To provide that at no time shall the acquisition, use, disposal, or conveyance of land or improvements within the project area to or by any persons be denied, restricted or abridged, nor his occupancy or possession thereof preferred, segregated or refused because of his race, religion, color, or nationality of ancestry. Furthermore, each redeveloper shall comply with all Federal, State, and local laws, in effect from time to time, prohibiting discrimination or segregation by reason of race, religion, color, or national origin in the sale, lease or occupancy of any project.

(4) To comply with such terms and conditions as are specified by the Providence Redevelopment Agency which will prevent holding of land for speculative purposes.

(5) To begin and complete the building improvements within a period of time deemed by the Providence Redevelopment Agency to be reasonable, subject to any provision which may be made for the extension of the time limit with the approval of the Agency.

(6) To maintain original construction and appearance of buildings, land and improvements and additions thereto on all sites of the project area which shall be maintained in good repair and in safe, clean and sanitary condition.

(7) That sale or other disposition of the land at a profit shall be prohibited until such time as the initial purchaser thereof has completed the construction of such initial improvements; provided, however, that the Providence Redevelopment Agency, when these improvements have been completed, shall forward to said purchaser a certificate to that effect.

(8) That the land and all improvements thereon shall be used and developed only for the purposes and in the manner stated in the Redevelopment Plan for the Mount Hope Project.

(9) That said land and any improvements thereon shall be maintained in such a manner as not to cause surrounding properties to be depreciated or impaired in value.

(10) That the redeveloper will be required to submit a progress schedule satisfactory to the Providence Redevelopment Agency.

(d) Applicability of Provision and Requirements under C-2a and C-2b to Real Property not to be Acquired.

Rehabilitation standards submitted herewith as Exhibit B and Controls in C-2a above applicable to both residential and non-residential properties within the project area. Properties not to be acquired will also conform to said controls subject to the physical limitations of the site and applicable state law.

(e) Zoning

1. Proposed Zoning

See Map No. 2, "Proposed Land Use and Zoning Plan", which shows the zone districts to be established within the Project Area.

2. Identification of All Changes in Existing Zoning

See Map No. 1, "Existing Land Use and Zoning", which shows the zone districts existing within the Project Area, and Map No. 2, "Proposed Land Use and Zoning Plan", which shows the zone district proposed within the Project Area.

The provisions of the Zoning Ordinance of the City of Providence, as approved September 21, 1951, and as amended to the date of approval of this Redevelopment Plan by the City Council shall apply to the Project Area in addition to the provisions of this Redevelopment Plan.

D. Project Proposals

1. Land Acquisition

a. Identification of All Real Property to be Acquired for:

(1) Clearance and Redevelopment

All real property in the project area proposed to be acquired as shown on Map No. 3, "Proposed Acquisition" shall be acquired by direct negotiation and/or by the exercise of the power of eminent domain granted by law to the Agency. The method by which the Agency shall acquire and make payment for this property will be in accordance with the provisions of the "Redevelopment Act of 1956" as amended to date. Funds for such payment shall be made available by the Federal Government under a Loan and Grant Contract and the City of Providence through a redevelopment bond issue.

However, the Mount Hope Project Area is a rehabilitation rather than a clearance project and thus there is no extensive clearance. But treatment through rehabilitation will include spot clearance to remove blighting influences and buildings infeasible of rehabilitation, or clearance to provide land for public improvements or facilities which are necessary to achieve the objectives of the Urban Renewal Plan.

All structures on land acquired by the Agency (see Map No. 3 "Proposed Acquisition") shall be demolished, rehabilitated for demonstration purposes, sold to a developer, or

relocated. No structure to be rehabilitated in the Area may be demolished by the Agency until the Agency is satisfied that:

- (a) The current owner cannot, within a time deemed reasonable by the Agency, properly rehabilitate the structure; or
- (b) No other developer is available and willing, within a time specified by the Agency, to undertake the proper rehabilitation; or
- (c) It is not either practicable or feasible in the Agency's opinion for the Agency or some other public body to undertake the necessary rehabilitation; or
- (d) The clearance of the given structure is in the opinion of the Agency necessary to effectuate the proper development of a section of the area.

(2) Public Facilities

Public and community facilities contemplated within the project area are indicated on Map No. 2, "Proposed Land Use and Zoning", and Map No. 8, "Site Improvements" and are as follows:

- a. Woodbine Street Tot Lot
- b. Knowles Street Walkway
- c. Knowles Street Tot Lot
- d. Cypress Street Tot Lot
- e. Cypress Street Playground
- f. Padelford Street Walkway
- g. Padelford Street Tot Lot
- h. Pleasant Street Park
- i. Pleasant Court Walkway
- j. Y. M. C. A.
- k. Day Care Nursery

1. Community Center

m. Occupational Industrial Center

(3) Rehabilitation and Conservation

Rehabilitation activities shall include, but not by way of limitation

(a) the systematic enforcement of requirements contained in relevant City Ordinances; (b) the provision of technical assistance to facilitate building rehabilitation by private owners to levels above minimum legal requirements; (c) the elimination of non-conforming uses of land and buildings which are or become detrimental to the area; (d) the incidental acquisition of scattered land and buildings, or both; (e) the disposition of land and/or buildings; and (f) the demolition of structures thereon which cannot be rehabilitated at least to the level of those requirements which establish minimum standards for health and safety, all as described more fully in Exhibit B.

((a)) Residential Rehabilitation Standards

(1) Minimum Housing Standards

Minimum housing standards for acceptable dwelling rehabilitation within rehabilitation sections of the Area shall be those set forth in that Ordinance of the City of Providence entitled "An Ordinance Providing Minimum Standards for Housing", Chapter 1040, approved July 9, 1956, as amended.

(2) Residential Project Standards

In addition to the minimum requirements for rehabilitation set forth above, voluntary project standards for desirable dwelling rehabilitation and improvement shall consist of those standards which the Federal Housing Administration has established for eligibility for FHA financing.

These standards as adopted from FHA Publication No. 950, as amended, entitled "The Minimum Property Standards for Urban Renewal Rehabilitation," shall be applicable to the Area. They are attached as Exhibit B.

The Agency shall encourage the application of FHA standards, as specified above, for properties which are not financed under FHA programs.

((b)) Non Residential Rehabilitation Standards

(1) Minimum Non-Residential Standards

The Redevelopment Plan, The Building Ordinance of the City of Providence and the Zoning Ordinance of the City of Providence shall control all matters concerning the construction, alteration, addition, repair, removal, demolition, use, location, occupancy, and maintenance of all buildings and other structures and their service equipment and shall apply to existing buildings and other structures, including all non-residential structures in the project not acquired by this Agency.

All buildings, other structures, all parts thereof including service equipment, both existing and new, shall be maintained in a safe and sanitary condition as required by state and local laws.

The owner or his designated agent shall be responsible for the safe and sanitary maintenance of the building or other structure and its service equipment at all times.

(2) Non-Residential Project Standards

Owner of all non-residential properties shall be encouraged to undertake:

1. The cleaning or repainting of all exterior and interior metal, masonry, glass and woodwork where required.

2. The screening of all open storage;
3. The replacement of all broken, loose, or unsafe windows, doors, and store fronts;
4. The grading or regrading of all lots in such a manner as to provide a satisfactory drainage of water runoff away from buildings and from the lot to a public street or drainage easement;
5. The suitable surfacing or resurfacing of all driveways, parking areas, walks and plazas so as not to constitute a nuisance to the surrounding areas;
6. The proper landscaping of all other open areas;
7. The replacement of existing undesirable signs by the placement of new signs which in either case are to be:
  - (a) Non-flashing
  - (b) Integrated with the overall appearance of the structure to which the signs are affixed;
8. The repair, painting or replacement of fencing as required.

The implementation of rehabilitation standards as well as the execution of rehabilitation activities outlined above will involve essentially: (a) the enforcement by the City of its Minimum Standards Housing Ordinance; (b) the enforcement by the City of its Zoning Ordinance; (c) the enforcement by the City of its Building Ordinance; (d) the enforcement by the City of all other applicable ordinances; (e) the provision by the Agency of technical assistance to property owners and other private persons to implement and facilitate the voluntary rehabilitation and improve-

ment of property to project standards; and (f) the exercise from time to time and as necessary by the Agency of its power of selective clearance in order to secure the acquisition of single or scattered parcels of real property within the Area through purchase, condemnation or otherwise; and the rehabilitation or restoration for demonstration purposes or relocation of structures; and the demolition and/or removal of buildings or improvements thereon where necessary.

The Agency may acquire those non-residential properties whose owners are either unable or unwilling to make necessary improvements required for compliance with relevant site or local law. The Agency is also empowered to acquire those non-residential properties whose acquisition if necessary to eliminate incompatible, detrimental or noxious uses in accordance with the objectives of this Plan.

b. Properties Not Designated for Acquisition That May be Acquired

The Agency will acquire those properties presently not scheduled for acquisition but for rehabilitation when structures are not brought up to the level of the Minimum Standard Ordinance, the Zoning Ordinance, the Building Ordinance, and all other applicable Ordinances within a reasonable period of time.

c. Properties Identified to Be Acquired that May Not be Acquired

Those scattered parcels of property which are indicated to be acquired (See Map No. 3, "Proposed Acquisition") may not be acquired when the structures contained in these sites are brought up to Minimum Property Standards prior to the approval and execution of this Plan. Designation can only be made when results from additional surveys of structures



becomes available.

2. Rehabilitation and Conservation

Property Rehabilitation Standards to be established for real property within the Project Area which is not to be acquired is contained herein as Exhibit B, Minimum Property Standards for Rehabilitation.

3. Redevelopers' Obligation

The redevelopers, their successors in interest, lessees, or assigns, will be required, as an effective part of all agreements and conveyances for the disposition of any part or parcel of land in the project area, to observe all provisions of the Redevelopment Plan. It will be provided that the Providence Redevelopment Agency may extend these time limits if necessary to accomplish the objectives of the Urban Renewal Plan.

4. Underground Utility Lines

All new public utilities will be placed underground.

E. Other Provisions Necessary to Meet Local Requirements of Local Law

1. Conformity to General Plan and Community Improvement Program

This Redevelopment Plan is in conformity with all elements of the Master Plan of the City of Providence.

Proposed redevelopment activity in the project area is intended to implement (1) definite local objectives for planning action and (2) definite local objectives for community rebuilding as set forth in the Workable Program.

The Redevelopment Plan is consistent with objectives for appropriate land use; improved traffic, recreational and community facilities and other

public improvements. Also it adheres to the objectives of the Workable Program which are (1) to prevent new slums and deterioration; (2) to eradicate the wreckage of past; (3) to conserve what is strong, and rehabilitate what is weakened; (4) to renew the city's housing; (5) to provide a decent, safe and sanitary home for every citizen of Providence.

## 2. Method of Relocation

Families and individual householders who are to be displaced by Agency action within this Project Area will have the services of the Family and Business Relocation Service of the City made available to them when the Agency acquires the property they occupy. Suitable accommodations of adequate size in the private housing market, at a rental family can afford, and certified as decent, safe, and sanitary by a trained housing inspector, will be offered to any eligible family in the Project Area. This Relocation Service will continue functioning until all eligible families and individual householders living in the Project Area on the date of acquisition have been satisfactorily relocated into acceptable housing. Families eligible for public housing will receive priority in the low-rent developments of the Providence Housing Authority.

Businesses to be displaced by Agency action within the Area will have the services of the Business Relocation and Division of Economic Development of this Agency.

Financial assistance for relocation purposes shall be made by the Agency to families and businesses displaced from the Area, under the terms of Federal participation in the project undertaking, and Section 114 of Title I of the Housing Act of 1949 as amended, as well as rules and regulations of the

U. S. Housing and Home Finance Agency. Such payments shall be consistent with amounts authorized by law.

3. Method of Financing

This Plan is to be financed under the provisions of Title I of the Housing Act of 1949, as amended, and the Plan shall not become effective until approval in its entirety by the Housing and Home Finance Administrator any substantial modification shall be submitted to said Administrator for determination by him that such modification meets the terms and requirements of the contract for Federal financial assistance.

The estimated costs of carrying out this Redevelopment Plan are as follows:

ELIGIBLE PROJECT COSTS FOR COMPUTING FEDERAL AID

GROSS PROJECT	\$ 4,511,592
LAND PROCEEDS	198,417
NET PROJECT COST	4,313,175
FEDERAL GRANT	3,234,882
LOCAL SHARE ;	1,078,293

Additional City Costs

Modification of Streets

and Utilities \$ 174,911

Real Estate Taxes 30,000

Cost of Land and Development of Cypress & Pleasant

Sts. Parks 96,035

TOTAL \$ 300,946

### Provisions of Federal Grant

The estimated Federal Grant of \$3,234,882 will be provided under the terms and conditions of a Loan & Grant Contract between the Providence Redevelopment Agency and the U. S. Housing and Home Finance Agency which will provide either for direct borrowing from the Federal Government and the issuance of preliminary loan notes secured by the Federal Government in an amount necessary to pay project expenditures.

### Provisions of Local Share

The local share of \$1,078,293 will be met by (1) donation of City owned land within the project area presently estimated at \$36,625; (2) a Tot Lot constructed by the City in the Cypress Street Playground at a cost of \$20,000; (3) supporting facilities, (Cypress and Pleasant Street Playgrounds) \$66,985 and Lippitt Hill School, \$682,500 and (4) cash in the amount of \$272,183 from the proceeds of the sale of long term general obligation bonds issued by the City of Providence for redevelopment purposes.

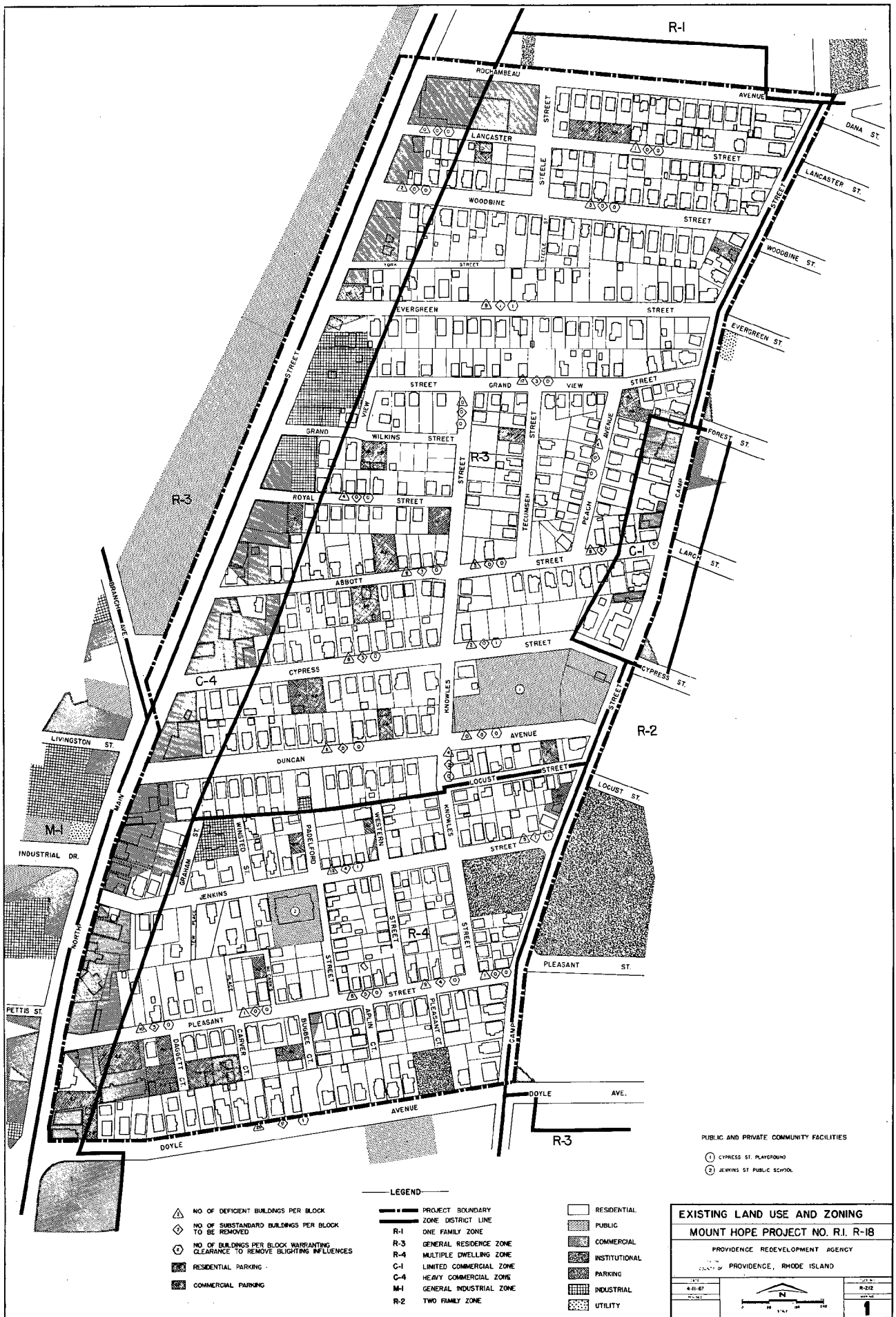
### Provision of Additional City Costs

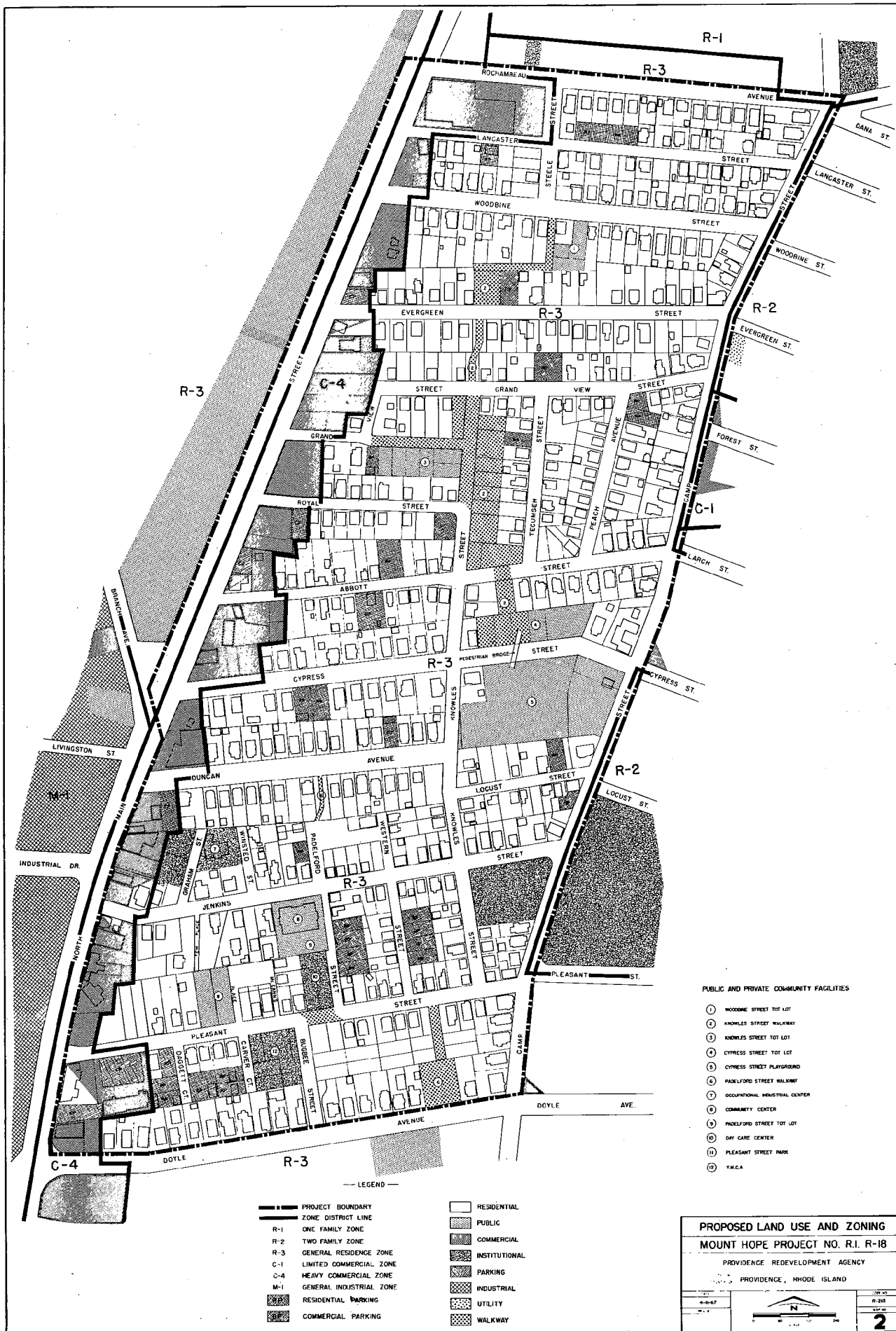
Additional city costs of \$300,946 for ineligible costs for streets and utilities, real estate tax payments and cost of land and development of the Cypress and Pleasant Streets Parks will be provided from funds set aside for these purposes.

#### F. Procedure for Changes in Approved Plan

Upon its own initiative or upon recommendation of the Agency, this Plan may be modified at any time by the City Council provided that if the Plan is modified after lease or sale by the Agency of real property in the Area, such modifications shall be subject to such rights at law and in equity as the lessee or purchaser or his successor or successors or assigns may be entitled to assert, provided however, that no change in any basic element of the Plan

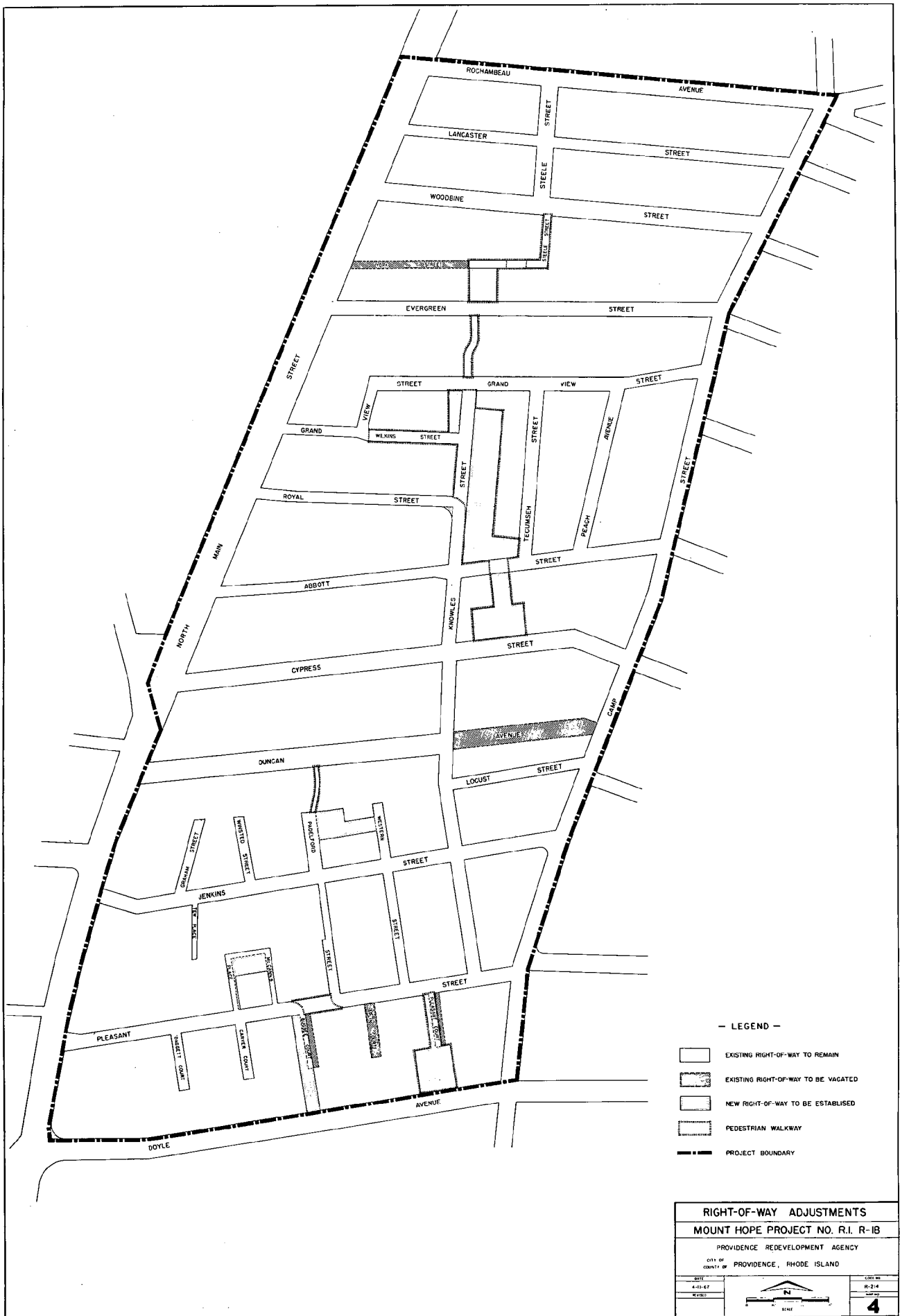
shall be made without the prior approval of the Secretary of the Department of Housing and Urban Development and shall be conditional by the securing of an agreement to the change from all affected redevelopers. The term "basic element" shall mean any major change in any of the elements of the Plan.

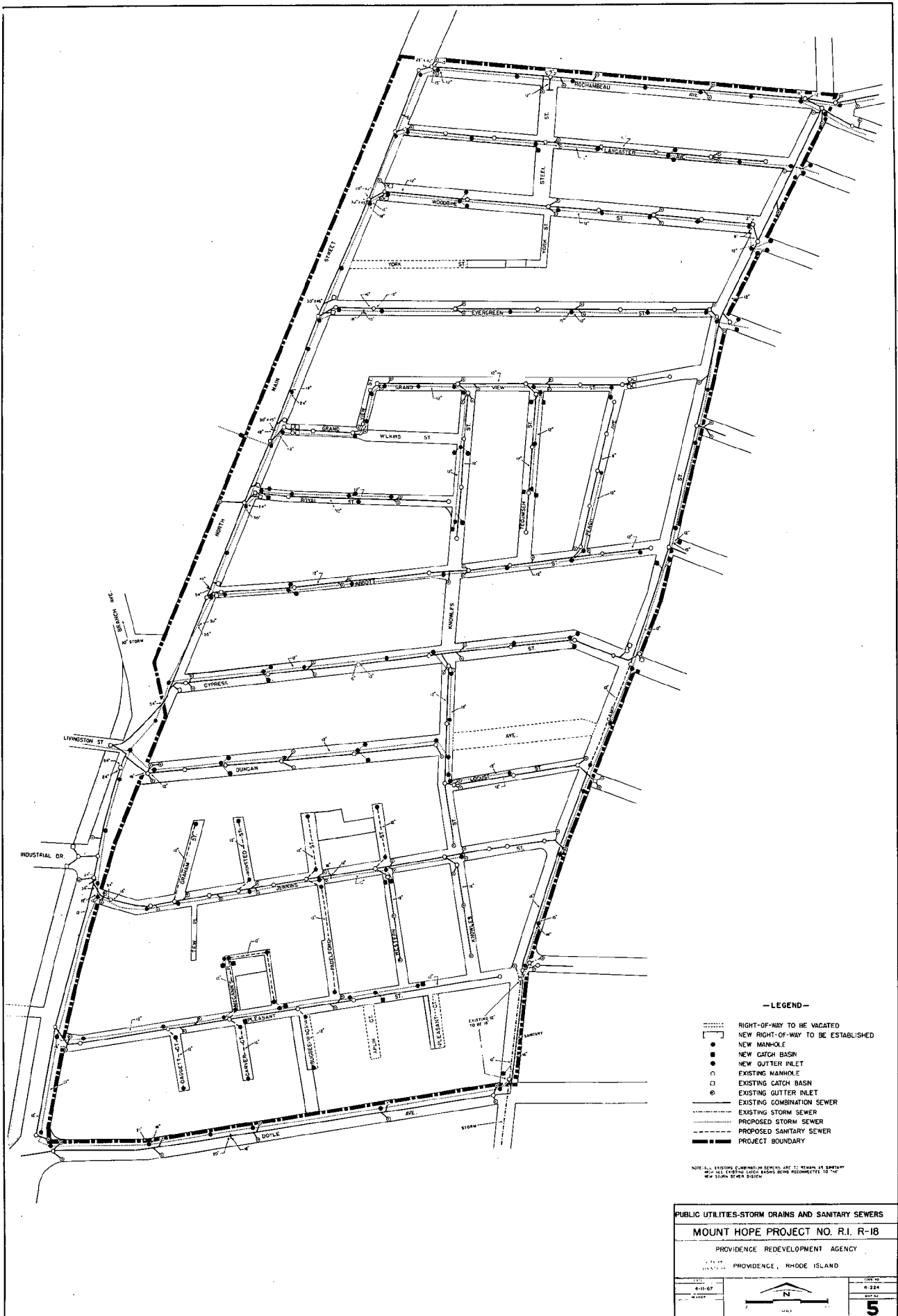


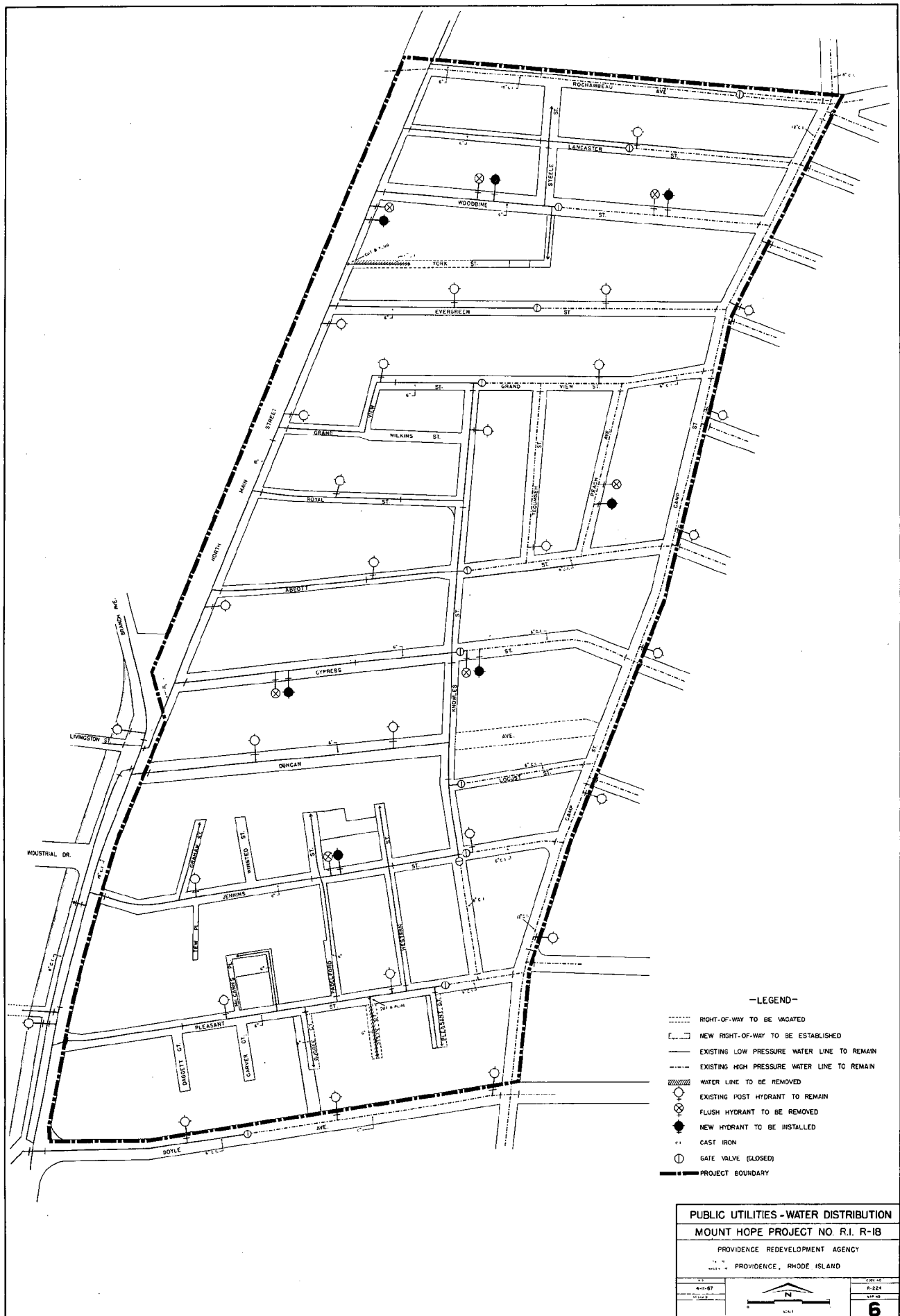


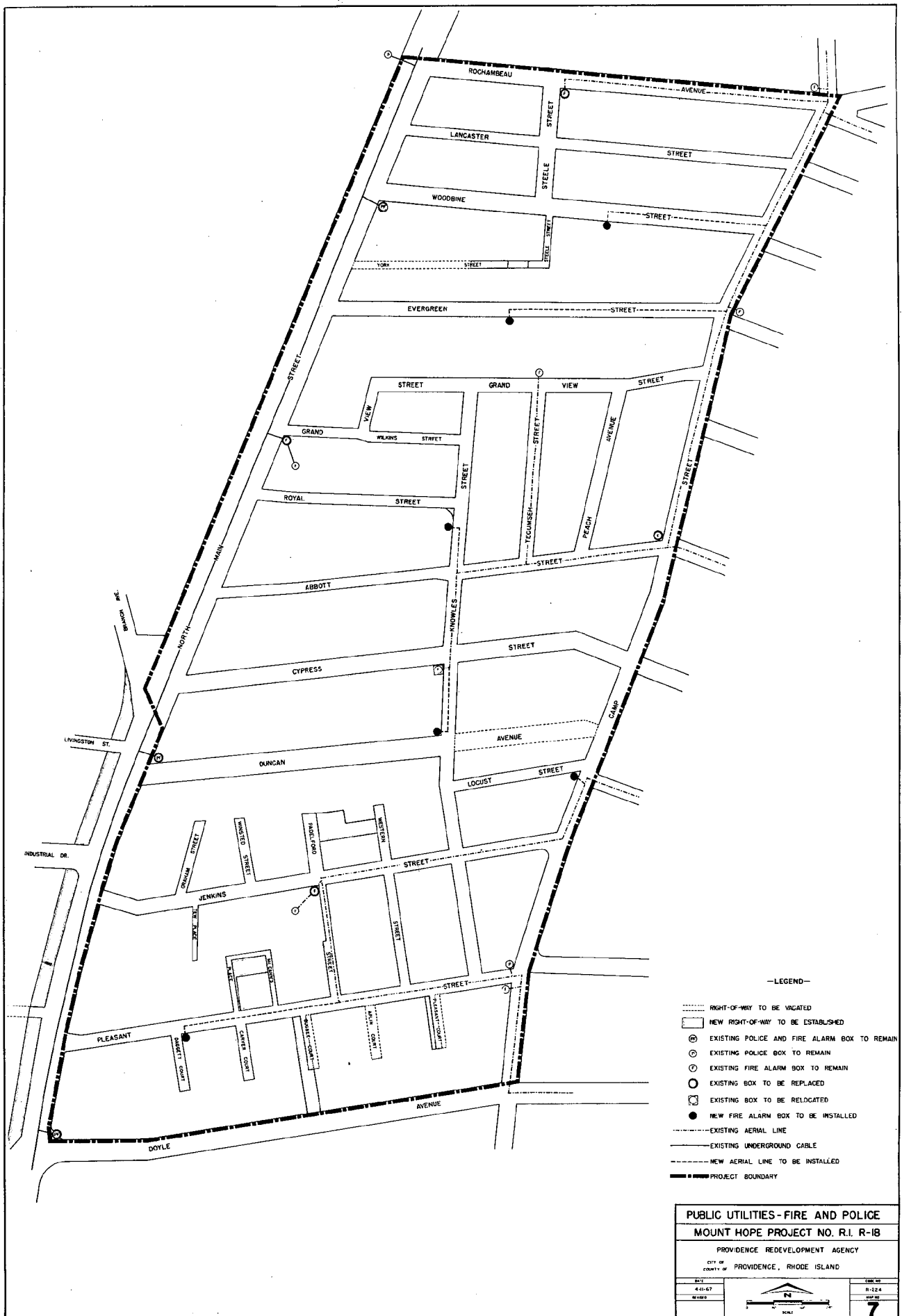














PROJECT NO. R. I. R-18  
MOUNT HOPE PROJECT

LEGAL DESCRIPTION OF BOUNDARIES

EXHIBIT A

Beginning at the most southwesterly corner of the area herein described at the intersection of the northerly line of Doyle Avenue and the easterly line of North Main Street;

thence running northerly along said easterly line of North Main Street to its intersection with the southeasterly extension of the northeasterly line of Branch Avenue;

thence running northwesterly along said southeasterly extension of the northeasterly line of Branch Avenue to its intersection with the westerly line of North Main Street;

thence running northerly along said westerly line of North Main Street to its intersection with the northerly line of Rochambeau Avenue;

thence running easterly along said northerly line of Rochambeau Avenue to its intersection with the easterly line of Camp Street;

thence running southerly along said easterly line of Camp Street to its intersection with the northerly line of Doyle Avenue;

thence running westerly along said northerly line of Doyle Avenue to the point and place of beginning.

EXHIBIT B

MOUNT HOPE PROJECT NO. R. I. R-18

City of Providence, Rhode Island

MINIMUM PROPERTY STANDARDS

for

URBAN RENEWAL REHABILITATION

EXHIBIT B

MOUNT HOPE PROJECT NO. R. I. R-18  
City of Providence, Rhode Island

MINIMUM PROPERTY STANDARDS

for

URBAN RENEWAL REHABILITATION

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## INTRODUCTORY STATEMENT

### PURPOSE AND INTENT

These Minimum Property Standards for Urban Renewal Rehabilitation of the Mount Hope Project Area have been developed to provide minimum design and construction standards for the rehabilitation of houses located in the conservation sections of the Project Area. It is intended that these standards be in the spirit of as well as aid in carrying out the objectives of the urban renewal program for neglected and run-down residential properties. By these objectives is sought the physical, social and economical regeneration of those properties and those portions of the conservation sections which have remained in a generally deteriorated condition.

The standards for urban rehabilitation are directed toward neighborhood improvement and the overcoming of deterioration and blight. The aim is not the creation of a neighborhood that necessarily compares well in design and construction with new neighborhoods. Likewise, the standards recognize the vast differences that exist among urban renewal areas and are designed specifically for the Mount Hope Project Area. The quality and condition of existing houses in Providence vary widely from one location to another and frequently, as is the case in Mount Hope, within a single area. Also, the amount of physical improvements which can be achieved will in some instances be sharply limited by the low incomes of the residents. Present residents, in general, are expected to continue living in the area after rehabilitation has taken place.

### CHARACTERISTICS OF THESE STANDARDS

These Minimum Property Standards are significantly different from standards for new construction. This is necessary because most buildings in the Mount Hope Project Area were built long before FHA came into existence and by very different construction requirements and living customs. Some of these houses were built for a single family but have now been subdivided to accommodate two or more families. Thus, while satisfactory for one family by former patterns of living, these houses have now become sub-standard because of overcrowding and lack of sanitary and other conditions as well as lack of maintenance.

The many advances in building technology of the past generation which are now incorporated in new construction, being unknown at an earlier period, have never been included in older houses. Examples of this, among many, are the use of insulation, modern heating and cooling methods and easily installed new interior and exterior finishing materials. Therefore, these standards, in general, are lower than those that apply to new construction.

They have a built-in flexibility that permits judgment to be used by the local FHA insuring office in applying these provisions to the Mount Hope Project Area. However, there is a level of physical, social and economic conditions below which standards for rehabilitation should not be countenanced. The standards established for this area must result in a general upgrading and improvement of dwelling accommodations. The aim is to restore the area to a sound condition as to its economic life and its suitability for residential and other uses.

Throughout these standards there are some provisions that are mandatory. Items of this kind are expressed in the appropriate language of "shall be", "shall have", "provide", etc. Other items are included, which in addition to expressing the normal minimum standard, permit exceptions where conditions justify. Also, there are numerous statements which are advisory or guides to what constitutes minimum good practice, if obtainable, but where the practicability of the standard is left to be determined. Items of this kind are expressed as "in general, should be", "if possible", "it is recommended that", etc. and are identified by asterisks (\*) on the right hand margin of the page. In these ways, essential flexibility is incorporated into these MPS.

#### APPLICATION

These Minimum Property Standards apply only to existing residential properties in the Mount Hope Project Area. These minimum standards are confined in their application to the individual property within its property lines. They are not concerned with improvements off the site except for the provision of streets for access and circulation, and for essential services and facilities.

#### APPLICABILITY OF OTHER CODES AND ORDINANCES

The requirements set forth in these Minimum Property Standards for Urban Renewal Rehabilitation in the Mount Hope Project Area shall supplement all state, county and municipal codes and ordinances applicable to the regulation and control of existing buildings or any repair, alteration, or renovation thereof. The rehabilitation of any building within the Mount Hope Project Area under the standards herein contained shall also be in compliance with all such applicable codes, ordinances and regulations. These include but are not limited to:

- a) Building Ordinance of the City of Providence, Chapter 1079 approved December 21, 1956, as amended by Chapter 1103 approved March 22, 1957, Chapter 1286 approved September 4, 1959, Chapter 1308 approved December 4, 1959, Chapter 1376 approved

December 16, 1960, Chapter 1474 approved May 18, 1962, Chapter 1532 approved March 8, 1963, and Chapter 1643 approved September 8, 1964.

This ordinance combines the structural, heating, plumbing, electrical and mechanical requirements into one comprehensive code.

- b) Minimum-Standards Housing Ordinance of the City of Providence, Chapter 1040 approved July 9, 1956, as amended by Chapter 1108 1513 approved December 21, 1962, and Chapter 1514 approved December 21, 1962.
- c) Zoning Ordinance of the City of Providence, Chapter 544 approved September 21, 1951, as amended as to text some 20 times to date and as to map changes more frequently.

It is recommended that for new construction and for rehabilitation of existing structures, the following publications of the Federal Housing Administration be consulted:

1. Minimum Property Standards for Urban Renewal Rehabilitation, One Through Eleven Living Units - FHA No. 950
2. Minimum Property Standards for One and Two Living Units- FHA No. 300
3. Minimum Property Requirements for Multifamily Housing - FHA No. 2600
4. Minimum Property Standards for Low Cost Housing - FHA No. 18

## CHAPTER I

### DEFINITIONS

#### R100 GENERAL

R100-1 Abbreviations, terms, phrases, and words and their derivatives used in these Minimum Property Standards shall have the meanings given in this section.

R100-2 The terms defined herein apply only for the purposes of these minimum property standards. Where differences exist in the terms herein defined from identical or similar definitions to be found in other applicable codes, ordinances or regulations, the more restrictive definitions shall be applied.

#### R101 DEFINITIONS

Accessory Building: A secondary building, the use of which is incidental to that of the main building and which is located on the same plot.

Addition: Any construction which increases the size of a building or adds to the building such as a porch or an attached garage or carport.

Alley: A service way providing a secondary public means of access to abutting properties.

Alteration: Construction which may change the floor plan, structural parts, mechanical equipment or location of openings but which does not increase the size of the building.

#### Area:

Building Area: The total ground area of each building and accessory building but not including uncovered entrance platforms, terraces, and steps.

Floor Area: The total area of all stories or floors finished as living accommodations. This area includes bays and dormers but does not include space in garages or carports or in attics. Measurements are taken to the outside of exterior walls.

Attic: Accessible space between top of uppermost ceiling and underside of roof. Inaccessible spaces are considered structural cavities.

Basement: A space of full story height below the first floor which is not designed or used primarily for yearround living accommodations. (See definition of First Story for below-grade space which is primarily used for habitable rooms.)

Basementless Space (Crawl Space): An unfinished, accessible space below the first floor which is usually less than full story height.

Bearing: That portion of a beam, truss, or other structural member that rests on the supports.

Building Line: A line established by law or agreement usually parallel to property line, beyond which a structure may not extend. This generally does not apply to uncovered entrance platforms, terraces and steps.

Carport: A roofed space having at least one side open to the weather, primarily designed or used for motor vehicles.

Cellar: That space of a building which is partly or entirely below grade having more than half of its clear height below the average grade of the adjoining ground.

Construction Classifications: A classification of buildings into types of construction which is based upon the fire resistance of walls, floors, roofs, ceilings and other elements.

Type 1, Fire-resistive Construction: That type of construction in which the walls, partitions, columns, floors, roof, ceilings and other structural members are noncombustible with sufficient fire resistance to withstand the effects of a fire and prevent its spread from one story to another.

Type 2, Noncombustible Construction: That type of construction in which the walls, partitions, columns, floors, roof, ceilings and other structural members are noncombustible but which have less fire resistance ratings than that required for Type 1, fire-resistive construction.

Type 3, Exterior Protected Construction: That type of construction in which the exterior walls are of noncombustible construction having a fire resistance rating as specified and which is structurally stable under fire conditions and in which the interior structural members and roof are wholly or partly of combustible construction. Type 3 construction includes two sub-types, namely heavy timber and protected constructions, the latter also being known as "ordinary" construction.

Type 4, Wood Frame Construction: That type of construction in which the exterior walls, partitions, floors, roof and other structural members are wholly or partly of wood or other combustible materials which may or may not be assembled to provide a specified fire resistance rating.

Court:

Inner Court: An open, outdoor space enclosed on all sides by exterior walls of a building or by exterior walls and property lines on which walls are allowable.

Outer Court: An open, outdoor space enclosed on at least two sides by exterior walls of a building or by exterior walls and property lines on which walls are allowable, with one side open to a street, driveway, alley, or yard.

Crawl Space: Same as Basementless Space.

Dampproofing: A treatment of a surface or structure which retards the passage of water. See Waterproofing.

Driveway: A private way for the use of vehicles and pedestrians.

Dwelling: A building designed or used as the living quarters for one or more families.

Detached: A dwelling which is completely surrounded by permanent open spaces.

Semi-detached: A dwelling, one side wall of which is a party or lot-line wall.

Row: A dwelling, the walls on two sides of which are party or lot-line walls.

End-row: Same as semi-detached.

Dwelling Unit: See Living Unit

Easement: A vested or acquired right to use land other than as a tenant, for a specific purpose, such right being held by someone other than the owner who holds title to the land.

Exit: A way to get from the interior of a building or structure to the outside at grade level. A secondary exit may, under certain conditions, provide only emergency egress to an adjacent building or roof, from which safe travel can be made to grade level.



Family: One or more persons occupying a single living unit. Such persons do not have to be related by birth or marriage to constitute a family unit.

Fire Area: The floor area of a story of a building within exterior walls, party walls, fire walls or any combination thereof.

Fire Door: A door, including its frame, so constructed and assembled in place to prevent or retard passage of flame or hot gases.

Fire-Proof: An obsolete term meaning fire-resistive. Usually used with Type 1 construction.

Fire Resistance: That property of construction assemblies, which under fire conditions, prevents or retards the passage of excessive heat, hot gases or flames.

Fire-resistance Ratings: Time in hours or fractional parts thereof that a material, construction or assembly will withstand fire exposure, as determined in an acceptable fire test.

Fire Resistive: That quality of materials and assemblies to resist fire and prevent its spread.

Fire Retardant Lumber: Wood so treated by a recognized impregnation process so as to reduce its combustibility.

Fire Separation: A construction of specified fire resistance separating parts of a building horizontally or vertically as required.

Firestopping: A barrier within concealed spaces which is effective against spread of flames or hot gases.

Flame-resistant: That property of a material which is flame resistant by nature or has been made so by an accepted method.

Flame Spread: The propagation of flame over a surface.

Flashing: Sheet metal or other impervious material used in roof and wall construction to protect a building from seepage of water.

Floor: See Story.

Foundation: Construction, below or partly below grade, which provides support for exterior walls or other structural parts of the building.

Garage: A building or enclosure primarily designed or used for motor vehicles.

Attached: A garage having all or part of one or more walls common to the dwelling or to a covered porch attached to the dwelling.

Detached: A garage which is completely surrounded by open space. A garage connected to the dwelling by an uncovered terrace is defined as a detached garage.

Built-in: A garage located within the exterior walls of a dwelling.

Grade, finish: The top surface elevation of lawns, walks, drives, or other improved surfaces after completion of construction or grading operations.

Gradient: The slope, or rate of increase or decrease in elevation of a surface, road or pipe, usually expressed in percent.

Habitable Room: See Room.

Height, Building: Vertical distance measured from curb or grade level, whichever is the higher, to the highest level of a flat roof or to the average height of a pitched roof, excluding penthouse or other roof appendages occupying less than 30 percent of the roof area. Where a height limitation is set forth in stories, such height shall include each full story as defined therein.

Joists: A series of floor, roof or ceiling framing members spaced not more than 30 inches o.c. Members supporting roofs having slopes over 3 in 12 are not defined as roof joists. See Rafter.

Kitchen: Space, 40 sq. ft. or more in area, used for cooking and preparation of food.

Kitchenette: Space, less than 40 sq. ft. in area, used for cooking and preparation of food.

Living Unit: A dwelling or portion thereof, providing complete living facilities for one family, including permanent provisions for living, sleeping, eating, cooking and sanitation.

Loads:

Design: Total load which a structure is designed to sustain safely.

Dead: The weight of all permanent construction in a building.

Live: The weight of all moving and variable loads that may be placed on or in a building such as snow, wind, occupancy, etc.

Lot: A parcel of land that is described by reference to a recorded plat or by metes and bounds.

Corner Lot: A lot abutting upon two or more streets at their intersection.

Interior Lot: A lot bounded by a street on one side only.

Double-fronted Lot: An interior lot bounded by a street on front and back.

Lot Coverage: That percentage of the plot area covered by the building area.

Lot Line: A line bounding the lot as described in the title to the property.

Noncombustible: Material or a combination of materials which will not ignite or support combustion at a temperature of 1,200 degrees F. during a 5 minute exposure.

Party Wall: See Wall.

Plat: A map, plan or chart of a city, town, section or subdivision, indicating the location and boundaries of individual properties.

Plot: A parcel of land consisting of one or more lots or portions thereof, which is described by reference to a recorded plat or by metes and bounds.

Property: A lot or plot, including all buildings and improvements thereon.

Property Line: A recorded boundary of a plot.

Rafters: A series of roof framing members, spaced not more than 30 inches o.c. in roofs having slopes over 3 in 12. Members supporting roofs having slopes 3 in 12 or less are defined as roof joists.

Rehabilitation: The restoration of one or more dwellings to a satisfactorily improved physical condition, and which overcomes the deterioration of a property or properties, and aids in the improvement of its neighborhood.

Repair: To restore to a sound and acceptable state of operation, servcability or appearance. Repairs shall be expected to last approximately as long as would the replacement by new items.

Replace: To remove an existing item or portion of a system, and to construct or install a new item of similar or improved quality as the existing item when new. Replacement will ordinarily take place where the item is incapable of repair or where repair would be more costly.

Rooms:

Habitable Room: A space used for living, sleeping, eating or cooking, or combinations thereof, but not including bathrooms, toilet compartments, closets, halls, storage rooms, laundry and utility rooms, basement recreation rooms and similar spaces.

Combined Rooms: Two or more adjacent habitable spaces which by their relationship, planning and openness permit their common use.

Shaft: A vertical opening or enclosed space extending through two or more floors of a building, or through a floor and roof.

Shall: Indicates that which is required.

Should: Indicates that which is recommended but not mandatory.

Space Heater (room heater): A self-contained above-the-floor device for furnishing heated air, through openings in its casing, directly into the space in which the device is located or immediately adjacent to it. The device may be free-standing or recessed in a wall or partition.

Story: That portion of a building between a floor and the next floor above.

First Story (First floor): The lowermost story that has at least half its total floor area designed for and finished as living accommodations. For the purpose of determining this area, the area of halls, closets, and stairs is included. The area of storage, utility or heating rooms or spaces is not included. The location of the first story as defined herein is based upon the use of the space rather than on the location of entrance doors or the finished grade.

Half Story: A story finished as living accommodations located wholly or partly within the roof frame and having a floor area at least half as large as the story below. Space with less than 4 feet clear headroom shall not be considered as floor area.

Top Story: The story between the uppermost floor and the ceiling or roof above.

Street: A public or private way which affords principal means of vehicular access to properties which abut thereon.

Ventilation:

Mechanical: Supply and removal of air by power-driven devices.

Natural: Ventilation by openings to outside air through windows, doors or other openings.

Walls:

Bearing Wall: A wall which supports any vertical load in addition to its own weight.

Cavity Wall: A masonry or concrete wall consisting of two wythes arranged to provide an air space within the wall in which the inner and outer wythes of the wall are tied together with metal ties.

Curtain Wall: A wall, usually nonbearing, between piers or columns.

Faced Wall: A wall in which the masonry facing and the backing are so bonded as to exert a common reaction under load.

Firewall: A wall with qualities of fire resistance and structural stability which subdivides a building into fire areas, and which resists the spread of fire.

Foundation Wall: A wall, below or partly below grade, providing support for the exterior or other structural parts of a building.

Lot Line Wall: A wall adjoining and parallel to the lot line used primarily by the party upon whose lot the wall is located. Lot line walls may share common foundations.

Masonry Wall: A bearing or non-bearing wall of hollow or solid masonry units.

Non-bearing Wall: A wall which supports no vertical load other than its own weight.

Parapet Wall: That part of any wall entirely above the roof.

Party Wall: A wall used jointly by two parties under easement, erected upon a line separating two parcels of land, each of which is a separate real estate entity.

Veneered Wall: A wall with a masonry face which is attached to but not so bonded to the body of the wall as to exert a common reaction under load.

Vertical Opening: Openings through floors, such as for stairways, elevators, ventilating shafts, etc., which if unprotected, may serve as channels for the spread of fire or smoke.

Waterproofing: A treatment of a surface or structure, which prevents the passage of water. See Dampproofing.

Way: A street, alley or other thoroughfare or easement permanently established for passage of persons or vehicles.

Window, Required: A window which provides all or part of the required natural light and ventilation in the room or space where it is located.

Wythe: The partition between two chimney flues in the same stack. Also the inner or outer wall of a cavity wall.

Yard: The open, unoccupied space on the plot between the property line and the front, rear or side wall of the building.

Front Yard: The yard across the full width of the plot facing the street extending from the front line of the building to the front property line. On a corner lot, both yards facing a street are considered front yards.

Rear Yard: The yard across the full width of the plot opposite the front yard, extending from the rear line of a building to the rear property line.

Side Yard: The yard between the side line of a building and the adjacent side property line, extending from the front yard to the rear yard.

## CHAPTER II

### GENERAL ACCEPTABILITY CRITERIA

#### R200      GENERAL

These general acceptability criteria apply to all existing one through eleven living unit properties in the Mount Hope Project Area as set forth on page 2, Application.

#### R201      LOCAL CODES AND REGULATIONS

R201-1      The minimum standards set forth herein have been established to accomplish certain basic objectives for urban renewal rehabilitation purposes and shall not be construed as relieving the property owner or his builder of his responsibility for compliance with local ordinances, codes and regulations including established requirements of a health or other authority having jurisdiction.

R201-2

R201-3      Where other applicable codes, regulations or requirements permit lower standards than required herein, these Minimum Property Standards shall apply.

#### R202      SERVICE AND FACILITIES

R202-1      Utilities shall be independent for each property without dependence upon other properties.

R202-2      Independent facilities shall be provided for each living unit except that common facilities such as laundry and storage space or heating may be provided for each property.

R202-3      Each building and each living unit within the building shall contain provisions for each of the following:

- a. A continuing supply of safe potable water.
- b. Sanitary facilities and a safe method of sewage disposal.
- c. Heating adequate for healthful and comfortable living conditions.
- d. Domestic hot water.
- e. Electricity for lighting and for electrical equipment used in the dwelling.
- f. Provisions for the removal of trash and garbage and its sanitary storage pending removal.

R203      ACCESS

R203-1    Access to the Property

R203-1.1 Each property shall be provided with vehicular access to and from the property at all times by an abutting public or private street. Private streets shall be protected by a permanent easement.

R203-1.2 Properties having no vehicular access shall have permanent pedestrian access at least 5 ft. wide by easement or held in fee simple. Vehicular parking shall be permanently available nearby. Likewise, small groupings of properties not having direct vehicular access shall have convenient and permanently available parking bays. \*

R203-2    Access to the Building

Walks and steps shall be provided for convenient all weather access to the structure constructed so as to provide safety, reasonable durability and economy of maintenance.

R203-3    Access to Each Living Unit

Access to each living unit shall be provided without passing through any other living unit.

R203-4    Access to Rear Yard

R203-4.1 Access to the rear yard from each living unit is recommended. However, such access is not acceptable where it is dependent upon passage through another living unit. \*

R203-4.2 Each building shall be provided with access to the rear yard. This access for a detached dwelling should be directly from a street. For a row dwelling, the access shall be by means of an alley, easement, open passage through the dwelling, or other acceptable means. \*

R204      TYPES OF DWELLINGS

R204-1    Types of dwellings are: Detached, semi-detached, row and end-row dwellings. Each type may contain one through eleven living units.

R204-2    A semi-detached, row or end-row dwelling shall be separated from an adjoining dwelling or dwellings by a party or lot line wall extending the full height of the building. See paragraphs R502-1 and R502-2.



R204-3 Method of Determining Number of Living Units

R204-3.1 Each dwelling or portions thereof providing complete living facilities for one family shall be counted as a living unit. All living units shall comply with these Minimum Property Standards.

R204-3.2 A room or group of rooms, containing complete living facilities, such as an apartment of a janitor, caretaker or servant shall be counted as a separate living unit.

R205 PARTIAL NON-RESIDENTIAL USE

R205-1 Any non-residential use of the property shall be subordinate to its residential use and character. For properties of one through four living units, the extent of this non-residential use should not exceed 25 percent of the total floor area.

R205-2 For one or two story structures in properties not exceeding four living units, where the percentage of total dwellings in the neighborhood having non-residential space included is small, and the use is considered harmonious and architecturally compatible, a higher percentage of non-residential space, (than provided in R205-1), may be permitted up to but not exceeding 50 percent of the total floor area. \*

R205-3 For properties which include five or more living units, the maximum space devoted to non-residential use shall not exceed 20 percent of the gross floor area devoted to residential use. The gross floor area includes corridors, stairs, elevators, lobbies, etc. Laundry, garage space for tenants up to a ratio of one space per living unit, all storage for the residential and commercial tenants, or project storage and other service spaces are not considered in area computations.

R205-4 A property, any portion of which is designed or used for non-residential purposes shall be harmonious with the residential character of the neighborhood. (1)

---

(1) An inharmonious use is one which by its unresidential appearance, excessive noise or odor, lack of sanitation, or unwholesome influence on people adversely affects the neighborhood in which it is located.

R206      DILAPIDATED OR BLIGHTED STRUCTURES

All dilapidated portions of existing properties, or blighted structures, which are not economically repairable shall be removed. Also, see paragraph R407-1 for exterior appurtenances.

R207      VARIATIONS TO STANDARDS

R207-1      A variation to mandatory provisions contained herein may be permitted for specific cases, only when the variation attains the stated objectives contained herein and when one or more of the following conditions justify the variation:

- a. Topography of the site is such that full compliance is impossible or impracticable.
- b. Long established local practices and customs in the area assure continued market acceptance of the variation.
- c. Design and planning of the specific property offers improved or compensating features providing equivalent desirability and utility.

R207-2      Variations shall be limited to specific cases and shall not be repetitive in nature or establish precedents for similar acceptance in other cases.

## CHAPTER III

### SITE CRITERIA

#### R300 OBJECTIVE

The individual site under consideration shall be appropriate to the neighborhood in which it is located, and not have characteristics which will induce or perpetuate neighborhood blight or obsolescence.

#### R301 OPEN SPACE

Every dwelling shall have yard space of such size and so planned as to permit convenient access for maintenance, adequate light and ventilation of rooms and spaces, and reasonable privacy. There should be adequate open space for laundry drying, gardening, landscaping and outdoor living. The open space may be at the rear, front, or one of the side yard areas. \*

#### R302 LOT COVERAGE

In general, the maximum area of the individual dwelling plot which should be covered by the building or buildings are as given below: \*

a. Detached dwelling:

- (1) Interior lot coverage - 45 percent
- (2) Corner lot coverage - 50 percent

b. Semi-detached dwelling:

- (1) Interior lot coverage - 55 percent
- (2) Corner lot coverage - 60 percent

c. Row and end-row dwelling: 70 percent

The building area includes the total ground area of each building and accessory buildings but does not include the area of uncovered entrance platforms, terraces and steps.

PARKING

As a neighborhood planning guide, facilities available for street and "on site" parking and garage storage in the neighborhood should total, in general, not less than a ratio of 1 car space per dwelling in single family house neighborhoods. Where it is contemplated that there will be more than one living unit per dwelling in a majority of the houses, the parking and garage ratio should be not less than .75 per living unit within the neighborhood. Street parking space may not be included in this calculation for the reason that overnight on-street parking is prohibited by law in Providence.

YARDS AND COURTSYards

Yard dimensions should generally provide for at least the following:

- a. Front yard, 10 feet.(1)
- b. Side yard, 5 feet.(1)
- c. Rear yard, 15 feet.

Courts

- a. Outer courts should have a least dimension of 8 feet if windows of habitable rooms occur in walls opposite each other and serve separate living units or buildings.
- b. The distance between building walls of outer courts under other conditions should be not less than 5 feet.
- c. Inner courts should have at least 50 square feet area and minimum dimensions as for outer courts.
- d. Covered light shafts, or open shafts less than 50 square feet area, are not acceptable as providing ventilation to bedrooms or living rooms.

---

(1) Where the Providence zoning ordinance permits less yard dimension than is recommended here, it may be considered acceptable for existing houses, but not for new construction.

R305      SITE IMPROVEMENTS

- R305-1      The open space of each property shall provide (a) for the immediate diversion of water away from buildings and disposal from the lot, (b) prevent soil saturation detrimental to structures and lot use, and (c) where needed, appropriate paved walks, parking areas, driveways, exterior steps and landscaping.
- R305-2      Any new site improvements installed should comply with Chapter XII of the MPS for One and Two Living Units, or Chapter X of the MPR for Multifamily Housing, as feasible.      \*

## CHAPTER IV

### BUILDING PLANNING

#### R400      OBJECTIVE

To assure a living unit which provides for a healthful environment and complete living facilities arranged and equipped to assure suitable and desirable living conditions commensurate with the type and quality of the property under consideration.

#### R401      SPACE STANDARDS

##### R401-1      Objective

To provide each living unit with space necessary to provide suitable living, sleeping, cooking and dining accommodations, storage, laundry and sanitary facilities; also, to provide space of such size and dimensions so as to permit placement of furniture and essential equipment.

##### R401-2      General

R401-2.1 For existing work, dimensions for interior spaces are based upon measurements taken between finished floor, wall, ceiling or partition surfaces.

R401-2.2 The area occupied by a stair or by closets shall not be included in the determination of required room area.

R401-2.3 Habitable rooms in basements or below grade intended for year-round occupancy shall comply with building planning standards in the same manner as rooms above grade. See R402

##### R401-3      Minimum Room Sizes and Allowable Room Count

Room sizes shown below shall be the minimum permitted for any subdividing of existing spaces, or for the construction of any new rooms. Unremodeled existing rooms, where considered adequate in size and arrangement for the intended function by the local insuring office, may be acceptable if not more than 10 percent smaller than the minimums given in the following schedule. Room count is applicable only for properties having five, and in some cases eight, or more living units under FHA multifamily housing programs.

\*

# SCHEDULE

Name of Space (1)	Room Count	Minimum Area (sq. ft.) (2)		Least Dimension (3)
		1 & 2 BR LU	3 or more BR LU	
LR	1	140	150	10'-0"
DR	1	80	100	7'-8"
K	1	50	60	3'-0" (4)
K'ette (5)	1/2	40	NP	3'-4"
BR	1	70	70	7'-0"
Total BR	---	1BR, 100 2BR, 170	3BR, 240 4BR, 340	(1st BR of each LU=8'-0"
OHR (6)	1	70	70	7'-0"
LR-DA	1-1/2	160	180	(9)
LR-DR	2	200	220	(9)
LR-DA-K (7)	2	210	240	(9)
K-DA (7)	1-1/2	80	100	(9)
K-DR (7)	2	120	140	(9)
K'ette-DA (7)	1	60	80	(9)
LR-DA-BR (8)	2	220	---	(9)
LR-BR (8)	1-1/2	190	---	(9)

## NOTES

### (1) Abbreviations

LU = Living Unit  
 LR = Living Room  
 DR = Dining Room  
 DA = Dining Area  
 K = Kitchen

K'ette = Kitchenette  
 BR = Bedroom  
 OHR = Other Habitable Room  
 NP = Not Permitted

- (2) Minor variations to these areas may be permitted when existing partitions preclude compliance.
- (3) Least dimensions shown shall apply for 90 percent of the required room area. Minor variations to these dimensions may be permitted when existing partitions preclude compliance.
- (4) Clear passage space.
- (5) Permitted in LU of 0-BR or 1 BR only. Where the area of Kitchenette is less than 40 sq. ft., no room count shall be allowed, and no Kitchenette shall be less than 20 sq. ft.
- (6) An Other Habitable Room (OHR) shall meet all requirements for habitable rooms, have a closet of approximately 6 sq. ft., and shall have a means of complete separation from other rooms. Only one OHR is allowable for room count purposes, per living unit.

- (7) The combining of a Kitchen or Kitchenette with a Bedroom in a single room shall not be permitted. The designation of K in combination with other spaces may be considered either as a Kitchen or Kitchenette.
- (8) Permitted only in Living Unit having no separate Bedroom.
- (9) Least dimension of appropriate room function applies.

R401-4     Ceiling Heights     \*

The ceiling heights for habitable rooms, bathrooms and halls should be as follows:

R401-4.1   Habitable Rooms

- a. Average height for required room, 7 ft.-6 in.
- b. Floor area with less than 4 ft. clear headroom not to be included in required room area.

R401-4.2   Bathrooms, toilet, compartments, utility rooms, etc., 6 ft.-8 in. clear.

R401-4.3   Halls, 6 ft.-8 in. clear.

R401-5     Privacy and Arrangement

R401-5.1   A degree of privacy shall be provided commensurate with suitable living conditions by means of the proper location of exterior openings to exterior conditions, and by the interior arrangement of rooms, particularly with reference to access to bathrooms from bedrooms.

R401-5.2   Access to all parts of a living unit shall be possible without passing through a public hall.

R401-5.3   Every water closet, bathtub or shower of a living unit shall be installed in a bathroom or toilet compartment which will afford privacy to the occupant.

R401-5.4   A bathroom location is not acceptable if it is used as a passageway to a habitable room, hall, basement or to the exterior. Also, the only access to a single bathroom is not acceptable through a bedroom in living units having more than one bedroom.

R401-5.5   A bathroom should not be separated from all bedrooms of a living unit by locating it a full story above or below the bedrooms.     \*



R401-5.6 A bedroom shall not be used as the only means of access to another bedroom or habitable room.

R401-6 Kitchen Facilities

R401-6.1 Each living unit shall have a specific kitchen space, which contains a sink with counter work space and having hot and cold running water, and adequate space for installing cooking and refrigeration equipment, and for the storage of cooking utensils.

R401-6.2 Minimum areas and dimensions of kitchen storage space should generally be as follows: \*

- a. Total shelving in wall and base cabinets - 30 sq. ft.
- b. Drawer area - 5 sq. ft.
- c. Usable storage shelving in cooking range or under sink may be counted in the total shelving needed.

R401-7 Bath Facilities

Complete bathing and sanitary facilities shall be provided within each living unit consisting of a water-closet, a tub or shower, and a lavatory. Provide an adequate supply of hot water to the tub or shower stall and lavatory, and cold water to all fixtures. Arrangement of fixtures shall provide for the comfortable use of each fixture and permit at least a 90° door swing. Wall space shall be available for a mirror or medicine cabinet and for towel bars. Bathtub shall be not less than 4 ft. 6 in. long, and if a spare tub - 4 ft. minimum. Shower, if provided, should have a least dimension not less than 30 inches \*

R401-8 Space for Laundry Facilities

Provide adequate space for laundry trays or equipment in either of the following locations:

- a. Within each living unit having two or more bedrooms, and located in the kitchen or other suitable service space, or
- b. In basement, cellar or other suitable public space within the building for the use of all occupants.

R401-9 Closets

R401-9.1 Clothes closet space shall be provided within each living unit on the basis of approximately 6 sq. ft. for each BR. \*  
The space provided should be, if possible, divided into separate closets serving each bedroom and having one closet located so as to open directly off a hall or living or dining room. None of the minimum clothes closet space shall be located within the kitchen. A guest closet (min. 6 ft.) should be provided

R401-9.2 Where separate closets for each existing bedroom are not possible, a closet elsewhere within the living unit may be acceptable provided the minimum area is obtained and is reasonably accessible to the bedroom. \*

R401-9.3 Clothes closets shall have a shelf and rod.

R401-9.4 Within each living unit, total shelf area or built-in drawer space of at least 8 sq. ft. should be provided for linens. \*  
This space should be appropriately increased for living units having 3 or 4 bedrooms.

R401-10 General Storage

Each living unit shall have a designated closet or other suitable space within the unit or locked space elsewhere within the building or other structure on the property, conveniently accessible, for general storage. The minimum volume of general storage space for each living unit shall be 100 cu. ft. and should be appropriately increased for 3 or 4 bedroom living units. \*

R402 LIGHT AND VENTILATION

R402-1 Objective

To provide a healthful environment and an acceptable degree of comfort within all rooms and hallways of the dwelling, by having sufficient light and ventilation, and by the provision of natural ventilation of structural spaces to minimize conditions conducive to decay and deterioration.

R402-2 Habitable Rooms

R402-2.1 All habitable rooms, except kitchens, shall have natural light, provided by means of windows, glazed doors, or skylights. A glass area of at least 10 percent of the floor area shall be provided for new or remodeled rooms, or other spaces. Existing rooms not disturbed in the rehabilitation shall have a glass area not appreciably below a total of 10 percent of the floor area. For half stories, the above percentages are 5 percent.

R402-2.2 An acceptable means of natural ventilation shall exist or be provided for all habitable spaces, except that for kitchens a mechanical ventilation system may be substituted. A ventilation area of 4 percent of the floor area of the space shall be provided. For half stories the above percentage is 2 percent.

R402-2.3 Artificial light shall be provided and so distributed as to assure healthful and sanitary conditions in all rooms or spaces. See R906, Chapter IX.

R402-2.4 An interior room not having its own source of natural light and ventilation is acceptable only where the room is adjacent to an outside room which has adequate natural light and ventilation, calculated on the basis of the combined floor area of the two rooms, and where the separating wall between the two rooms has a clear horizontal opening approximately 6 feet wide. The interior room shall not be a bedroom.

R402-2.5 See R304-2 for minimum court dimensions.

R402-3 Kitchens

R402-3.1 Artificial light shall be provided, and distributed so as to give effective illumination throughout.

R402-3.2 Ventilation shall be provided by natural means in amounts as calculated for habitable rooms and not less than 3 sq. ft., or by mechanical ventilation in accordance with paragraphs R901-2 and R902, Chapter IX. Where a Kitchen is not separated from the Living Room by partitions and door or permanent screen, provide mechanical ventilation for the Kitchen.

R402-4 Bathrooms and Toilet Compartments

R402-4.1 Artificial light shall be provided.

R402-4.2 Ventilation shall be provided by natural means in amounts as calculated for habitable rooms and not less than 1 1/2 sq. ft., or by mechanical ventilation in accordance with paragraphs R901-2 and R902, or by gravity-type ventilation equipped with a wind-driven roof ventilator above the roof level.

R402-5 Public Spaces

R402-5.1 General

Adequate artificial light shall be provided for all public spaces.

R402-5.2 Public Entrance Spaces to Building

- a. All public entrance space should have natural light provided by window, doorway or equivalent glass area of at least 5 percent of the floor area. \*
- b. Either natural ventilation of at least 4 percent of floor area or mechanical ventilation shall be provided. \*

### R402-5.3 Public Hallways and Stairways

- a. Public hallways and unenclosed stairways shall be provided with either natural ventilation (at least 4 percent of floor area) or mechanical ventilation.
- b. Where dependence is placed upon natural light for daytime use of hallways or unenclosed stairways, windows, skylights or the equivalent shall be provided containing at least 5 sq. ft. of glass area, or its equivalent, for each floor so served.
- c. Enclosed stairways shall be ventilated by a mechanical or gravity system to provide approximately 4 air changes per hour.

### R402-6 Habitable Rooms of Living Units Below Grade

For habitable rooms below grade, the depth of the finish floor below its adjacent outside grade level shall not exceed 4 ft.-0 in. Natural light and ventilation standards for habitable rooms above grade shall apply.

### R402-7 Ventilation of Utility Spaces

Utility spaces which contain heat producing, air conditioning and other equipment shall be ventilated to the outer air, and air from such spaces shall not be recirculated to other parts of the building.

### R402-8 Ventilation of Structural Spaces

R402-8.1 Natural ventilation of spaces such as attics and enclosed basementless spaces shall be provided by openings of sufficient size to overcome dampness and minimize the effect of conditions conducive to decay and deterioration of the structure, and to prevent excessive heat in attics.

R402-8.2 All exterior ventilation openings shall be effectively and appropriately screened.

### R403 DOORS AND ACCESS OPENINGS

#### R403-1 Objective

To provide openings adequate in size to admit furniture and equipment to all spaces and to permit inspection for repair and maintenance.

R403-2      Exterior Doors

R403-2.1    Existing doors in sound condition and to remain should approximate in size the following, and the minimum size of new doors installed in new openings shall be: \*

	<u>Width</u>	<u>Height</u>
a. Main entrance door	3'-0"	6'-6"
b. Service doors	2'-6"	6'-6"
c. Garage doors, 1 car	8'-0"	6'-4" clear opening
d. Garage doors, 2 cars	12'-0"	6'-4" clear opening

(i) Where serving 5 or more Living Units = 3'-4" min.

R403-2.2    Where new doors are installed in acceptable existing door openings, the doors should approximate the sizes given above. \*

R403-2.3    Exterior doors shall have safe locks.

R403-3      Interior Doors

R403-3.1    Provide a door for each opening to a bedroom, bathroom or toilet compartment. Doors to bathrooms and toilet compartments shall be hinged or sliding and shall have locks.

R403-3.2    Existing doors in sound condition and to remain should approximate in size the following, and minimum size of new doors installed in new openings shall be: \*

- a. Habitable rooms, 2 ft.-6 in. wide.
- b. Bathrooms, toilet compartments and closets other than linen and broom, 2 ft.-0 in. wide.
- c. Service stair doors, 2 ft.-6 in. wide.
- d. Cased openings, 2 ft.-6 in. wide.
- e. To public stairway enclosures, single door = 3 ft.- 0 in. wide; double door = 2 ft.-4 in. wide.
- f. Height of all interior doors, 6 ft.-6 in.

R403-3.3    Where new doors are installed in acceptable existing openings, the doors should approximate the sizes given above. \*

R403-4      Attic and Basement Spaces

Access to attics shall be provided by means of conveniently located scuttles, disappearing or permanently installed stairway. For attic and basementless spaces, the minimum access opening shall be 14 x 22 inches. However, if either are to contain mechanical equipment, the access opening shall be of sufficient size to permit the removal and replacement of the equipment, if any.

R404 STAIRWAYS

R404-1 Objective

To assure that all stairways provide safety of ascent and descent, and an arrangement of stairs and landings which have adequate headroom and space for the passage of furniture and equipment.

R404-2 Reference shall be made in all stairway planning to provisions given in Chapter V of this MPS. Likewise, provisions given on interior and exterior stairway planning in Section 607, Chapter VI, of MPS for One and Two Living Units, FEA No. 300, shall be used as a reference in the following ways:

- a. Existing stairways in sound condition to remain, or to be repaired, shall not be dangerously or to any serious extent below minimum standards as to rise and run of steps, headroom, obstructions, stair width, landings, or railing protection.
- b. New stairways to be constructed shall comply with the provisions of the MPS referenced just above.
- c. Winder-type steps should not be used in stairways of dwellings where more than one family use the stairway, unless a separate means of egress for each living unit is provided, which is not a secondary exit.

\*

R405 HALLWAYS

R405-1 General

Hallways shall provide adequate, safe and unobstructed circulation from living units or other spaces to various means of exit.

R405-2 Distance of Travel

Where a required stairway is not enclosed and is open to a hallway, the maximum distance of travel from the entrance door of any living unit to the stairway should not exceed 20 ft. Where the stairway is enclosed, this distance should not exceed 30 ft.

\*

\*

R405-3 Width

Hallways providing access to stairways and serving more than one family should be not less than 3 ft.-6 in. wide.

\*

R406      ELEVATORS

R406-1      Where provided, an elevator shall furnish convenient and safe ascent and descent to all living units and service areas. The character and type of elevator service and equipment should be appropriate to the building being rehabilitated and to its occupants. \*

R406-2      The provision of an elevator is recommended for buildings having four stories above grade level and containing more than two living units per floor. Where a building has five or more stories above grade and contains two or more living units per floor, an elevator shall be provided. \*

R406-3      See Chapter V, R501-7 and R502-4.1 for related provisions.

R407      EXTERIOR APPURTENANCES

R407-1      All exterior appurtenances or accessory structures which serve no useful purpose, or those in a deteriorated condition which are not economically repairable, shall be removed. Such structures include porches, terraces, entrance platforms, garages, carports, walls, fences, miscellaneous sheds. Where a structure is needed for utility or privacy and the existing one requires removal, it should be replaced with a structure that appropriately serves the dwelling. \*

R407-2      Reference to Section 610 and 611, Chapter VI of the MPS for One and Two Living Units shall be made for planning requirements for new accessory structures.

## CHAPTER V

### FIRE PROTECTION

#### R500      OBJECTIVE

To assure a high degree of safety to life and property preservation for the dwelling, by the separation of living units and the use of materials which will retard the spread of fire and prevent the passage of flame, smoke and hot gases through open or concealed spaces within the building, and by providing exits which will permit persons to leave the building with safety.

#### R501      EXITS

R501-1      Each one or two family dwelling and each living unit in multi-family properties shall have at least one exit, which is a doorway, protected passageway or stairway, providing unobstructed travel directly to the outside of the building at street or grade level. In addition, there shall be a suitable and separate secondary exit from each living unit by means of a doorway, stairway, protected passageway, or openable window. In buildings three or more stories above grade, the secondary exit from the third story, or from any additional stories, shall be by stairway, fire escape or horizontal passageway providing a safe path of escape in case of emergency.

R501-2      Access to either required exit shall not necessitate passage through another living unit, nor shall either exit be subject to locking by any device which would impede or prohibit ready egress.

R501-3

R501-4

R501-5      Where the secondary exit is by means of an openable window, the opening shall be at least 5 sq. ft. in area with a minimum dimension of 20 inches. The bottom of the opening, or sill height, shall not be more than 3 ft. 6 in. above the floor. Where storm windows, screens or burglar guards are used, these shall be readily openable from the inside.

R501-6      Every below grade living unit shall have direct and convenient access to the outside of the building at grade level.

R501-7      Elevators shall not be considered a required means of egress.



R502-1 Party or Lot Line Walls

Party or lot line walls shall extend the full height of the building from foundation to or through the roof, without openings. The wall shall effectively prevent the passage of fire at all floor-ceiling intersections with the wall. If of combustible construction, the wall shall have horizontal fire stopping located approximately midway between each floor and ceiling. The fire resistance rating of the wall, where it is new construction in connection with present rehabilitation shall be not less than 2-hours.(1) Existing walls shall have a fire resistance rating of not less than the following:

- a. 3/4-hr., where one or more party walls separate two, but not more than six, residential buildings having a combined total of not more than 12 living units, all of which are located between party, lot line or exterior walls of noncombustible materials having not less than a 2-hr. fire resistance rating;
- b. 2-hr., where a party wall separates two multifamily buildings either of which contains more than eight living units, or where the total living units contained in both buildings exceed twelve.
- c. 2-hr., where the residential building adjoins a non-residential building or property.

R502-2 Walls, Floor, and Ceiling Construction

- R502-2.1 Existing wall, floor and ceiling construction separating living units or separating a living unit from a public hallway, other than party or lot line walls, should be constructed so that at least 3/4-hr. fire resistance rating is provided. \*
- R502-2.2 Where such existing construction is to be disturbed by new openings or stripped down, and where new walls, floors or ceilings are planned, the fire resistance rating shall be not less than 3/4-hr.
- R502-2.3 The underside of all flights of wood stairs to remain, if exposed, shall be covered with a noncombustible material. Existing plaster in this location which is in good condition may remain.

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(1) Fire resistance ratings shall be in accordance with Standard Designation E119-61 of the American Society for Testing Materials. This test method is also NFPA Standard No. 251, and Underwriters' Laboratories No. UL 263.

R502-3     Interior Fire Protection - Materials

R502-3.1     Interior finish materials of walls, partitions (either fixed or movable), ceilings and other exposed interior surfaces, such as acoustic or fixed decorative treatment, and interior trim materials shall be appropriate to the location and conditions of service and not aid the surface flame spread, nor in burning give off excessive amounts of smoke or objectionable gases.

R502-4     Enclosure of Vertical Openings

R502-4.1     The enclosing walls of an elevator shaft shall be of noncombustible materials having not less than a 2-hr. fire resistance rating. Other vertical openings requiring enclosure shall be of materials and fire resistance rating appropriate to provide adequate fire safety.

R502-4.2     For properties containing more than four living units, stairways from the first floor, leading to below-grade open space or rooms containing heating equipment shall be enclosed with partitions providing at least a 1-hour fire resistance rating. This enclosure shall include all space beneath the stair. A self-closing door shall be provided at the bottom of the stairway conforming to Underwriters' Laboratories, Inc., Class C classification.

R502-5     Storage Space

Storage space located on the same floor as the house heater shall be at least 18 ft. away from the heater, or if closer, shall be separated from it by a noncombustible floor to ceiling partition.

R503     EXTERIOR FIRE PROTECTION

R503-1     Distance Separation

An existing residence less than 6 ft. distance from an adjoining building where the exterior walls of both have a combustible finish material should have a noncombustible exterior finish material added, to the wall so located, or replace the existing exterior wall finish with noncombustible materials. \*

R503-2     Exterior Stairways

R503-2.1     An exterior stairway conforming to the design requirements of interior stairways may be acceptable as a required exit. See R404.

R503-2.2     Where an exterior stairway is used in place of a required interior stairway, or with buildings three or more stories above grade, it shall be self-supporting and constructed of noncombustible materials.

R503-3     Roof Covering

R503-3.1     Buildings of from One through Four Living Units

Existing roof coverings or new roof coverings contemplated shall provide a fire retardance equivalent to a Class-C roof according to the classification given by the Underwriters' Laboratories, Inc.

R503-3.2     Buildings of more than Four Living Units

Existing roof coverings or new roof coverings contemplated shall provide a fire retardance equivalent to a Class-C roof according to classification of U. L. except for the following additional provision. Where the roof area of the property is greater than 4000 sq. ft., or is without separation from adjacent properties by an adequate distance or by a continuous parapet wall, the requirements of Class A or Class B roofing of U. L. shall apply.

FIRE PROTECTION EQUIPMENT

In four or more story combustible structures, accommodating four or more families, an approved fire alarm system shall be provided of either a manual or automatic type. Where codes require fire protection equipment, it shall be provided in accordance with NFPA Standard No. 74M, and installed in conformity with NFPA Standard No. 72 and the National Electrical Code.

## CHAPTER VI

### MATERIALS AND PRODUCTS

#### R600      OBJECTIVE

To provide materials of such kind and quality which will assure that the dwelling will provide: (a) appropriate structural strength, (b) adequate resistance to weather and moisture, and (c) reasonable durability and economy of maintenance.

#### R601      STANDARDS FOR MATERIALS AND PRODUCTS

For specific requirements of new materials and products used as replacements or additions to dwellings being rehabilitated, reference shall be made to Chapter VII, MPS for One and Two Living Units, FHA No. 300.

## CHAPTER VII

### CONSTRUCTION

#### R700 OBJECTIVE

To assure that the construction of the dwelling will provide: (a) sufficient structural strength and rigidity, (b) adequate protection from corrosion, decay, insects and other destructive forces, (c) necessary resistance to the elements, (d) reasonable durability and economy of maintenance, and (e) acceptable quality of workmanship.

#### R701 STRUCTURAL SOUNDNESS

All structural components of the dwelling shall be in sound condition and considered serviceable for the expected useful life of the rehabilitated building. Sagging of floors, fireplaces, partitions or stairs, and bulging of exterior walls shall be restored as near as practical to an acceptably level or plumb position; and supported or braced so as to prevent a recurrence of these conditions. Stair railings shall be rigid. Individual structural members in a seriously deteriorated condition shall be replaced. Loose jointing of structural members shall be restored to original rigidity.

R701-1 All new construction work shall comply with MPS for One and Two Living Units, FHA No. 300, as feasible.

#### R702 EXTERIOR WALLS

##### R702-1 General

Exterior walls shall provide safe and adequate support for all loads upon them. Serious defects shall be repaired and cracks effectively sealed.

##### R702-2 Masonry Walls

Masonry walls, either solid or veneer, shall prevent the entrance of water or excessive moisture.

R702-3     Basement and Foundation Walls

R702-3.1   Exterior basement and foundation walls shall prevent the entrance of water or moisture into a basement or crawl space area. Cracks in the walls shall be effectively sealed, and loose or defective mortar joints shall be replaced. Where necessary, the interior or exterior face of the walls shall be dampproofed by bituminous coating and cement parging.

R702-3.2   Any deficiencies in proper grading or paving adjacent to the building shall be corrected, to assure surface drainage away from basement walls.

R703       FLOOR CONSTRUCTION

R703-1     General

All floor construction components shall provide safe and adequate support for all intended or likely loads and shall eliminate objectionable vibration.

R703-2     Basement or Cellar Floors

The floor of all basement or cellar furnace rooms, or basements containing habitable space, shall be paved in an acceptable manner, except under the following condition. Where the basement or cellar has existing wood floor construction and it is in a structurally sound condition, it may remain.

R704       CHIMNEYS AND VENTS

Chimneys and vents shall be structurally safe, durable, smoke-tight and capable of withstanding the action of flue gases.

R705       PROTECTION FROM RODENTS, TERMITES OR OTHER INFESTATION

Each dwelling and all exterior appurtenances on the premises shall be adequately protected against rodents, termites or other vermin infestation. An existing building where found to have defects which will permit the entrance into the structure of rodents, termites or other vermin shall be corrected by appropriate preventive measures.

R705-1     Inspection

A careful inspection shall be made of the dwelling and other structures on each property for evidence of actual or potential infestation.

R705-2     Preventive Measures

The following preventive and protective measures should be taken where necessary against the several forms of infestation: \*

- a. Windows or other openings near grade to have snug-fitting screens;
- b. Exterior doors to fit tightly and be flashed at sill;
- c. Openings of pipes or ducts through floors or walls to have tight fitting collars;
- d. Cracks and crevices in foundations and above ground walls effectively sealed by pointing with mortar, and holes filled with materials appropriate to adjacent work;
- e. Provision of curtain wall below grade and supplementary to the foundations;
- f. Locating sidewalks, driveways or other impervious horizontal surfaces flush against the foundation;
- g. Cracked or broken shingles or decayed wood surfaces shall be replaced and joints caulked;
- h. Appropriate soil poisoning treatment adjacent to foundations and within hollow masonry foundations, and treatment of soil in enclosed spaces.
- i. Apply the precautions or corrective actions recommended by bonded exterminators.



## CHAPTER VIII

### EXTERIOR AND INTERIOR FINISHES

#### R800 OBJECTIVE

The use of exterior and interior finishes of the dwelling that will assure against the entrance or penetration of moisture and extremes of temperature; protect from damage by decay, corrosion, insects and other destructive elements; and provide reasonable durability and economy of maintenance.

#### R801 GENERAL

All new work shall comply with MPS for One and Two Living Units, FHA No. 300, as feasible.

#### R802 EXTERIOR WALLS

Repairs to existing siding, stucco, or other exterior wall finish method should use standards for new work as a guide.

#### R803 ROOF COVERING

All roofs shall have a suitable covering free of holes, cracks or excessively worn surfaces which will prevent the entrance of moisture into the structure and provide reasonable durability. See R503-3.

#### R804 GUTTERS AND DOWNSPOUTS

Each dwelling shall have a controlled method of disposal of water from roofs where necessary to prevent damage to the property, and avoid causing an unsightly appearance of walls and windows where adequate roof overhangs are not provided.

R805

FLASHING

All critical joints in exterior roof and wall construction shall be protected by sheet metal or other suitable flashing material to prevent the entrance of water.

R806

WINDOWS, DOORS AND OTHER OPENINGS

R806-1

Existing windows and doors, including its hardware, shall operate satisfactorily and give evidence of continuing acceptable service. Trim and the sash or door needing restoration should be guided by the following:

1. Repair, if work can be done in place;
2. Replace, if the entire component needs to be removed in order to restore;
3. Refinish, if only the surface needs work in order to restore to new condition.

R806-2

Screens should be provided for all windows, doors and other openings. \*

R806-3

Existing screens, and storm sash, where provided, shall be in suitable condition to serve the intended purposes.

R807

INTERIOR WALL AND CEILING FINISH

All interior walls and ceilings of rooms and hallways shall provide (a) a suitable base for decorative finish, (b) a waterproof and hard surface in spaces subject to moisture, and (c) there shall not be noticeable surface irregularities or cracking. See paragraph R502-3 for additional consideration.

R808

FINISH FLOORS

R808-1

General

Finish floors shall be appropriate for the use of the space and provide reasonable durability and economy of maintenance.

R808-2 Kitchen and Bathroom Floors

Floors in kitchens and bathrooms should be of a durable, water-proof, non-absorptive material, such as asphalt, vinyl-asbestos, vinyl-plastic, rubber or ceramic tiles, terrazzo or linoleum. Wood finish flooring for these rooms is not acceptable. \*

R808-3 Habitable Rooms (other than Kitchen)

Finish floors in habitable rooms should be wood flooring or a resilient tile or sheet material. Concrete as a finish floor should not be used. Carpeting over a suitable underlayment is also acceptable. \*

R808-4 Public Hallways and Entrance Spaces

R808-4.1 In hallways, wood, a resilient flooring or carpeting are appropriate finish flooring materials. Noise control should be considered in making selection. \*

R808-4.2 In public entrance spaces, ceramic tile, terrazzo or concrete are appropriate, in addition to floorings named under R808-4.1. A finish flooring that is resistant to water and dirt should be given special consideration in these locations. \*

R808-4.3 Carpeting of stairways is not recommended. \*

R809 PAINTING AND DECORATION

R809-1 Where needed, a protective and decorative finish coating shall provide, (a) adequate resistance to weathering, (b) protection of finish surfaces from moisture or corrosion, (c) an attractive appearance, and (d) reasonable durability.

R809-2 Where painted surfaces are in good condition and it is apparent that painting maintenance has taken place and the property is between such painting periods, and where the rehabilitation will not disturb that part of the building, painting and redecoration is not required.

R809-3 Appropriate cleaning of existing interior and exterior finish surfaces should be provided regardless of whether or not painting or other decoration work is done. \*

## CHAPTER IX

### MECHANICAL EQUIPMENT

#### R900 OBJECTIVE

To provide mechanical equipment for the building and its living units that will appropriately meet the needs of the intended occupants and be of a quality and condition which will assure: (a) safety of operation, (b) adequate capacity for its intended use, (c) protection from moisture, corrosion or other destructive elements, (d) reasonable quietness of operation, and (e) reasonable durability and economy of maintenance.

#### R901 GENERAL

R901-1 See R202 Service and Facilities, for mechanical equipment. Also see R402-7 Ventilation of Utility Spaces.

R901-2 Provisions relating to mechanical equipment and wiring given in Chapter X of the MPS for One and Two Living Units, or Chapter IX of the MPS for Multifamily Housing, should be used as a guide in making determinations as to the suitability of existing equipment for continued use in the rehabilitated structure. \*

#### R902 MECHANICAL VENTILATION AND AIR CONDITIONING

R902-1 Where mechanical ventilation is required for Kitchens, Bathrooms or Toilet Compartments, the installation of new equipment shall be in accordance with paragraph 1002 of the MPS for One and Two Living Units, FHA No. 300.

R902-2 Exhaust air should not be circulated from one living unit to another, except where the air circulation system is already installed, and where it is considered this system will cause no adverse effect on the marketability of the property. \*

R902-3 Where summer air conditioning is to be included, whether a central system or packaged room or zonal air conditioners, follow the provisions of Section 1004, MPS for One and Two Living Units.

R903        HEATING

- R903-1    Each property shall be provided with a centralized heating facility, or appropriate and sufficient individual space heaters, capable of maintaining a temperature of at least 70 degrees F. when the outside temperature is 0° F. in all habitable rooms, bath and toilet rooms and hallways, within a living unit. All heating devices or equipment shall have an appropriate recognized approval for safety and performance, or shall be so determined by proper authority.
- R903-2    No open-flame radiant type space heaters shall be permitted.
- R903-3    Unvented, fuel burning, space heaters shall not be permitted.
- R903-4    Appropriate clearance around all room or space heaters shall be provided, and the floor shall be protected in an acceptable manner.(1)
- R903-5    Where space heaters are the sole source of heat, a sufficient number of heaters shall be provided to accomplish the objective. As a guide, the maximum distance between the space heater and the center of any room to be heated should not exceed 18 feet, or through not more than one intervening door.

(1) For gas - NFPA Standard No. 54, 54A; for oil - Commercial Standard 101; for coal fired - Temporary Commercial Standard 3443.

R904

DOMESTIC WATER HEATING AND STORAGE

R904-1

Capacities

Each building, or living unit within a building, shall have domestic water heating and storage equipment in serviceable condition supplying hot water in quantities equivalent to the table below:

Number Living Units Served	Storage Capacity In Gallons	Heating Capacity Gal. per hr. 100° F. Rise
1	20	20
2	30	30
3	40	35
4	50	40
5	60	45
6	70	50
7	80	55
8	90	65
9	100	70
10	110	80
11	120	95

Where replacement by new equipment is needed, the water heating equipment should be automatic. Where electric water heaters are used, appropriate additional storage capacity shall be provided to compensate for low heating capacity. \*

R904-2

Capacities - Tankless Type

Instantaneous water heaters rated in gallons per minute - 100° F. Rise shall be at least equivalent to the following:

1	Living Unit served	- 2.75 G.P.M.
2	" " "	- 5.00 G.P.M.
3	" " "	- 7.75 G.P.M.
4	" " "	- 10.00 G.P.M.
5	" " "	- 12.75 G.P.M.
6	" " "	- 15.00 G.P.M.
7	" " "	- 17.75 G.P.M.
8	" " "	- 20.00 G.P.M.
9	" " "	- 22.75 G.P.M.
10	" " "	- 25.00 G.P.M.
11	" " "	- 27.75 G.P.M.

R904-3 Prohibited Locations

No water heater shall be installed in any room used or designed to be used for sleeping purposes. No gas or oil fired water heater shall be located in a bathroom, clothes closet, under any stairway, or in a confined space with access only to the above locations.

R904-4 Venting

All fuel burning water heaters shall be connected to a vent leading to the exterior.

R905 PLUMBING

R905-1 General

The plumbing system and its appurtenances for each dwelling shall provide satisfactory water supply, drainage, venting and operation of fixtures.

R905-2 Required Fixtures

For required plumbing fixtures see paragraphs R401-6 to R401-8, Chapter IV.

R905-3 New Plumbing Work

Where changes or additions are made to existing plumbing, the provisions of Section 1006, MPS for One and Two Living Units shall be used as a guide.

R905-4 Condition of Existing Plumbing

Plumbing systems including building sewers shall operate free of fouling and clogging, and not have cross connections which permit contamination of water supply piping or back-siphonage between fixtures.

R906 ELECTRICAL

R906-1 General

All habitable rooms and other appropriate spaces in each dwelling shall be provided with electric service by a system of wiring and equipment to safely supply electrical energy for proper illumination, and for the appropriate location and use of appliances or other equipment.

R906-2

Existing Wiring and Equipment

Existing wiring and electrical equipment to remain shall be determined to be in good and serviceable condition, and installed so as not to be a potential source of electrical hazard, or ignition of combustible materials. Replacement of existing wiring and equipment shall be made where these conditions are not fulfilled. Existing electrical facilities where considered inadequate shall be increased to fulfill the intent of paragraph R906-1.

R906-3

New Electrical Work

The provisions of Section 1007, Chapter X, of the MPS for One and Two Living Units, Section M907 of the MPR for Multi-family Housing, and appropriate provisions of the National Electrical Code shall be used as a guide for design layout and installation of electrical work in new construction. Not less than two general lighting circuits (15 amp.) and one appliance circuit (20 amp.) shall be provided for each living unit. Heavy duty equipment shall have individual branch circuits, as required to comply with the National Electrical Code.