Data Requests of the
Division of Public Utilities and Carriers
Set 1

DIV 1-31. Please provide a copy of Providence Water's 2010 IFR Plan and any subsequent updates.

Response: Attached is a copy of PW's approved 2010 IFR Plan. Hard copies of this plan will be provided to the Commission Clerk and to interveners requesting hard copies. Others will receive a pdf copy of the plan. Also attached is a copy of the plan update that was submitted to the Rhode Island Department of Health on March 1, 2013.

Providence Water

552 Academy Avenue
Providence, RI 02908

401-521-6300
www.provwater.com

March 1, 2013

June Swallow
Chief, Drinking Water Quality
R.I. Department of Health
Cannon Building, Room 209
Three Capitol Hill
Providence, RI 02908-5097

RE: Updated Infrastructure Replacement Plan

Dear Ms. Swallow,

As requested in RIDOH's December 6, 2012 letter, Providence Water is submitting the attached updated Exhibits 1, 2, 10, 11 and 13 from the 20-year Infrastructure Replacement Plan (Plan) dated December 2010.

The primary difference between the attached and the December 2010 Plan is the addition of $6 million per year for main replacement/rehabilitation. Providence Water is currently preparing a full rate filing with the Public Utilities Commission (PUC) to be submitted in April 2013 and is requesting a $6 million dollar increase in IFR funding. It is the intention that the entire $6 million increase in funding will be completely allocated to main replacement/rehabilitation.

In Providence Water's opinion, the additional $6 million in additional IFR money is appropriate for the following reasons.

- Providence Water is currently returning the distribution pH to pre-2005 levels in accordance with the pH Transition Implementation Plan. At this time, it is unclear what effect this change will have on our Lead and Copper, and what eventually will be our long term corrosion control strategy.

- Providence Water is still awaiting the complete results from the sequential sampling and the subsequent recommendations from the Expert Panel.

- The additional $6 million will translate to approximately $15-$20 million of main replacement/rehabilitation work per year. This is the maximum amount of work that Providence Water can reasonably manage in one year. Providence Water is concerned that construction work on the distribution in excess of the above stated quantities may substantially increase the probability of water quality issues.

- As the Unidirectional Flushing (UDF), corrosion control, and main replacement/rehabilitation programs progress, Providence Water will continually reevaluate to determine the necessary quantities and locations of mains that require replacement or rehabilitation to best meet the criteria to minimize water quality issues.

Providence Water would like to meet with you to discuss the attached, please call (401-521-6300 x 7291) or e-mail (ggiasson@provwater.com) at your earliest convenience to schedule a time and date to meet.

Attachment: Revised Exhibits 1, 2, 10, 11, and 13

Sincerely,

Gregg Giasson, PE
Senior Director of Operations
Providence Water Supply Board

cc: Boyce Spinelli
Ricky Caruolo
Stephen Soito, PE
Peter LePage
Rich Razza
Joe Spremulli
Steven Santaniello
Paul Gadoury, PE
John Phillips, PE

Exhibit 1

Providence Water

20 Year IFR Expenditure Plan

Fiscal Years 2011 through 2030

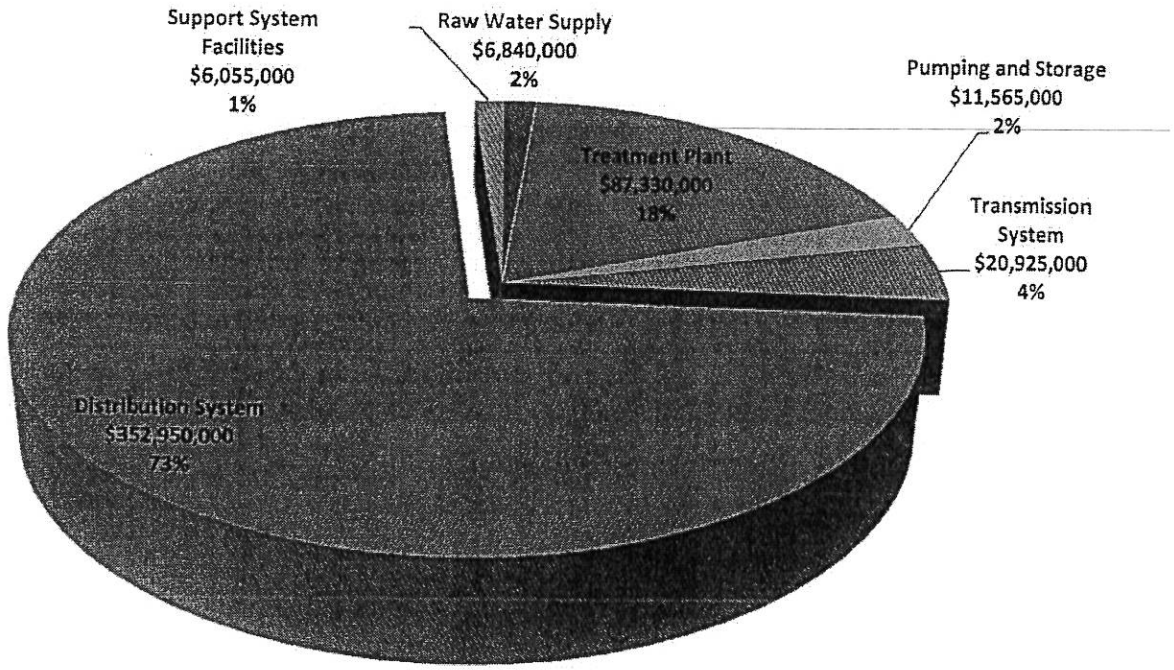
	Total Amount	Budget 2011-2015	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
Raw Water Supply	6,840,000	1,300,000	4,090,000	800,000	650,000
Treatment Plant	87,330,000	45,975,000	38,335,000	1,985,000	1,035,000
Pumping and Storage	11,565,000	1,640,000	3,625,000	2,150,000	4,150,000
Transmission System	20,925,000	5,825,000	4,150,000	8,300,000	2,650,000
Distribution System	352,950,000	63,750,000	89,350,000	96,850,000	103,000,000
Support Systems Facilities	6,055,000	605,000	1,950,000	1,750,000	1,750,000
Total	485,665,000	119,095,000	141,500,000	111,835,000	113,235,000

Exhibit 2

Providence Water

20 Year IFR Expenditures

Fiscal Years 2011 through 2030



20 Year Investiment - $486 Million

Exhibit 10

Providence Water
IFR Expenditure Plan
Fiscal Years 2011 through 2015

	Total Amount	Budget 2011	Budget 2012	Budget 2013	Budget 2014	Budget 2015
RAW WATER SUPPLY						
Reservoirs, Dams, and Watershed						
Regulating Reservoir dam rehabilitation	65,000	15,000		50,000		
Raw Water Booster PS - replace generator	300,000		300,000			
Large dam Improvements	80,000		50,000	10,000	10,000	10,000
Watershed fencing, fire lanes, property rehabilitation	55,000	15,000	10,000	10,000	10,000	10,000
Raw Water Structures and Conduits						
Meter & junction chambers rehabilitation	700,000	300,000	400,000			
60" influent conduits - inspection	50,000		50,000			
90" influent conduit rehabilitation	50,000		50,000			
Raw Water Supply Total	**1,300,000**	**330,000**	**860,000**	**70,000**	**20,000**	**20,000**
TREATMENT PLANT						
Plant Influent and Aerator						
Influent structure rehabilitation	410,000	80,000		75,000	130,000	125,000
Aerator / Influent actuators and valves replacement	710,000			240,000	330,000	140,000
Influent structure - replace drain and bypass valves	1,090,000			380,000	520,000	190,000
Influent / Effluent aerator conduits Inspect / Rehabilitate	160,000			50,000	50,000	60,000
Aeration basin concrete rehabilitation	800,000		50,000	300,000	300,000	150,000
Aeration basin - replace piping, nozzles, and drain valves	1,200,000			450,000	550,000	200,000
Aerated, Settled, and Filter Influent Conduits						
Settled water conduit - installation of access hatch	100,000		100,000			
Concrete conduits inspect / rehabilitate	1,100,000			400,000	550,000	150,000
Influent venturis inspection	500,000			200,000	200,000	100,000
Emergency bypass - clean tunnel and install sluice gate	75,000			75,000		
Chemical Storage, Transfer, and Feed Systems						
Ferric system upgrades	250,000			250,000		
Lime system upgrades	900,000			25,000	875,000	
Filters						
Filter replacement (including valves & piping)	31,200,000	6,600,000	5,000,000	6,500,000	6,600,000	6,500,000
Treatment process studies	960,000	70,000	150,000	545,000	195,000	
Water Quality Study	1,000,000			650,000	350,000	
Inspect wash water system	5,000			5,000		
Building, Support, and Operational Systems						
Treatment plant building rehabilitation	250,000	50,000	50,000	50,000	50,000	50,000
PW lab / equipment Improvements	100,000	5,000	20,000	25,000	25,000	25,000
SCADA / Control system upgrades	160,000	60,000	25,000	25,000	25,000	25,000

Exhibit 10

Providence Water

IFR Expenditure Plan

Fiscal Years 2011 through 2015

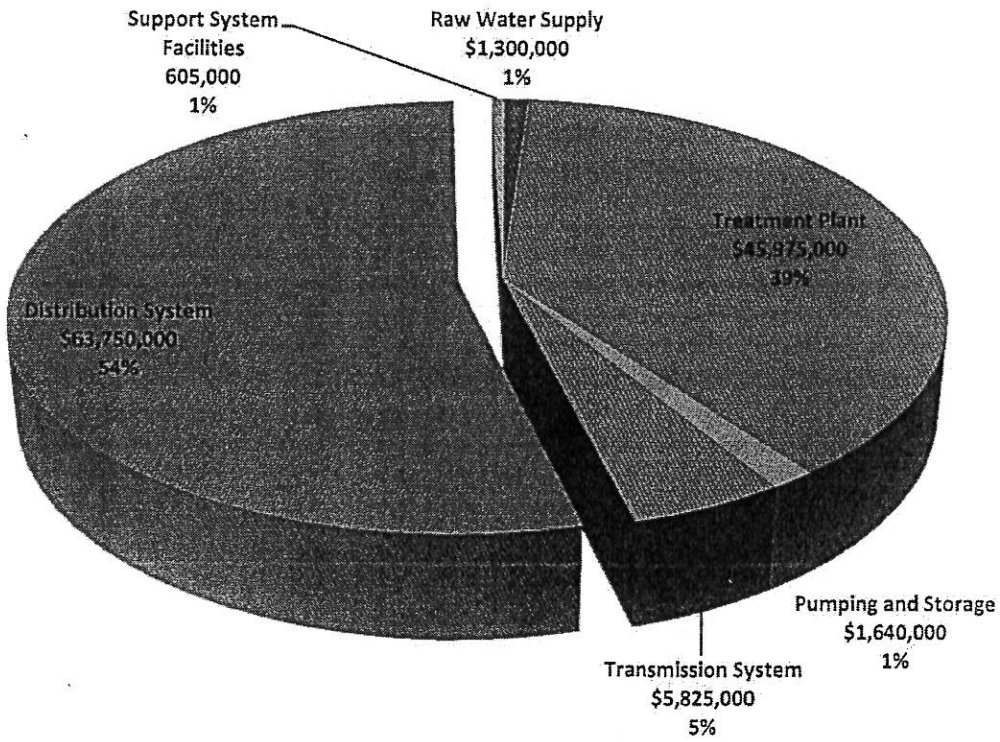
	Total Amount	Budget 2011	Budget 2012	Budget 2013	Budget 2014	Budget 2015
Inspect service water system	5,000			5,000		
Sludge removal and disposal	5,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Treatment Plant Total	**45,975,000**	**7,865,000**	**6,395,000**	**11,250,000**	**11,750,000**	**8,715,000**
PUMPING AND STORAGE						
Neutaconkanut reservoir rehabilitation	110,000	110,000				
Dean Estates pump station upgrades	1,200,000	450,000	750,000			
Aqueduct reservor - replace 60" valve	150,000			150,000		
Various pump station improvements	80,000		20,000	20,000	20,000	20,000
Storage tanks inspections / improvements	100,000			50,000	50,000	
Pumping and Storage Total	**1,640,000**	**560,000**	**770,000**	**220,000**	**70,000**	**20,000**
TRANSMISSION SYSTEM						
102" aqueduct inspection	3,900,000	1,500,000	1,900,000	500,000		
78" aqueduct inspection	900,000			900,000		
66", 60", 48" transmission mains inspections	50,000			50,000		
16" and larger valves replacements	975,000	125,000	150,000	200,000	200,000	300,000
Transmission System Total	**5,825,000**	**1,625,000**	**2,050,000**	**1,650,000**	**200,000**	**300,000**
DISTRIBUTION SYSTEM						
Replace / Upgrade water mains	50,900,000	8,700,000	5,700,000	9,000,000	12,000,000	15,500,000
Replace Distribution Valves	760,000	60,000	100,000	200,000	200,000	200,000
Replace lead services	8,950,000	6,700,000	750,000	500,000	500,000	500,000
Replace fire hydrants	1,630,000	430,000	300,000	300,000	300,000	300,000
Valve data collection program	1,500,000	500,000	500,000	500,000		
Leak detection	10,000	10,000				
Distribution System Total	**63,750,000**	**16,400,000**	**7,350,000**	**10,500,000**	**13,000,000**	**16,500,000**
SUPPORT SYSTEM FACILITIES						
Building and facilities rehabilitation	430,000	30,000	100,000	100,000	100,000	100,000
Facilities fencing and roads rehabilitation	175,000	50,000	50,000	25,000	25,000	25,000
Support System Facilities Total	**605,000**	**80,000**	**150,000**	**125,000**	**125,000**	**125,000**
TOTAL	$119,095,000	$26,860,000	$17,575,000	$23,815,000	$25,165,000	$25,680,000

Exhibit 11

Providence Water

5 Year IFR Expenditures

Fiscal Years 2011 through 2015



5 Year Investiment - $119 Million

Exhibit 13
Providence Water
15 Year IFR Expenditure Plan
Fiscal Years 2016 through 2030

	Total Amount	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
Raw Water Supply				
Large Dam Improvements	2,200,000	1,700,000	250,000	250,000
Secondary Dam Improvements	1,240,000	940,000	150,000	150,000
Raw Water Booster Pump Station Improvements	200,000	200,000	0	0
Gainer Dam Gatehouse Improvements	1,000,000	1,000,000	0	0
Raw Water Conduit Improvements	150,000	0	150,000	0
Watershed Fence and Road Rehabilitation	750,000	250,000	250,000	250,000
Raw Water Supply Total	5,540,000	4,090,000	800,000	650,000
Treatment Plant				
Central Control System (SCADA) Upgrades	600,000	200,000	200,000	200,000
Condults and Structures Inspect/Rehabilitate	280,000	10,000	260,000	10,000
Sedimentation Basins Rehabilitation	30,000,000	30,000,000	0	0
Chemical Storage/Transfer/Feed Systems Improvements	3,200,000	2,400,000	650,000	150,000
Filters - Improvements	2,200,000	2,000,000	200,000	0
Treatment Plant Laboratory Improvements	750,000	250,000	250,000	250,000
Treatment Plant Process Meters Replacements	225,000	75,000	75,000	75,000
Lagoon System Improvements	1,200,000	1,000,000	100,000	100,000
Treatment Plant Building Improvements	2,900,000	2,400,000	250,000	250,000
Treatment Plant Total	41,355,000	38,335,000	1,985,000	1,035,000
Pumping and Storage				
Pump Station Improvements	425,000	125,000	150,000	150,000
Bath Street Pump Station Improvements	2,000,000	0	0	2,000,000
Neutaconkanut Pump Station Improvements	2,000,000	0	0	2,000,000
Greenville Ave Pump Station Improvements	1,000,000	1,000,000	0	0
Cranston Commons Pump Station Improvements	1,500,000	1,500,000	0	0
Fruit Hill Pump Station Improvements	1,000,000	1,000,000	0	0
Storage Tank Inspections / Improvements	2,000,000	0	2,000,000	0
Pumping and Storage Total	9,925,000	3,625,000	2,150,000	4,150,000
Transmission				
78" and 102" Aqueducts Inspection	5,400,000	1,600,000	1,800,000	2,000,000
90" Aqueduct Inspection	6,500,000	500,000	6,000,000	0
66", 60", 48" Transmission Main Inspections	100,000	50,000	0	50,000
16" and Larger Valve Replacements	3,100,000	2,000,000	500,000	600,000
Transmission System Total	15,100,000	4,150,000	8,300,000	2,650,000

Exhibit 13
Providence Water
15 Year IFR Expenditure Plan
Fiscal Years 2016 through 2030

	Total Amount	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
Distribution				
Distribution Main Upgrades	274,850,000	84,850,000	92,000,000	98,000,000
Distribution Valve Replacements	3,000,000	1,000,000	1,000,000	1,000,000
Lead Service Replacements	7,500,000	2,500,000	2,500,000	2,500,000
Hydrant Replacements	3,750,000	1,000,000	1,250,000	1,500,000
Leak Detection	100,000	0	100,000	0
Distribution System Total	289,200,000	89,350,000	96,850,000	103,000,000
Support Systems				
Building and Facilities Rehabilitation	3,000,000	1,000,000	1,000,000	1,000,000
Records Management (GIS) Upgrades	1,500,000	500,000	500,000	500,000
Facility Fence and Road Rehabilitation	750,000	250,000	250,000	250,000
Underground Fuel Storage Tank Replacements	200,000	200,000	0	0
Support SystemsTotal	5,450,000	1,950,000	1,750,000	1,750,000
Total	366,570,000	141,500,000	111,835,000	113,235,000

Providence Water

20-YEAR INFRASTRUCTURE REPLACEMENT PLAN
2011-2030

December 2010

Cover: Rendering of Treatment Plant following completion of the Filter Rehabilitation and Influent Structure and Aerator upgrade projects.

PROVIDENCE WATER SUPPLY BOARD

INFRASTRUCTURE REPLACEMENT PLAN
For Fiscal Years 2011 Through 2030

Prepared In-House by the
Development Team of

Paul J. Gadoury, P.E., Director of Engineering
Steven D. Santaniello, Manager Capital Improvements
Leo E. Fontaine, Engineer/Project Manager
Christopher R. Labossiere, Engineer/Project Manager

Engineering Department Support

Gary Marino, Engineer/Project Manager
Richard A. Razza, Engineer/Project Manager
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Stephen Soito, P.E., Engineer/Project Manager

Finance Department Support
Jeanne Bondarevskis-Brasil, Director of Finance

Chief Engineer and General Manager
Pamela M. Marchand, P.E.

DECEMBER 2010

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Exhibit 4 – IFR Funding Projections – Fiscal Years 2011 through 2030 Bar Graph

Providence Water

552 Academy Avenue
Providence, RI 02908

401-521-6300

www.provwater.com

December 1, 2010

Ms. June Swallow, P.E., Chief
Office of Drinking Water Quality
Rhode Island Department of Health
3 Capitol Hill, Room 209
Providence, RI 02908

RE: Infrastructure Replacement Plan

Dear Ms. Swallow:

Providence Water is pleased to submit herein six (6) copies of its updated Infrastructure Replacement Plan consistent with the requirements of the Comprehensive Clean Water Infrastructure Act of 1993 in accordance with Chapter 46-15.6 of the General Laws of the State of Rhode Island and the appropriate rules and regulations pertaining to the Act.

Consistent with the requirements of the Act, our plan presents our infrastructure replacement needs for 5-year and 20-year planning horizons spanning from 2011 through 2030 and addresses the funding requirements for implementing the plan.

The objective of the plan is to replace aging facilities and components of the water system on a systematic basis, within the limit of their useful lives, before failures jeopardize the reliability of water service and place the public's health and welfare at risk. Funding for the plan is to be from approved revenues annually set aside in a restricted account.

Since inception of our Infrastructure Replacement Program in 1996 we have invested approximately $191 million into our treatment plant, storage reservoirs, pump stations, dams, and transmission and distribution lines. Included in this plan, contained in the appendix of this document, is a report detailing the accomplishments of our infrastructure replacement program over the period from July 1996 through September 2010. It is our goal through these improvements, along with the ongoing planned improvements outlined in this plan submission, to safeguard the integrity of our water supply for generations to come.

Our plan was prepared by our in-house staff and reflects our best determination at this time of our anticipated system needs. The plan is, however, subject to adjustments as may become necessary as the result of changes in the condition of system components, obsolescence, regulatory requirements, or unforeseen events which cannot now be reliably predicted over a 20-year period.

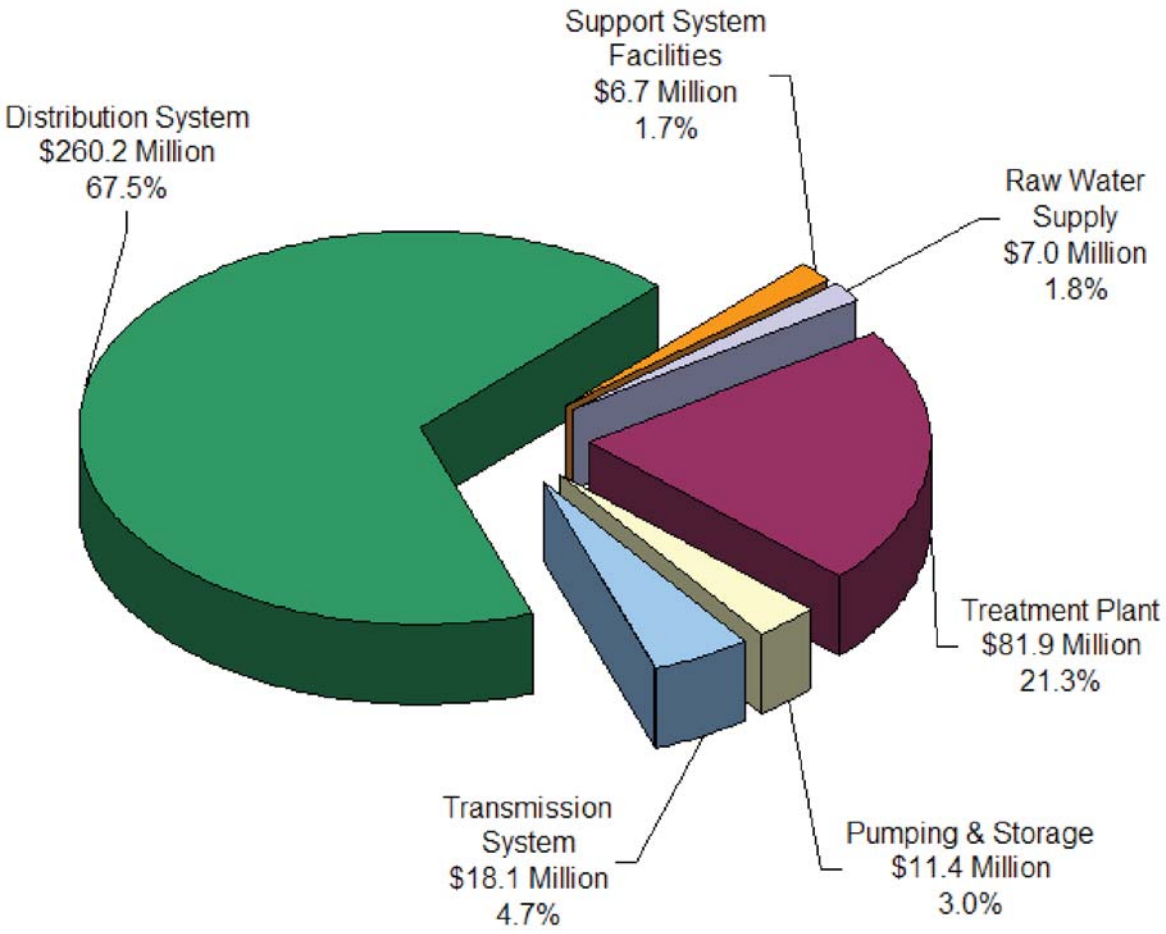
Respectfully,
PROVIDENCE WATER SUPPLY BOARD

Pamela Marchand, P.E.
Chief Engineer/General Manager

Exhibit 1
Providence Water
20 Year IFR Expenditure Plan
Fiscal Years 2011 through 2030

	Total Amount	Budget 2011-2015	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
RAW WATER SUPPLY	6,950,000	3,650,000	1,850,000	800,000	650,000
TREATMENT PLANT	81,935,000	45,080,000	34,085,000	1,735,000	1,035,000
PUMPING AND STORAGE	11,425,000	1,500,000	3,625,000	6,150,000	150,000
TRANSMISSION SYSTEM	18,100,000	4,500,000	2,650,000	8,300,000	2,650,000
DISTRIBUTION SYSTEM	260,235,000	53,610,000	67,400,000	61,975,000	77,250,000
SUPPORT SYSTEMS AND FACILITIES	6,700,000	1,250,000	1,950,000	1,750,000	1,750,000
TOTAL	385,345,000	109,590,000	111,560,000	80,710,000	83,485,000

Exhibit 2
Providence Water
20 Year IFR Expenditures
Fiscal Years 2011 through 2030



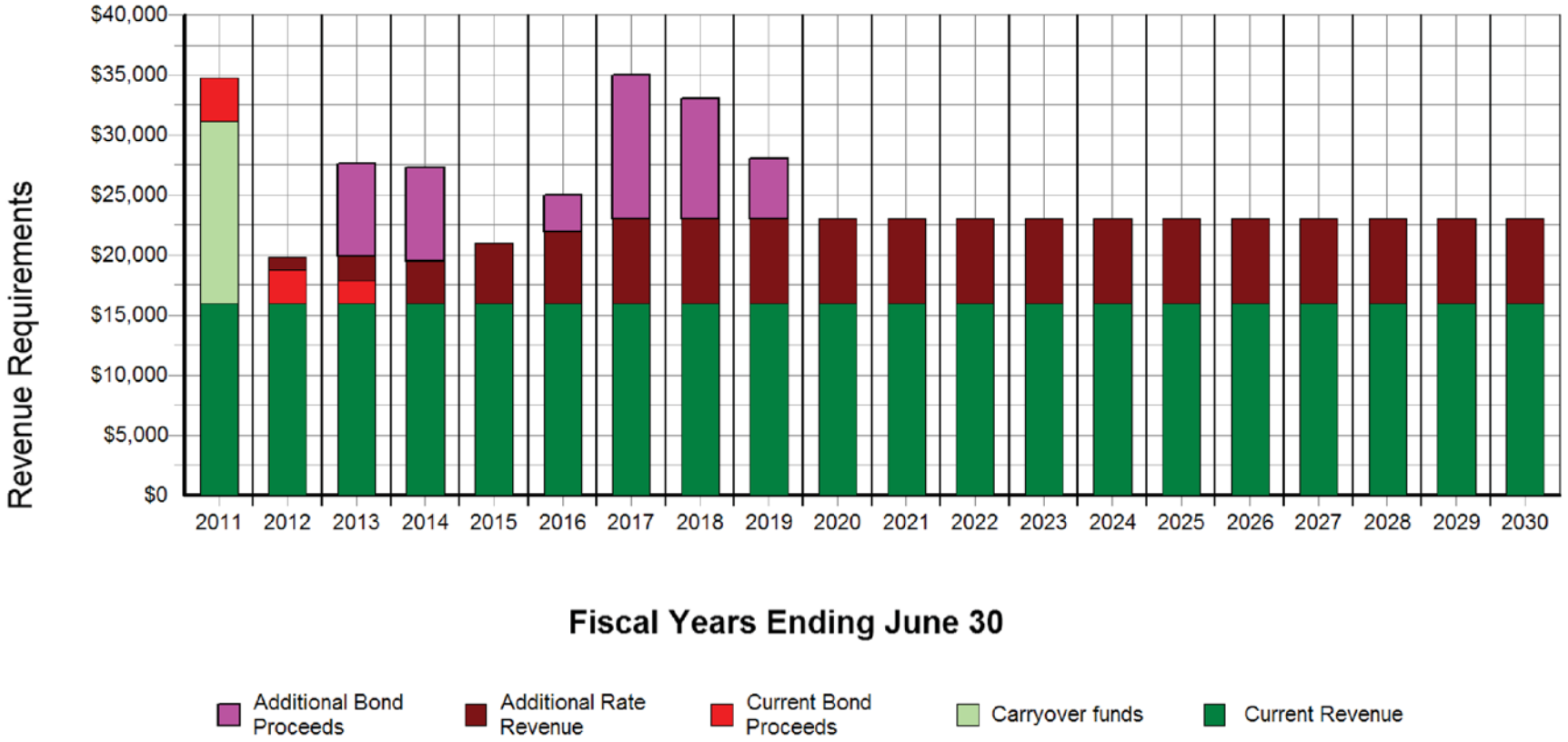
20 Year Investment - $385 million

Exhibit 3

Providence Water
Sources and Uses of Funds
IFR Funding & Expenditure Projections ($000's)
Fiscal Years 2011 through 2030

	2011-2015	2016-2020	2021-2025	2026-2030	2011-2030
	Phase 1	Phase 2	Phase 3	Phase 4	Total
Sources of Funding:					
Current Authorized Funding	$80,000	$80,000	$80,000	$80,000	$320,000
Current Bond Proceeds	8,300	0	$0	$0	8,300
Funds Available from Prior Years	15,123	0	$0	$0	15,123
Additional Rate Revenue	11,500	34,000	$35,000	$35,000	115,500
Additional Bond Proceeds	15,500	30,000	$0	$0	45,500
Total Sources of Funds	130,423	144,000	115,000	115,000	504,423
Uses of Funding:					
Cash Funded Construction Projects	$109,590	$111,560	$80,710	$83,485	$385,345
Existing Debt Service	18,742	14,689	14,689	14,689	62,809
Additional Debt Service	1,775	13,948	17,390	17,390	50,502
Total Uses of Funds	130,107	140,197	112,789	115,564	498,656
IFR Program Surplus/(Deficit)	$317	$3,804	$2,211	-$564	$5,767

Exhibit 4
Providence Water
IFR Funding Projections $(000's)
Fiscal Years 2011 through 2030



Infrastructure Replacement Plan FY 2011 through FY 2030

The contents of the plan and the sections are as follows:

Section I - Facilities Description - A description of the water system. Included in the section are statistical information for key components of the system, a flow diagram originating from the source of supply to the service system, and a summary of the principal components of the system.

Section II - IFR Program Accomplishments - A summary of IFR program accomplishments with costs from fiscal years 1996 through 2010.

Section III - IFR Expenditure Plan - The section contains the projects and descriptions for the 20 Year IFR Expenditure Plan (fiscal years 2011 through 2030), the 5 Year IFR Expenditure Plan (fiscal years 2011 through 2015), and the 15 Year Expenditure Plan (fiscal years 2016 through 2030).

Section IV - Revenue Requirements - The sources and uses of funds for the 20 Year IFR Plan (fiscal years 2011 through 2030) and the IFR funding projections for the same period.

Appendix - The Comprehensive Clean Water Infrastructure Act of 1993, the Rules and Regulations for the Clean Water Infrastructure Plans, and the Infrastructure / Capital Program Report 1996 - 2010 (September 2010).

Section I

Facilities Description

Section I – Facilities Description

System Description – Included in the description are the sources of supply, the treatment facility components and processes, the pump stations and storage facilities, an overview of the transmission and distribution systems, and the wholesale interconnections.

Exhibit 5 – Statistical Information – Exhibit 5 contains a summary of the major statistical data and information for the system.

Exhibit 6 – Process Diagram – Exhibit 6 is a process diagram of the Providence Water system. It shows in schematic form the sequence and inter-relation of various water treatment and delivery processes.

Exhibit 7 – Summary of Principal Components by Facility Category – Exhibit 7 is a tabular listing of the various major components of the Providence Water system. Provided is a brief narrative description of the general condition of the facility, its approximate average age, and an estimate of its approximate remaining life.

SYSTEM DESCRIPTION

WATER SUPPLY SOURCES

Providence Water's sole source of supply is the Scituate Reservoir Complex. The Scituate Reservoir complex consists of six reservoirs: the main (Scituate) reservoir and five smaller reservoirs which are tributary to the main reservoir.

Scituate Reservoir

The total storage capacity of the Scituate Reservoir is 37.011 billion gallons (BG). Dead storage is 400 million gallons (MG), resulting in a net storage volume of 36.611 BG. The reservoir has a water surface area of 5.30 square miles, and a watershed area of 92.8 square miles.

Water in the Scituate Reservoir is impounded behind the Gainer Dam, a large zoned earth structure at the southeast end of the Reservoir which is traversed along its 3,200 foot length by Rhode Island Route 12 (Scituate Avenue). Elevation of the crest of the dam is 299.0 feet Mean High Water Datum (MHW).

Crest elevation of the spillway is 284.00 feet (MHW). The flow discharges through a natural rock channel to the Pawtuxet River below the dam.

Water needed for water supply flows from the reservoir to the treatment plant.

Regulating Reservoir

Regulating Reservoir has a total storage capacity of 428 MG, of which 7 MG is dead storage. The drainage area of this reservoir is 22.3 square miles, while the water surface area is 0.38 square miles.

The dam impounding the waters in the Regulating Reservoir is an approximately 600 foot long earth embankment structure which includes a 260 foot long concrete overfall spillway. Elevation of the crest of the overfall is 285.50 feet (MHW).

Barden Reservoir

The total storage in Barden Reservoir is 853 MG. Due to the arrangement of the outlets there is no dead storage. The water surface area is 0.38 square miles, and the watershed area is 33.0 square miles.

The Barden Reservoir Dam is an earth embankment structure with a concrete corewall. The length, including the spillway, is approximately 612 feet. The crest of the dam is at elevation 352.2 feet (MHW). Elevation of the crest of the spillway is 345.1 feet (MHW).

Moswansicut Reservoir

Moswansicut Reservoir covers a surface area of about 0.44 square miles. It has a total storage capacity of 1.781 BG and dead storage of 1.066 BG, for a net storage of 715 MG. The drainage area of this reservoir is about 3.9 square miles.

The dam forming Moswansicut Reservoir is a 450 feet long earth embankment structure. There are two spillways, an overflow spillway and an emergency spillway. Elevation of the overflow spillway crest is 301.90 feet (MHW); elevation of the emergency spillway crest is 303.4 feet (MHW).

Ponaganset Reservoir

Ponaganset Reservoir has a watershed area of 2.1 square miles, and a water surface area of 0.36 square miles. Total storage in the reservoir is 742 MG of which 49 MG is dead storage. Net storage capacity is 693 MG.

The dam impounding the Ponaganset Reservoir is an approximately 635 foot long earth embankment structure. Crest of the dam is elevation 641.4 feet (MHW). Spillway crest elevation is 633.05 feet (MHW).

Westconnaug Reservoir

Westconnaug Reservoir has a total storage capacity of 453 MG with no dead storage. Its surface area covers about 0.27 square miles. It has a drainage area of 4 square miles.

The dam is an earth embankment structure with a steel sheeting and concrete corewall. The length of the dam is approximately 320 feet long, with a crest elevation of 457.2 feet (MHW). The crest elevation of the spillway is 454.17 feet (MHW). Both the spillway and the outlet conduit discharge into Westconnaug Brook.

TREATMENT FACILITIES

Providence Water operates one conventional water treatment plant to purify source water which flows from the Scituate Reservoir to the plant. The raw water characteristics from the Scituate Reservoir are typical of well protected surface water supplies in the New England region. It is a low pH, low alkaline, low turbidity water with seasonal overturn events.

The plant utilizes a conventional treatment process. The hydraulics of the plant allow it to be normally operated under gravity flow conditions. The Raw Water Booster Pump Station is available for pumping water to the plant under extremely low reservoir conditions. The treatment process consists of aeration, coagulation-flocculation, lime addition for corrosion control and pH adjustment, sedimentation, disinfection, filtration, and fluoridation.

Influent Control Chamber

The influent control chamber is a concrete structure consisting of internal chambers and control and drain valves that regulate the flow of water entering the plant.

Aeration Basin

Water flows from the influent chamber to the aeration basin. The aeration system works under gravity pressure and sprays water into the air in a fountain style. This treatment step removes volatile organics and gases. The aerated water travels by gravity to the sedimentation basins.

Basin Influent Conduit

The aerated water travels to the sedimentation basins through a 108-inch conduit and then through two 72-inch by 36-inch diameter venturi meter tubes which measure the influent flow. Water then travels on to the basins through an 8.5-foot wide, 10-foot high rectangular concrete conduit.

Coagulation/Flocculation

Ferric sulfate is added as a coagulant to the aerated water as it passes through the 108-inch conduit utilizing the pumped flash mix system. Quicklime is added to the water as it passes through the basin influent conduit. The pH of the water is increased to approximately 7.0 as a result of the lime addition at this point. Further mixing and flocculation takes place in a tangential mixer. The water enters the mixer through a 4-foot wide, 3-foot high opening at the bottom of the mixing chamber. The mixer works under gravity feed and imparts a slow cylindrical motion to the water. This step is commonly known as flocculation. The next step is the removal of the flocculated colloidal material through sedimentation. The treatment plant has two large sedimentation basins; the north basin (43 million gallon capacity) and the south basin (111 million gallon capacity). Here, the flocculated material is allowed to settle on the bottom of the basins. The resulting ferric sludge must be removed manually by periodically draining and flushing the basins.

Filtration

Settled water travels from the basins through a 10-foot wide, 11-foot high rectangular concrete conduit to the plant's filters. Chlorine is added in this conduit for disinfection purposes. A second lime injection point is located in this conduit to raise the pH from 7.0 to 10.2. Carbon dioxide will be injected in this conduit to raise dissolved inorganic carbon (DIC) and alkalinity. There are eighteen (18) filters which remove non-settleable floc and impurities remaining following the coagulation, flocculation, and sedimentation stages. Sixteen (16) are rapid sand filters, one (1) is a dual media filter with air scour backwash, and one (1) is a tri-media filter with air scour backwash. Each filter is operated over a flow range of 5 to 8 million gallons per day. The number of filters on-line concurrently is dependent upon water demand. Each filter has two 16-inch effluent lines with 12-inch butterfly valves that control discharge into the clearwell. The average filter run is approximately 72 hours and, generally, a backwash is initiated when head loss through the filter reaches approximately 6.5 feet of water. The filter backwash water is supplied by gravity via a 400,000 gallon wash water tank which is then discharged to the sludge lagoons.

Emergency Provisions

Emergency provisions at the plant include stand-by power and an emergency by-pass process that could allow chlorinated unfiltered water to flow to the system.

Electrical service is provided by a 23 kilo-volt (KV) transmission line to a 2.3 KV service to the treatment plant. The emergency electrical power at the plant is provided by a 600 KW diesel generator. This generator is capable of providing adequate power for treatment operations and life safety requirements during power outages. Redundant backup power for the system is also available through a 2000 KW diesel generator located at the Raw Water Booster Pump Station.

Chemical Feed Systems

Ferric Sulfate

The plant uses ferric sulfate as a coagulant. Ferric sulfate arrives at the plant in liquid form and is stored and then transferred by pumps, as needed, into two (2) day tanks. Metering pumps are then used to provide a measured feed rate to the raw water. Ferric sulfate is added to the treatment process after aeration occurs.

Quicklime

Quicklime is added to aerated water for pH adjustment and corrosion control purposes. A pneumatic blower-style transfer system is utilized to convey lime from bulk storage to secondary feeder hoppers from which gravimetric feeders, slakers, float tanks, and pumps are utilized to add lime to the unfinished water. Lime is added to the treatment process in two locations, both prior to, and after sedimentation.

Carbon Dioxide

A Carbon dioxide feed system is currently under construction under the Capital Program. Carbon dioxide will be added to the settled water to increase the levels of dissolved inorganic carbon (DIC) and alkalinity of the finished water in order to stabilize the pH throughout the distribution system. Carbon dioxide will be delivered in liquid form and will be stored in two storage tanks.

Chlorine

Chlorine is added to the settled water for disinfection. Chlorine is delivered to the plant in one ton containers which are transported to a storage room. The storage room is equipped with a ventilation system that would turn on and exhaust air to the outdoors in the event that a chlorine leak is detected.

Hydrofluorosilicic Acid (Liquid Fluoride)

Hydrofluorosilicic acid is added to filtered water just downstream of the clearwell. Fluoride is delivered in liquid form and is stored in four storage tanks. Fluoride is then pumped to the injection point from a day tank at a rate paced to the metered effluent flow of the plant.

Solids Handling and Disposal

The treatment process produces ferric hydroxide sludge from the coagulation and sedimentation processes which settles and accumulates at the bottom of the sedimentation basins and must be periodically removed. The cleaning of the sedimentation basins is initiated by draining the basin. The exposed sludge is manually pushed and scoured using high pressure water and directed through drains in the basins where it then flows to off-site sludge settling lagoons.

Lagoon Description

Ferric sludge from the plant is collected in a settling lagoon system. The lagoon system consists of three settling lagoons, three overflow structures and outfalls, and a series of swales and control structures that allow the lagoons to be independently removed from service for dewatering and cleaning operations. Lagoons 1a and 1b are used to store the majority of water treatment sludge received by the lagoons. Lagoon 2 is used as a 'polishing' lagoon for further removal of sediments. Discharge limits including flow, pH and total suspended solids are presently set by our RIPDES permit issued by the Rhode Island Department of Environmental Management.

STORAGE FACILITIES

Providence Water operates five water storage facilities throughout the distribution system. Water is also collected in a 260,000 gallon clearwell at the plant before being delivered to the distribution system. These facilities are used to meet peak demand flows and to provide storage for emergency and fire fighting purposes.

Aqueduct Reservoir

The Aqueduct Reservoir has a storage capacity of 43.4 MG and is 390 x 590 foot enclosed underground concrete structure with a water depth of approximately 25 feet and an overflow elevation of 231 feet mean high water (MHW). The facility is gravity fed and provides operational storage for the Low Service area of the distribution system. Water is supplied to the reservoir through aqueducts and transmission mains from the treatment plant.

Neutaconkanut Reservoir

Water continues to flow through the Neutaconkanut Conduit to the further downstream Neutaconkanut Reservoir. The Neutaconkanut Reservoir has a storage capacity of 42.09 MG and is a 397 x 597 foot enclosed underground concrete structure with an average water depth of approximately 25 feet and an overflow elevation of 227 feet MHW. The facility provides operational storage for the gravity fed Low Service area and a portion of the pumped supply to the High Service area of the distribution system.

Longview Reservoir

The Longview Reservoir has a storage capacity of 24.8 MG and has an overflow elevation of 306 feet MHW. A 200 foot x 323 foot x 29 foot deep cast in place concrete underground addition was constructed immediately adjacent to the existing reservoir and was put on line in 1990. This doubled the size of the reservoir to its current capacity. The facility provides operational, emergency, and fire storage to the High Service area of the distribution system.

Ridge Road Reservoir

The Ridge Road Reservoir has a capacity of 3.5 MG and provides operational, emergency, and fire storage for the Extra-High Service area of the distribution system. Water is pumped to the reservoir by the Fruit Hill Pump Station. The structure is a prestressed concrete tank with a water depth of 40 feet and an overflow elevation of 398 feet MHW.

Lawton Hill Reservoir

The Lawton Hill Reservoir has a storage capacity of 5.0 MG and is a 187-foot by 187-foot enclosed underground concrete structure with a water depth of 20 feet and an overflow elevation of 485 feet mean high water (MHW). The facility provides operational storage for the Western Cranston area of the distribution system. Water is pumped to the reservoir by the Aqueduct Pump Station adjacent to the Aqueduct Reservoir.

PUMP STATIONS

In order to maintain an adequate supply of potable water at a sufficient pressure, Providence Water owns and operates ten water pump stations in the distribution system and one raw water pump station. A description of the pump stations follows:

Raw Water Pumping Station

The Raw Water Booster Pumping Station (RWBPS) contains four pumps, two with a pumping capacity of 50 MGD and two with a pumping capacity of 30 MGD. The station is used to supplement the head to provide adequate delivery capacity the water treatment plant under low reservoir water level conditions. The RWBPS is equipped with emergency power supplied by a 2000 KW diesel generator.

Dean Estates Pump Station

The Dean Estates Pump Station contains one 200 GPM pump, two 475 GPM pumps and two 1,200 GPM pumps. Emergency power is supplied by a 125 KW natural gas generator. The Dean Estates Pump Station serves the higher elevations in the Dean Estates and the Garden Hills subdivisions.

Greenville Avenue Pump Station

The Greenville Avenue Pump Station contains one 50 GPM jockey pump, three 320 GPM pumps, and one 750 GPM fire pump. Emergency power is supplied by a 180 KW diesel generator.

Fruit Hill Pump Station

The Fruit Hill Pump Station contains two 1,500 GPM pumps and provides water to the Extra High Service area. Emergency power is provided by a 125 KW natural gas generator.

Bath Street Pump Station

The Bath Street Pump Station contains three pumps with a pumping capacity of approximately 6,700 GPM each. A 1000 KW diesel generator supplies emergency power for the station. The station pumps water to Longview Reservoir and supplies water to the High Service area as well as the high pressure fire zone in downtown Providence.

Neutaconkanut Pump Station

The Neutaconkanut Pump Station contains four pumps with a pumping capacity of approximately 6,700 GPM each. A 1000 KW diesel generator supplies emergency power for the station. The station pumps water from the Neutaconkanut Reservoir and supplies water to Longview Reservoir and the High Service area.

Aqueduct Pump Station

The Aqueduct Pump Station contains four vertical turbine pumps with a pumping capacity of approximately 2,000 GPM each. A 600 KW diesel generator supplies emergency power for the station. The station pumps water to Lawton Hill Reservoir and the Western Cranston Service area.

Alpine Estates Pump Station

The Alpine Estates Pump Station contains one 100 GPM jockey pump and three 370 GPM domestic pumps. A 75 KW diesel generator supplies emergency power for the station. This station is currently out of service and serves as a back-up to the Cranston Commons Pump Station to provide water to the Alpine Estates subdivision in Western Cranston.

Ashby Street Pump Station

The Ashby Street Pump Station contains one 50 GPM jockey pump, two 100 GPM domestic pumps and one 750 GPM fire pump. Electrical power and emergency power is supplied to the station from the Neutaconkanut Pump Station. The station provides water to approximately 100 residential services in the Neutaconkanut Hill area in Johnston.

Cranston Commons Pump Station

The Cranston Commons Pump Station contains two 130 GPM jockey pumps and three 800 GPM domestic pumps. The station utilizes an underground 530 gallon hydro-pneumatic storage tank. Emergency power is supplied by a diesel generator, which is owned and maintained by a privately managed water/sewer utility company who also uses the generator as an emergency power supply for a booster pump station for the sewer system in the City of Cranston. The station provides water to Cranston Commons and Alpine Estates subdivision in Western Cranston.

TRANSMISSION AND DISTRIBUTION SYSTEM

Large diameter pipe conduits transfer raw water by gravity from the dam intakes to the treatment plant.

Finished water is transmitted from the clearwell at the plant to the distribution system through two major transmission conduits, the 90-inch diameter Scituate Tunnel and Aqueduct (ScTA) and the 78-inch and 102-inch diameter Supplemental Tunnel and Aqueduct (STA).

Providence Water currently operates approximately 4 miles of concrete lined tunnel, 10 miles of concrete aqueduct, 114 miles of various sizes of transmission piping (16" to 66") and 885 miles of distribution piping (6" to 12").

Service Area

Providence Water supplies approximately 600,000 people in the State of Rhode Island with potable water through both its retail and wholesale customers.

The Retail Area

The retail service area consists essentially of all of Providence, Cranston, North Providence, and a significant portion of Johnston. The 74,000 retail service connections include residential, industrial, commercial, and fire service supplies.

The retail service area is divided into four major separate pressure zones: the Low Service, High Service, Extra High Service, and the Western Cranston water district.

The Low Service area comprises approximately 75% of the retail area and serves portions of Cranston, Johnston and Providence. The Low Service area is generally defined as the area within elevations 0 to 140 feet above Mean High Water (MHW). The pressure in the Low Service area is maintained by the levels at the Neutaconkanut and Aqueduct Reservoirs which are maintained at approximate elevations 225 and 230 feet MHW respectively.

The High Service area serves the higher elevation sections of North Providence, Providence and the Town of Johnston. The High Service area is generally defined as the area within elevations 140 to 220 feet above MHW. The pressure in the High Service area is maintained by the operating level at the Longview Reservoir, which is maintained at the approximate elevation of 305 feet MHW. Water for the High Service area is supplied by water pumped from the Low Service system by the Neutaconkanut and Bath Street Pumping Stations.

The Extra High Service area serves a small portion of the retail area in the Fruit Hill section of North Providence. The Extra High Service area is generally defined as the area with elevations from 220 feet to 315 feet above MHW. The water for this service area is drawn from the High Service system and pumped from the Fruit Hill Pump Station to the Ridge Road Reservoir where the water level is maintained at the approximate elevation of 397 feet MHW.

The Western Cranston water district encompasses 3.5% of the retail area. The pressure in this service area is maintained by the operating level at Lawton Hill Reservoir at the approximate elevation of 484 feet MHW. Water for this service area is supplied by water pumped from the Low Service system by the Aqueduct Pump Station.

Service area mains range in size from 6 inches to 66 inches in diameter and are constructed of a variety of materials including cast iron, ductile iron, concrete, steel, and asbestos cement. Service connections range from 5/8-inch to 12-inches in size, based upon customers' demands. Service connections are generally constructed of lead, copper, cast iron, or ductile iron. All services are metered.

The Wholesale Area

Providence Water wholesales water to nine water utilities in the Providence area. These include the Bristol County Water Authority (one interconnection), East Providence Water Division (one interconnection), Greenville Water District (one interconnection), Kent County Water Authority (three interconnections), Lincoln Water Commission (two interconnections), Smithfield Water Department (one interconnection), Warwick Water Department (two interconnections), Johnston Sewer and Water Department (six interconnections), and the East Smithfield Water District (three interconnections).

System Metering

Providence Water meters water produced at the treatment plant and meters 100% of its service connections. Raw water flowing into the plant is measured by two 72" x 36" diameter venturi meters. These venturi meters measure the flow of raw water from the influent control chamber to the sedimentation basins.

The flow of effluent discharged from the plant to the distribution system is measured by the plant's 36 master effluent meters. These meters are 12-inch venturi tube meters located on the effluent lines from the plant's filters. Plant effluent flows are also measured by two 72" X 42" finished water effluent venturi meters.

Providence Water meters all customers in its entire service area. Service area metering includes meters at interconnections to wholesale customers as well as normal metering of all retail service connections. The retail service area contains a variety of water consumers including large industrial and manufacturing accounts, commercial accounts, and residential users.

PROVIDENCE WATER
STATISTICAL INFORMATION
Exhibit 5

WATER SUPPLY SOURCES

	Watershed Area (Sq Miles)	Surface Area (Sq Miles)	Storage Capacity (MG)	Dam Length (feet)	Spillway Elevation (MHW)
Scituate Reservoir	92.8	5.30	37011	3200	284.00
Regulating Reservoir	22.3	0.38	428	340	285.50
Barden Reservoir	33.0	0.38	853	530	345.10
Moswansicut Reservoir	3.9	0.44	1781	450	301.90
Ponaganset Reservoir	2.1	0.36	742	635	633.05
Westconnaug Reservoir	4.0	0.27	453	320	454.17

TREATMENT FACILITIES

Providence Water operates one treatment plant to purify the Scituate Reservoir water. The plant is located appoximately 4,400 feet from the Gainer Dam in Scituate and operates as a coventional treatment process. The treatment process consists of aeration, coagulation-flocculation, corrosion control, sedimentation, filtration, disinfection, and fluoridation.

STORAGE FACILITIES

	Storage Capacity (MG)	Overflow Elevation (MHW)
Aqueduct Reservoir	43.4	231
Neutaconkanut Reservoir	42.1	227
Longview Reservoir	24.8	306
Ridge Road Reservoir	3.5	398
Lawton Hill Reservoir	5.0	485

PROVIDENCE WATER

STATISTICAL INFORMATION

Exhibit 5

PUMP STATIONS

Raw Water	2 - 30 MGD pumps; 2 - 50 MGD pumps; 2000 KW diesel generator
Dean Estates	1 - 200 GPM pump; 2 - 475 GPM pumps; 2 - 1,200 GPM pumps; 125 KW natural gas generator
Greenville Ave.	1 - 50 GPM jockey pump; 3 - 320 GPM pumps; 1 - 750 GPM pump; 180 KW diesel generator
Fruit Hill	2 - 1,500 GPM pumps; 125 KW natural gas generator
Bath Street	3 - 6,700 GPM pumps; 1000 KW diesel generator
Neutaconkanut	4 - 6,700 GPM pumps; 1000 KW diesel generator
Aqueduct	4 - 2,000 GPM pumps; 600 KW diesel generator
Alpine Estates	1 - 100 GPM jockey pump; 3 - 370 GPM pumps; 75 KW diesel generator
Ashby St.	1 - 50 GPM jockey pump; 2 - 100 GPM pumps; 1 - 750 GPM pump; emergency power provided by Neut. P.S. and generator.
Cranston Commons	2 - 130 GPM jockey pumps; 3 - 800 GPM pumps; emergency power provided by PS&G

TRANSMISSION AND DISTRIBUTION SYSTEM

4.5 miles - 90" Scituate Tunnel and Aqueduct

9.5 miles - 78" / 102" Supplemental Tunnel and Aqueduct

114 miles of transmission piping (16" to 66")

814 transmission valves

885 miles of distribution piping (6" to 12")

13,500 distribution valves

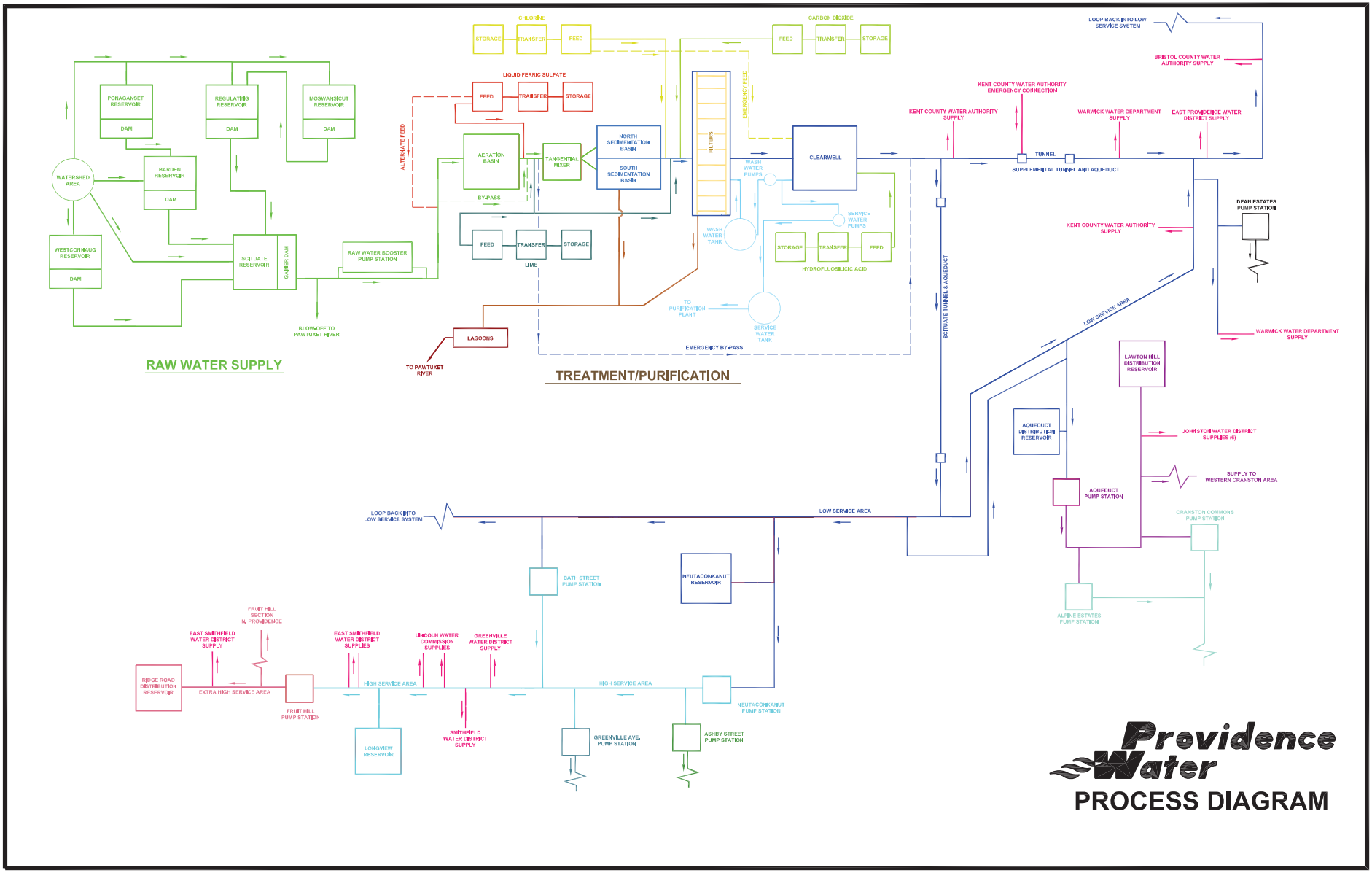
6,067 hydrants

74,000 service connections

WHOLESALERS

	Interconnections
Bristol County Water Authority	1
East Providence Water Division	1
Greenville Water District	1
Kent County Water Authority	3
Lincoln Water Commission	2
Smithfield Water Department	1
Warwick Water Department	2
Johnston Sewer and Water Department	6
East Smithfield Water District	3
Total	20

EXHIBIT 6



Providence Water

PROCESS DIAGRAM

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
RAW WATER SUPPLY				
Principal Reservoirs and Dams	1917 to 1927	various	100	Generally all the dams are in good to excellent condition. Gainer Dam has been rehabilitated but requires further concrete rehabilitative work on the upstream face of the spillway. The stonewall bordering each side of Gainer dam on Route 12 has been reconstructed. Ponaganset Reservoir Dam has been rehabilitated and is in good condition. Barden, Westconnaug, and Moswansicut Reservoir Dams have been rehabilitated and are in excellent condition. Improvements to Regulating Reservoir Dam is in design and rehabilitation is needed to both the upstream and downstream slopes of the dam and at the outlet structure and spillway.
Reservoir Watershed Area	various	various	various	Generally in good condition. Various rehabilitative work is needed to secondary dams, fencing, gates, access and fire roads.
Gainer Dam Gate House	1927	84	45	The gatehouse dates back to its original construction in the 1920s and is generally in good condition. All sluice gates, stop shutters, and drain valves have been replaced. Electrical actuators were installed to operate the sluice gates. Instrumentation and telemetry have been replaced. The gatehouse is in need of architectural rehabilitation along with a replacement of the two existing cranes.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
RAW WATER SUPPLY				
60 inch Raw Water Influent Conduits	1926	85	50	The twin 60” mains appear to be in good condition. The exposed section of the twin 60 inch mains inside the meter and junction chambers was inspected and some of the exterior coating will need to be recoated. The cathodic protection system installed for the underground portion is in good working condition.
90 inch Steel Raw Water Influent Conduit	1926	85	50	Dates back to original plant construction. The 90" raw water conduit is in good condition. Minor internal surface imperfections were identified during a structural inspection and will be rehabilitated under the Influent Structure Rehabilitation project.
Raw Water Booster Pump Station	1966	45	50	The station is in relatively good condition. A 2000 kW generator was installed in 1996, replacing the old diesel generator. The electrical feeder lines to the 60" control valves from the station have been replaced and the valves are in good working condition. The suction and discharge valves, as well as the valve actuators for each of the booster pumps have been replaced. The motor control center has been replaced and the pumps rehabilitated. SCADA has also been added to this station. The station is in need of architectural rehabilitation.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
TREATMENT PLANT FACILITIES				
Treatment Plant Structure / Infrastructure	1926	84	50	The plant is generally in good condition with improvements made to the roof, lab, HVAC system, and electrical system. The public address system throughout the plant and forestry building is in the process of being replaced. The plant is in need of various architectural improvements.
Electrical Supply System - Treatment Plant	various	various	various	The overall system is in excellent condition. The feeder lines from the Hope substation to the treatment plant have been replaced. A 480-volt transformer and feed line has been installed at the treatment plant replacing the old 550V system. The old 175 kW generator was replaced with a 600 kW diesel generator.
Aeration	1926	85	5	The influent structure and aeration basin date back to the 1920s. Improvements to the aeration basin and influent structure are in design and rehabilitation will take place in the near future, consisting of the relocation and reconstruction of the basin, rehabilitation of concrete surfaces of the structures and conduits, replacement of the influent control valves, and reconstrruction work on the influent control chamber. Plant influent hydraulics will be improved by raising the overflow and aerator weirs.
Sedimentation Basins	1939	72	10	The concrete sedimentation basins at the plant consist of two large open water surface basins dating back to 1939. The concrete walls and slabs making up the basin have deteriorated over time. In light of the outmoded nature of this sedimentation process by today's standards, Providence Water is considering a new modern-design settling system to be installed in their place.
Filters and Appurtenances	1927/1943/1968	varies	5	Construction is in progress for the rehabilitation of all 18 filters at the treatment plant. Rehabilitation work consists of completely replacing the existing filters' valves, underdrains, washwater troughs, and media, and erecting a new superstructure to house the filters. In addition to the filter rehabilitation, all associated washwater and effluent piping and appurtenances are being replaced, including the replacement and relocation of the 48-inch washwater pipe.
Clearwell	1927/1943/1968	71	50	The exterior yard and the interior of the clearwell have been fully rehabilitated. The two venturi meters at the outlet have been rehabilitated.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
TREATMENT PLANT FACILITIES				
Wash Water System	1926 Tank 2004 Pumps	84 (Tank) 6 (Pumps)	50 (Tank) 30 (Pumps)	The pumps are in good condition. Concrete rehabilitative work was performed on the washwater tank. The washwater tank is in good condition.
Service Water System	1960 Tank 2004 Pumps	50 (Tank) 6 (Pumps)	50 (Tank) 30 (Pumps)	The pumps are in good condition. Magnesium anodes were installed in the tank for corrosion protection. The service water tank appears to be in good condition.
Ferric Storage/Transfer/Feed System	1997	13	10	The protective coating and insulation on the bulk storage tanks have shown wear and will need rehabilitative work.
Lime Storage/Transfer/Feed System				Due to the abrasive nature of lime, the pipe bends for the transfer system will need to be replaced eventually. The feed system is in need of replacement.
Storage system	2006	4	20	
Transfer system	2004	6	20	
Feed system	1998	12	<5	
Chlorine Storage/Transfer/Feed System	1997	13	<5	Due to continually increasing safety concerns associated with bulk gaseous chlorine storage, the existing gaseous chlorine storage and feed systems will be replaced to a sodium hypochlorite system.
Fluoride Storage/Transfer/Feed System	2005	5	20	The system is in excellent operational condition. Only minor repairs are anticipated during the next 10 years.
Sludge Handling / Disposal System	2004	6	50	The system is in excellent operational condition. Sludge has been removed from lagoons #1A and #1B and a residuals management system is in operation which provides flexibility for alternating between each side of lagoon #1 to provide for alternate drying and removal of residual deposits. Sludge has been removed from all of Lagoon #2 to restore the lagoon to its original intended function of acting as a buffering pond to maintain an acceptable standard of water quality for discharge to the Pawtuxet River.
Process Control / Data Acquisition System	2010	0	10	The SCADA system is new and in excellent condition.
Carbon Dioxide Storage/Feed System	2010	0	20	The Carbon Dioxide system is new and in excellent condition.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
TRANSMISSION SYSTEM				
90-inch Scituate Tunnel and Aqueduct	1925	85	75	The entire 4.5 mile 90” conduit is in good condition. The conduit was inspected and various concrete rehabilitative work was conducted including crack injections, spalled concrete repairs, and the investigation and repair of hollow sounding areas. Further rehabilitative work will be required in the tunnel section consisting of contact grouting to fill various voids between the concrete tunnel and the bedrock.
Supplemental Tunnel and Aqueduct (102" & 78")	1970	40	50	The 78" and 102" transmission lines, approximately 9.6 miles in length, were constructed in the 1960's and consist of prestressed concrete cylinder pipe (PCCP) and two sections of concrete lined tunnel. Because of prior deficiencies encountered on these pipelines, a program has been adopted in which the pipelines are inspected and repairs are conducted on a five year interval basis. In addition to the inspections, a fiber optic acoustic monitoring system has been installed in the 102" pipeline that continually monitors the pipeline for wire breaks.
Transmission Mains (16" to 66")	1871-2006	76	various	Some of the mains are older than 100 years and will eventually need to be replaced. No mains have been identified needing replacement in the short term.
Transmission Valves (16" to 60")	1871-2006	38	various	Many of the valves are old and need to be replaced. Plans are to replace 16" and larger valves in the system that are older than 75 years with new butterfly valves.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
DISTRIBUTION SYSTEM				
Distribution Mains (6" to 12")	1871-2010	73	various	Approximately 27% of mains consist of unlined cast iron pipe installed prior to 1900. Main replacements are necessary.
Distribution Valves (6" to 12")	1871-2010	65	various	Of the approximately 13,500 valves in the system, 1,900 have been identified as 6", 8" and 12" diameter valves installed prior to 1900. Plans are to replace these valves in conjunction with the main replacement program. Older distribution valves that are found to be defective and valves in areas of local and state road resurfacing projects will also be replaced.
Services	1871-2010	55 (all) 100 (lead)	various	Of the approximate 74,000 services in the system, over 23 percent are lead. Plans are to continue replacing these services under the Lead Service Replacement Program. Other lead services will be replaced on main replacement projects.
Hydrants	1941-2010	33	various	Plans are to replace all hydrants greater than 75 years old with new breakaway style hydrants.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS
BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
PUMPING AND STORAGE				
Aqueduct Reservoir and Gatehouse	1962	48	50	The reservoir and gatehouse are in good condition. The reservoir has been fully rehabilitated; exterior waterproofing was applied. Cracks and construction joints on the interior of the structure were sealed.
Neutaconkanut Reservoir and Gatehouse	1928	82	50	Dates back to the 1920s. The reservoir and gatehouse has been rehabilitated under a recent contract. Cracks and construction joints on the interior of the structure were sealed.
Longview Reservoir and Gatehouse	1928, 1990	82	50	The reservoir and gatehouse are in good condition. The reservoir has been fully rehabilitated; exterior waterproofing was applied. Cracks and construction joints on the interior of the structure were sealed.
Ridge Road Reservoir	1989	21	50	The storage tank is in good condition. The tank has some exterior cracking which needs to be rehabilitated.
Lawton Hills Reservoir	1972	38	50	A brief diving inspection was completed in 2004 and found the tank in relatively good condition. Some concrete rehabilitative work will be needed inside the reservoir.
Dean Estates Pump Station	1982	28	1	Construction has begun to rehabilitate the pump station and to combine the Garden Hills and Dean Estates pressure zones into a single pressure zone. Work includes installation of new VFD turbine pumps, elimination of the hydropneumatic tanks, instrumentation and electrical system upgrades, installation of an emergency generator, and architectural improvements.
Fruit Hill Pump Station	1989	21	10	The station is in good condition. It is anticipated that the pumps will need to be replaced along with upgrades to the various mechanical and electrical systems, including architectural improvements.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
PUMPING AND STORAGE				
Bath Street Pump Station				The pump station is in good condition. Rehabilitation of the pump station was completed in 1999 which included replacement of the pumps, suction and discharge piping, instrumentation and electrical system upgrades, architectural/structural improvements, and installation of an emergency power generator.
Building	1928	82	40	
Pumps	1999	11	19	
Neutaconkanut Pump Station				The pump station is in good condition. Rehabilitation of the pump station was completed in 1999 which included replacement of the pumps, suction and discharge piping, instrumentation and electrical system upgrades, architectural/structural improvements, and installation of an emergency power generator.
Building	1935	75	40	
Pumps	1999	11	19	
Greenville Ave Pump Station				The pump station is in good condition. It is anticipated that various mechanical, electrical, and architectural improvements will be needed.
Building	1994	17	10	
Pumps	1994	17	10	
Aqueduct Pump Station				The pump station is new and is in excellent condition.
Building	1972	38	40	
Pumps	2006	4	26	
Alpine Estates Pump Station	1988	23	7	The station needs upgrading of the electrical supply, new valves and piping, a new pneumatic pressure tank, and various new system controls. The station is presently inactive and upgrades are on hold pending future plans for the station.
Ashby Street Pump Station	1999	12	18	This pump station is in excellent condition. It is anticipated that various mechanical, electrical, and architectural improvements will be needed.
Cranston Commons Pump Station	1996	15	15	The pump station is in good condition. Long-term plans are to replace the below grade pump station with an above ground pre-engineered packaged-unit with its own emergency back-up generator.

Exhibit 7
PROVIDENCE WATER
SUMMARY OF PRINCIPAL COMPONENTS
BY FACILITY CATEGORY

PRINCIPAL COMPONENTS BY CATEGORY	Installation Date(s)	Age of Component	Approx. Practical Remaining Life (years)	Assessment
SUPPORT SYSTEMS & FACILITIES				
Forestry Garage	1962	49	15	Various rehabilitative work has been conducted on the facility. The building is 49 years old and will require architectural and mechanical rehabilitation.
Academy Ave Administration Building	1954	57	5	Various rehabilitative work has been conducted on the facility. The building is 57 years old and will require architectural and mechanical rehabilitation. A new administration building is needed.
Aqueduct Reservoir Administration Building	1997	14	5	The building is a one level office building constructed in 1998. The facility is functional and will require minor architectural and mechanical rehabilitation.
Watershed Storage Facility	2009	2	40	Th e building is pre-engieered metal frame storage building constructed in 2009. The facility is in excellent condition.

Section II
IFR Program Accomplishments

Section II – IFR Program Accomplishments

Summary of IFR Program Accomplishments (Fiscal Years 1996 through 2010)

Exhibit 8 – IFR Expenditures for Fiscal Years 1996 through 2010 by Facility Type Pie Graph

Exhibit 9 – IFR Expenditures for Fiscal Years 1996 through 2010 by Year Bar Graph

SUMMARY OF IFR PROGRAM ACCOMPLISHMENTS - 1996 - 2010

Providence Water is a full service utility supplying drinking water and fire protection to four (4) retail customer communities of Providence, Cranston, North Providence, and Johnston and to nine (9) wholesale customer water systems representing 60 percent of the State's population. The source water comes from the Scituate Reservoir complex and is treated to meet and exceed current and projected drinking water regulations as administered by the Rhode Island Department of Health consistent with national drinking water laws. The water supply is distributed through a complex system of transmission mains, distribution reservoirs, and pumping stations into the various communities. The utility and its workforce operate and maintain a vast system of mains, hydrants, service connections, and meters with a multitude of appurtenances.

In 1990, Providence Water initiated an Infrastructure Replacement Program with limited funds. In 1993, the State legislature, recognizing the need for establishing a funding mechanism with the intention of staving off deterioration and obsolescence of the State's water infrastructure systems, adopted the Comprehensive Clean Water Infrastructure Act in accordance with Chapter 46-15.6 of the General Laws of the State of Rhode Island. The law set aside portions of water revenues for long-term planned infrastructure replacement programs.

In accordance with the requirements of the legislation, a water supplier subject to Chapter 46-15.6 is required to develop and maintain an infrastructure replacement plan to be submitted to the Rhode Island Department of Health once every five years for review and approval. In accordance with the legislation, Providence Water prepared and submitted its first 20-year Infrastructure Replacement Plan in 1996. Subsequent 5-year plan updates were submitted thereafter in 2001 and 2006, with this being our fourth plan submission.

Since submission of our first plan in 1996, we have made substantial improvements to our infrastructure, having reinvested approximately $191 million into the system, with $64.5 million in improvements in the distribution system, $56.6 million into our water treatment facilities, $27.6 million into the transmission system, $11.8 million into pumping and storage facilities, $9.9 million into raw water supply facility structures, and $6.3 million into support facilities. Since the inception of our infrastructure replacement effort which began in 1990, approximately $200 million has been invested into system improvements.

In August 2007, we began the replacement of lead services in the distribution system on a large-scale basis to comply with the requirements of the Lead and Copper Rule. We have been replacing or cleaning and lining water mains where water quality complaints and low-pressure problems have been identified along with older and / or defective hydrants and valves in the system. All water meters have been replaced with new radio-frequency transmission meters providing automatic reading capabilities.

At our treatment plant, the chemical bulk storage / transfer / feed systems for chlorine, lime, ferric sulfate, and fluoride have been rehabilitated or replaced. Additional improvements have been made to the ferric sulfate feed system with the incorporation of a pumped flash mixer system to optimize coagulation. Concrete rehabilitative work has been performed on the interior of the clearwell, the effluent clearwell yard, the emergency bypass, and the wash water tank. The testing laboratory has been fully renovated to include a new floor, lighting, laboratory benches, HVAC, and electrical upgrades. Electrical upgrades have been done, essentially providing a completely new and reliable electrical feed service system to the plant. The old electrical substation dating back to the 1920's that fed the plant has been replaced with a new modern substation, the underground electrical feeders to the treatment plant have been replaced, and a new 480-volt transformer installed. The antiquated and obsolete 550-volt service has been replaced with a standard 480-volt service, the scope of work including construction of a new electrical room dedicated solely to electrical panelboards and switchgear, and the old 175 kW emergency power generator has been replaced with a new 600 kW generator. Improvements have been made to the plant's HVAC system. A new SCADA (Supervisory Control and Data Acquisition) system was completed in 2000 replacing the old analog Central Control Board system, and has been replaced again in 2010 to keep up with the changing hardware and software technology. All of the instrumentation and remote telemetry units (RTU's) have been replaced with programmable logic controllers (PLC's) for increased security, more efficient data transmission, and lower operating and maintenance costs.

In our transmission system, our problematic 102" aqueduct has been inspected at 5-year intervals since its catastrophic failure in November 1996. Substantial rehabilitation work has been performed on the line as the result of significant deterioration uncovered in each of the inspections. A third inspection which commenced in 2010 is underway. The 90" aqueduct has

been inspected with various concrete rehabilitative work performed. The first ever inspection of the 78" aqueduct has been conducted and pipe sections found to be severely deteriorated were rehabilitated. Valves 16" and larger, older than 75 years, and valves found to be defective have been replaced with new butterfly valves.

In our pumping and storage system the Neutaconkanut and Bath Street pump stations have been completely rehabilitated and the Aqueduct pump station replaced. The storage reservoirs at Longview, Aqueduct, and Neutaconkanut have all been fully rehabilitated.

At our raw water facilities, all sluice gates and stop shutters at the Gainer Dam gatehouse have been replaced. The Raw Water Booster pump station motor control center has been replaced and the old obsolete 1750 kW generator replaced with a new 2000 kW unit. Gainer Dam at the Scituate Reservoir, and the dams at Ponaganset Reservoir, Barden Reservoir, Westconnaug Reservoir, and Moswansicut Reservoir have all undergone rehabilitative work.

At our support facilities, offices have been renovated at Academy Avenue, underground fuel storage tanks at various facilities have been replaced with new above-ground tanks, all 27 Providence Water facility structures were brought into compliance with the amended Rhode Island Fire Safety Code, and the watershed storage facility used to house equipment and supplies has been replaced. Fencing has been replaced and access roads improved at a number of the various support facilities.

These improvements, along with the ongoing planned improvements outlined in this 2010 plan submission, will safeguard the integrity of our water supply for generations to come.

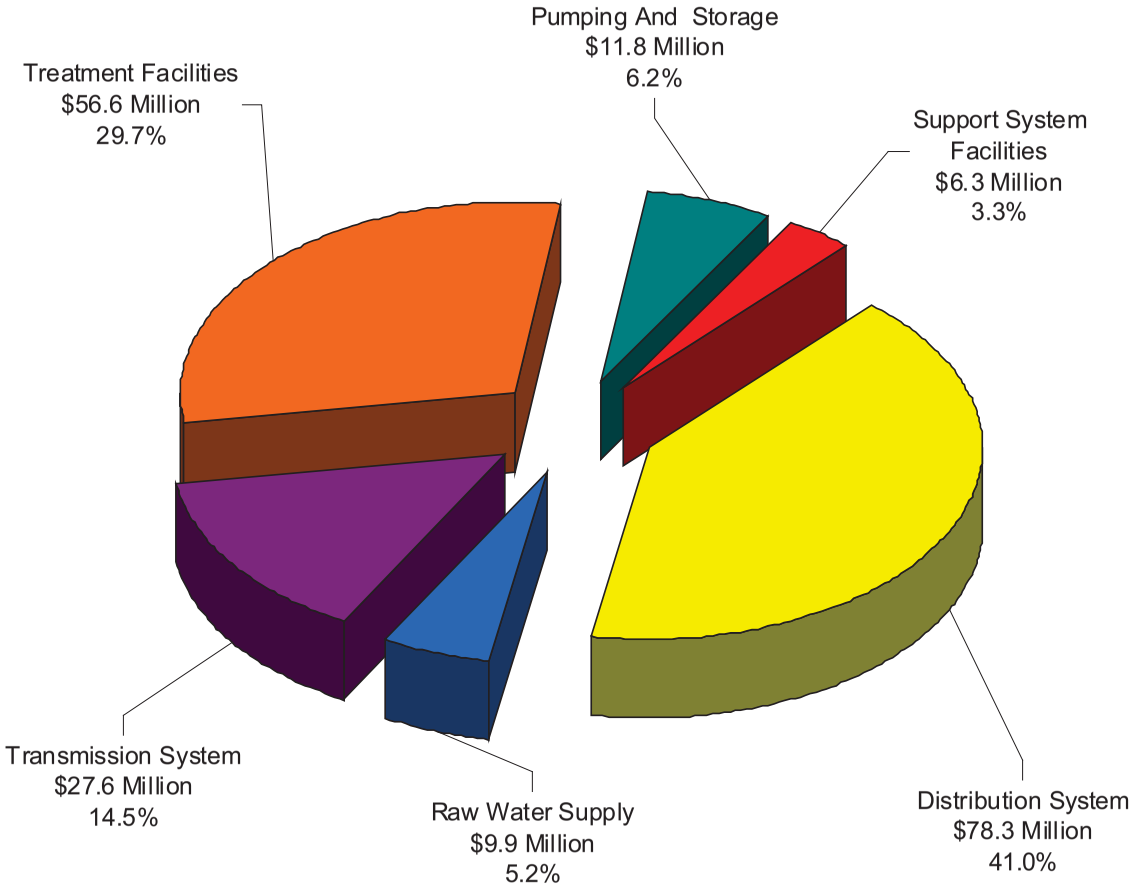
Every six months, Providence Water submits a project status report of its ongoing IFR/CIP program to the Rhode Island Public Utilities Commission. The latest report, submitted in September 2010, detailing our IFR and CIP accomplishments from 1996 through June 2010 is included for reference in the Appendix of this report.

Exhibit 8

Providence Water

IFR Expenditures

Fiscal Years 1996 to 2010*



Total Investment Into System $190.5 MIL

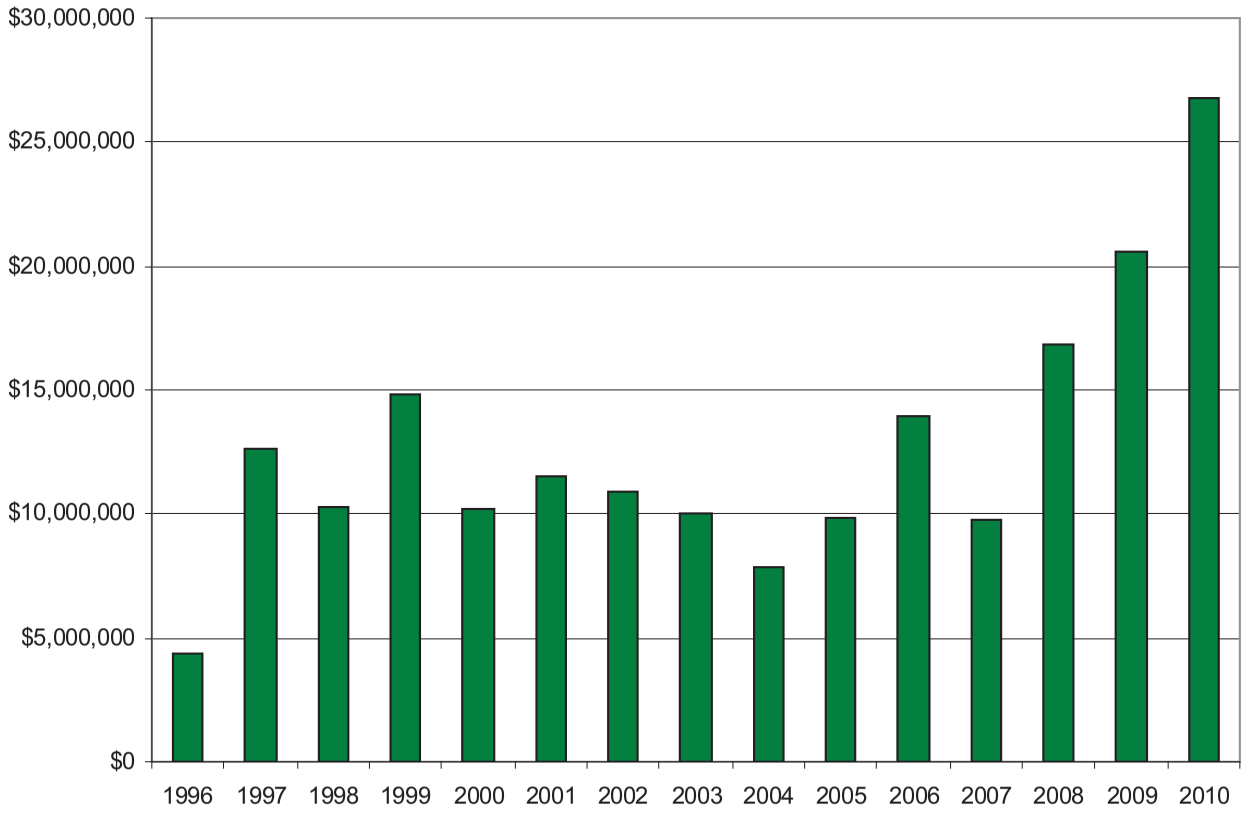
*Through June 30, 2010

Exhibit 9

Providence Water

Summary of IFR Expenditures

Fiscal Years 1996 to 2010



Fiscal Year	Expenditures
1996	$4,380,022
1997	$12,612,265
1998	$10,248,978
1999	$14,864,327
2000	$10,175,318
2001	$11,551,726
2002	$10,915,284
2003	$10,054,569
2004	$7,864,982
2005	$9,856,233
2006	$13,996,118
2007	$9,746,919
2008	$16,854,654
2009	$20,622,218
2010	$26,790,595
Total to Date	$190,534,208

Section III
IFR Expenditure Plan

Section III – IFR Expenditure Plan

Background – IFR Needs and Expenditure Plan

Exhibit 1 – 20-Year IFR Expenditure Plan - Fiscal Years 2011 through 2030 - The twenty year infrastructure replacement expenditure plan is a summary of forecasted expenditure needs for the next twenty years, from fiscal year 2011 (ending June 30, 2010) through FY 2030 (ending June 30, 2030) aggregated by major categories into four separate five year plan increments. Management staff at Providence Water assessed the facilities consistent with the definitions within the regulations and developed a twenty-year project plan. Project needs were determined based on factors such as age, condition, level of priority, and use of engineering and practical judgment.

Project needs are based on the best available information and assessments available at this time and will be adjusted and / or modified as changing needs, priorities, or regulatory requirements may necessitate. We consider this plan to be a living document subject to amendments as may be required to match changing State and Federal regulations and changing field conditions. The system's needs have been and will continue to be reevaluated by Providence Water staff on an ongoing basis. Our schedule of proposed facility replacements is consistent with deterioration or obsolescence, as we know conditions to be now. The plan's focus is on replacement of facilities necessary to continue to deliver a reliable and healthy water supply to all our customers consistent with drinking water standards and regulations as they presently exist.

Exhibit 2 – 20-Year IFR Expenditure Plan – Fiscal Years 2011 through 2030 Pie chart – Graphical representation of 20 Year IFR Expenditure Plan.

Exhibit 10 – 5-Year IFR Expenditure Plan Fiscal Years 2011 through 2015 - The Five Year Expenditure Plan is a detail of the planned infrastructure replacement program over the five year period from FY 2011 through FY 2015. The plan is detailed on a project-by-project basis with projects grouped according to functional categories within the system. Project needs are based on the best available information and assessments available at this point in time. The plan will be adjusted and / or modified as changing needs and priorities may require.

Exhibit 11 – 5-Year Planned IFR Expenditures for Fiscal Years 2011 through 2015 Pie Chart – Graphical Representation of 5 Year IFR Expenditure Plan

Exhibit 12 - 5-Year IFR Project Overview Fiscal Years 2011 through 2015 - A brief narrative overview of the scope of each project for the 5 Year IFR Expenditure Plan.

Exhibit 13 - 15 Year IFR Expenditure Plan – Fiscal Years 2016 through 2030 - The Fifteen Year Expenditure Plan is a summary of the planned infrastructure replacement program over the fifteen year period from Fy 2016 through Fy 2030. Projects and estimated expenditures over this time frame are less detailed than those of the initial five-year plan. They are generally summarized according to major system components and aggregated into three five-year time increments. Project needs are based on the best information and assessments available at this point in time and will be adjusted and / or modified as changing needs and priorities may dictate.

Exhibit 14 - 15 Year IFR Project Overview Fiscal Years 2016 through 2030 - A brief narrative explanation of the scope of anticipated replacement work associated with each major component of the system for the 15 Year IFR Expenditure Plan..

Background - IFR Needs and Expenditure Plan

The plans contained herein encompass the five (5), and twenty (20) year projections of our infrastructure replacement needs and expenditures. The five-year plan is organized by specific projects, with projects grouped according to functional categories over the 5-year period from FY 2011 through FY 2015. The subsequent 15-year period of the fifteen plan is generally summarized according to major system components and aggregated into three individual 5-year time increments over the 15-year period from FY 2016 through FY 2030. The 20-year plan summary is a composite of system needs and expenditure projected over the next twenty years (fiscal years 2011 through 2030), aggregated by major system category into four separate five-year plan increments.

In January 1993, the Rhode Island State Legislature enacted the Comprehensive Clean Water Infrastructure Act. The intent of the legislation was for water suppliers to develop long-term infrastructure replacement programs which would ensure the continued integrity of their systems and provide for funding of this program from water rates.

Pursuant to the enactment of the legislation, the Rhode Island Department of Health, Division of Drinking Water Quality, promulgated Rules and Regulations governing infrastructure replacements for water suppliers. The Rules and Regulations for Clean Water Infrastructure Plans were enacted in January 1995.

This is the fourth plan being submitted to the Rhode Island Department of Health (RIDOH) by Providence Water since enactment of the regulations. On February 29, 1996, Providence Water submitted its first 20-Year Infrastructure Replacement (IFR) plan to RIDOH. Our second IFR plan was submitted March 30, 2001, and our third on March 23, 2006. In accordance with the regulations, each plan identified needed system improvements over each ensuing 20-year period. The plans were amended from time to time since 1996 to meet new challenges and to address changing needs and priorities. Since FY 1996 through to June 30, 2010, we have reinvested $190.5 million into the system, with $64.5 million in improvements in the distribution system, $56.6 million in water treatment facilities, $27.6 million in the transmission system, $11.8 million in pumping and storage facilities, $9.9 million in reservoirs and dams, $13.8 million in meter

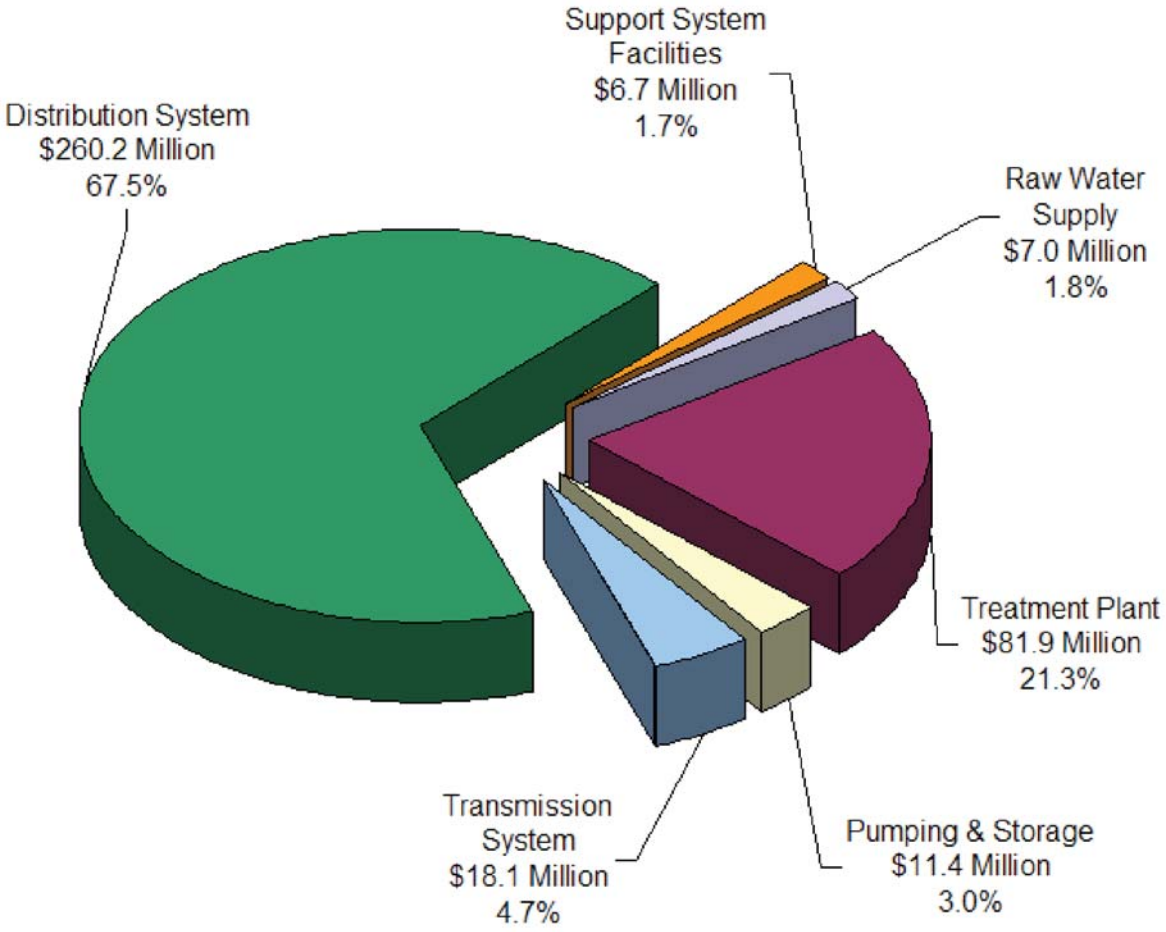
replacements, and $6.3 million into support facilities. Since the inception of our program of infrastructure replacements in 1990, nearly $200 million has been spent in improving the system.

Our plan addresses $426 million in needed improvements to the system over the next twenty-year period, with $110 million of that scheduled over the first five-year period at the treatment plant and within the distribution system alone. As with our previous plan, the latter years of this plan emphasize a major shift in concentration of work into the distribution area. The oldest portions of our distribution system date back 140 years, with approximately 27 percent of our water mains installed in the 1800's. To ensure the integrity and reliability of the system into the future, the upgrading and replacement of distribution mains and their appurtenances is to become one of the major focuses of our Infrastructure Replacement Program as we move forward.

Exhibit 1
Providence Water
20 Year IFR Expenditure Plan
Fiscal Years 2011 through 2030

	Total Amount	Budget 2011-2015	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
RAW WATER SUPPLY	6,950,000	3,650,000	1,850,000	800,000	650,000
TREATMENT PLANT	81,935,000	45,080,000	34,085,000	1,735,000	1,035,000
PUMPING AND STORAGE	11,425,000	1,500,000	3,625,000	6,150,000	150,000
TRANSMISSION SYSTEM	18,100,000	4,500,000	2,650,000	8,300,000	2,650,000
DISTRIBUTION SYSTEM	260,235,000	53,610,000	67,400,000	61,975,000	77,250,000
SUPPORT SYSTEMS AND FACILITIES	6,700,000	1,250,000	1,950,000	1,750,000	1,750,000
TOTAL	385,345,000	109,590,000	111,560,000	80,710,000	83,485,000

Exhibit 2
Providence Water
20 Year IFR Expenditures
Fiscal Years 2011 through 2030



20 Year Investment - $385 million

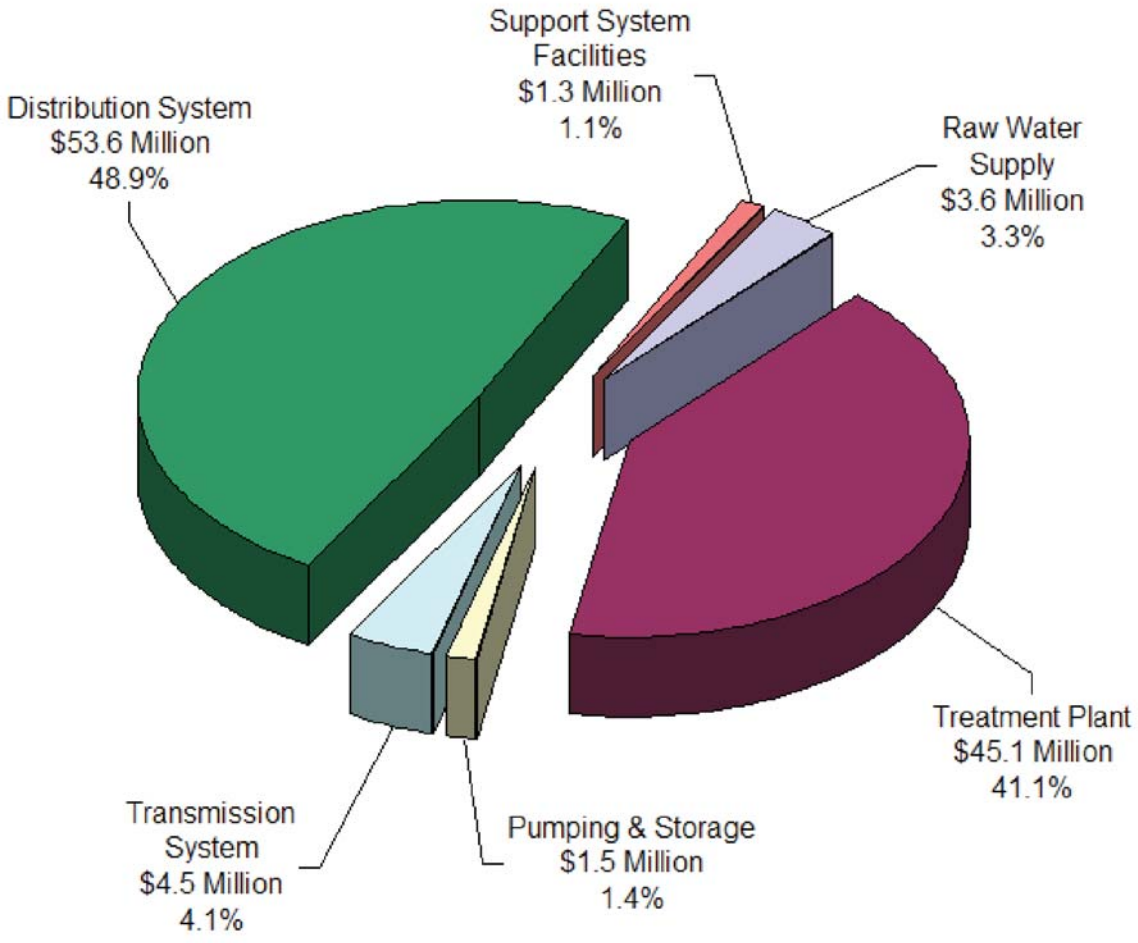
Exhibit 10
Providence Water
5 Year IFR Expenditure Plan
Fiscal Years 2011 through 2015

	Total Amount	Budget 2011	Budget 2012	Budget 2013	Budget 2014	Budget 2015
RAW WATER SUPPLY						
Reservoirs, Dams, and Watershed						
Regulating Reservoir dam rehabilitation	**1,200,000**		300,000	900,000		
Gainer Dam Spillway Rehabilitation	**300,000**		300,000			
Large dam improvements	**250,000**	50,000	50,000	50,000	50,000	50,000
Secondary dam improvements	**850,000**		100,000	300,000	450,000	
Watershed fencing, fire lanes, property rehabilitation	**250,000**	50,000	50,000	50,000	50,000	50,000
Raw Water Structures and Conduits						
Meter & junction chambers rehabilitation	**700,000**	700,000				
60" influent conduits - inspection	**50,000**		50,000			
90" influent conduit rehabilitation	**50,000**		50,000			
Raw Water Supply Total	**3,650,000**	**800,000**	**900,000**	**1,300,000**	**550,000**	**100,000**
TREATMENT PLANT						
Plant Influent and Aerator						
Influent structure rehabilitation	**330,000**	75,000	130,000	75,000	50,000	
Aerator / Influent actuators and valves replacement	**710,000**	90,000	330,000	240,000	50,000	
Influent structure - replace drain and bypass valves	**1,090,000**	140,000	520,000	380,000	50,000	
Influent / Effluent aerator conduits Inspect / Rehabilitate	**165,000**	35,000	50,000	55,000	25,000	
Aeration basin concrete rehabilitation	**800,000**	100,000	350,000	300,000	50,000	
Aeration basin - replace piping, nozzles, and drain valves	**1,200,000**	150,000	550,000	450,000	50,000	
Aerated, Settled, and Filter Influent Conduits						
Settled water conduit - installation of access hatch	**100,000**	50,000	50,000			
Concrete conduits inspect / rehabilitate	**1,100,000**	100,000	550,000	400,000	50,000	
Influent venturis inspection	**500,000**	50,000	200,000	200,000	50,000	
Emergency bypass - clean tunnel and install sluice gate	**75,000**		75,000			
Chemical Storage, Transfer, and Feed Systems						
Chlorine system upgrades	**2,500,000**			250,000	1,000,000	1,250,000
Ferric system upgrades	**250,000**		250,000			
Lime system upgrades	**900,000**	100,000	400,000	400,000		
Filters						
Filter replacement (including valves & piping)	**29,000,000**	9,000,000	7,000,000	5,000,000	4,000,000	4,000,000
Treatment process pilot model	**150,000**	100,000	50,000			
Inspect wash water system	**5,000**			5,000		

Exhibit 10
Providence Water
5 Year IFR Expenditure Plan
Fiscal Years 2011 through 2015

	Total Amount	Budget 2011	Budget 2012	Budget 2013	Budget 2014	Budget 2015
Building, Support, and Operational Systems						
Treatment plant building rehabilitation	**250,000**	50,000	50,000	50,000	50,000	50,000
PW lab / equipment Improvements	**250,000**	50,000	50,000	50,000	50,000	50,000
SCADA / Control system upgrades	**700,000**	600,000	25,000	25,000	25,000	25,000
Inspect service water system	**5,000**			5,000		
Sludge removal and disposal	**5,000,000**	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Treatment Plant Total	**45,080,000**	**11,690,000**	**11,630,000**	**8,885,000**	**6,500,000**	**6,375,000**
PUMPING AND STORAGE						
Neutaconkanut reservoir rehabilitation	**100,000**	100,000				
Dean Estates pump station upgrades	**1,200,000**	1,200,000				
Various pump station improvements	**100,000**	20,000	20,000	20,000	20,000	20,000
Storage tanks inspections / improvements	**100,000**		50,000	50,000		
Pumping and Storage Total	**1,500,000**	**1,320,000**	**70,000**	**70,000**	**20,000**	**20,000**
TRANSMISSION SYSTEM						
102" aqueduct inspection	**1,500,000**	1,500,000				
78" aqueduct inspection	**700,000**			700,000		
90" aqueduct inspection	**500,000**				500,000	
66", 60", 48" transmission mains inspections	**50,000**			50,000		
16" and larger valves replacements	**1,750,000**		250,000	500,000	500,000	500,000
Transmission System Total	**4,500,000**	**1,500,000**	**250,000**	**1,250,000**	**1,000,000**	**500,000**
DISTRIBUTION SYSTEM						
Replace / Upgrade water mains	**23,000,000**	5,500,000	5,500,000	4,000,000	4,000,000	4,000,000
Replace Distribution Valves	**500,000**	100,000	100,000	100,000	100,000	100,000
Replace lead services	**27,600,000**	4,200,000		7,700,000	7,800,000	7,900,000
Replace fire hydrants	**1,000,000**	200,000	200,000	200,000	200,000	200,000
Valve data collection program	**1,500,000**	750,000	750,000			
Leak detection	**10,000**	10,000				
Distribution System Total	**53,610,000**	**10,760,000**	**6,550,000**	**12,000,000**	**12,100,000**	**12,200,000**
SUPPORT SYSTEM FACILITIES						
Building and facilities rehabilitation	**1,000,000**	200,000	200,000	200,000	200,000	200,000
Facilities fencing and roads rehabilitation	**250,000**	50,000	50,000	50,000	50,000	50,000
Support System Facilities Total	**1,250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**
TOTAL	**$109,590,000**	**$26,320,000**	**$19,650,000**	**$23,755,000**	**$20,420,000**	**$19,445,000**

Exhibit 11
Providence Water
5 Year IFR Expenditures
Fiscal Years 2011 through 2015



5 Year Investment - $109.6 million

EXHIBIT 12 – 5-Year IFR Project Overview - FY 2011 through 2015

RAW WATER SUPPLY

Reservoirs, Dams, and Watershed

Regulating Reservoir Dam Rehabilitation

The dam was inspected in 2004 and needed rehabilitative work was identified from the inspection. Design is in progress for improvements to include regrading and providing armor protection along both the upstream and downstream slopes, repairing/replacing the existing stone walls along both the upstream and downstream slopes, inspecting and rehabilitating the concrete spillway, rehabilitating the concrete outlet structure, and rehabilitating the current drainage system along the length of the dam.

Gainer Dam Spillway Rehabilitation

The upstream face of the spillway is exhibiting signs of wear. Plans are to completely replace all of the old unsound concrete along the upstream face of the spillway with a new concrete surface.

Large Dam Improvements

Six dams are part of the Scituate Reservoir water complex: Gainer Memorial Dam and its five tributary reservoirs dams, Barden Reservoir Dam, Westconnaug Reservoir Dam, Moswansicut Pond Dam, Ponaganset Reservoir Dam, and Regulating Reservoir (Horseshoe) Dam. All the dams, with the exception of the Regulating Reservoir Dam, have recently undergone major rehabilitative work to correct deficiencies. Work under this project is to address minor deficiencies as identified through continuing inspections that are conducted on a quarterly basis.

Secondary Dams Improvements

Several small secondary dams are located throughout the watershed. These secondary dams were constructed primarily for mill purposes in the mid to late 1800's prior to the development of the Scituate Reservoir. Plans are to rehabilitate several of the secondary dams based on prior inspections. In addition, plans are to inspect the remaining smaller secondary dams along the watershed. This will establish a scope of work in the subsequent years of the twenty-year plan to address needed improvements to extend their useful lives.

Watershed Fencing, Fire Lanes, Property Rehabilitation

The fences and access roads, much of which are in poor condition, date back to their original construction in the 1920's. The fencing and road improvements are selected by priority as determined by condition assessments.

Raw Water Structures and Conduits

Meter and Junction Chambers Rehabilitation

A construction contract has been awarded for rehabilitation of the Meter Chamber structure at the Scituate Reservoir Dam which includes replacing the existing exterior rubber roof membrane, removing and replacing the damaged sections of fence along the roof and injecting construction joints to stop leakage of groundwater into the tunnel. Plans are for also installing a new breaker in the 480V panelboard in the Gainer Dam Gatehouse for connecting the existing feeders into the new breaker, changing out the existing 600V/120-230V transformer with a new 480V/120V-230V transformer, and installing additional lighting along the entire length of the chamber. The exterior coating of the 60" conduits will be rehabilitated as necessary, and the partially submerged concrete filled cast iron pipe support columns will be replaced with reinforced concrete columns.

At the junction chamber, a construction contract has been awarded for exterior rip-rap improvements, installing a new aluminum staircase to allow access from the entry platform to the lower portion of the structure, cleaning and painting the outside steel access doors, replacing the air release/vacuum valve assemblies, installing new lighting to improve lighting conditions inside and outside the structure, and rehabilitation of the exterior coating of the 60" conduits.

60" Influent Conduits - Inspection

Plans are to inspect the interior and exterior of the conduits every ten years. Inspection of the exposed piping consists of evaluating the condition of the exterior coating and an internal pipe assessment. Inspection of the underground pipeline consists of an over-the-line survey, an evaluation of soils along the pipeline, soil resistivity testing, an internal pipeline inspection, and evaluation and testing of the existing cathodic protection system. As the need for remedial work cannot be anticipated in advance, the budgeted amount shown for this project is for the inspection only.

90" Influent Conduit - Rehabilitation

The 90" influent conduit that transports raw water from Gainer Dam to the treatment plant is approximately 85 years old. The pipeline was recently inspected. Plans are to rehabilitate the concrete lining as identified during the inspection / assessment phase.

TREATMENT PLANT

Plant Influent and Aerator

Design is substantially in progress. The project is comprised of the following six sub-projects.

Influent Structure Rehabilitation

The influent structure is a reinforced concrete structure which has been in service for approximately 85 years. The exterior above-grade portion of the structure is exposed to the weather and concrete deterioration is evident. Steel grating on the structure is corroding and requires replacement. Plans are for the rehabilitation of the concrete structure and appurtenances. The overflow weir in the influent structure will be raised to increase hydraulic capacity for water influent through the structure. A masonry structure will be constructed on top of the existing footprint of the structure to protect the new actuators and electrical equipment from the elements.

Aerator / Influent Actuators and Valves Replacement

The 4 electrically operated 36-inch butterfly valves for the aerators will be replaced due to their age and condition. This project also consists of replacing the electric actuators, electrical conduits, power wiring and disconnects, and incorporating the new valve operators into the existing SCADA system.

Influent Structure - Replace Drain and Bypass Valves

Four 36-inch bypass gate valves allow diversion of influent water to bypass the aeration basin. Three 36-inch by 36-inch drain sluice gates are used to drain the aerator effluent conduit, influent control structure, influent tunnel, settled water conduit, and the mixer. A 72-inch by 72-inch influent venturi sluice gate was used during periods of extremely low influent flow for the purpose of diverting influent water through the south venturi meter to maintain flow meter accuracy. The valves, valve stems and operators are all approximately 85 years old and show evidence of corrosion. The stems for the valves are worn, in some cases distorted and inoperable, and require replacement. The project consists of the replacement of the 4 bypass gate valves, the 3 drain sluice gates, the north influent venturi sluice gate, and all valve stems and guides. A new 72-inch by 72-inch sluice gate will be installed at the south venturi meter

entrance to provide the ability to isolate the influent control chamber from the downstream conduits. The existing manually operated valve actuators will be replaced with electric actuators with position and control signals that will be incorporated into the existing SCADA system.

Influent / Effluent Aerator Conduits Inspect / Rehabilitate

An internal inspection of the steel and concrete influent and effluent aerator conduits, and an external inspection of the steel conduits, as well as structural evaluations of the steel and concrete conduits revealed areas that require rehabilitation addressed under this project.

Aeration Basin Concrete Rehabilitation

The aeration basin is a reinforced concrete lined basin within which the influent water aeration process takes place. The concrete panels forming the basin have settled and shifted, resulting in an uneven surfaces and exposed joints. The concrete is also severely deteriorated due to long term exposure to weather and treatment chemicals. This project includes the complete replacement and relocation of the aeration basin in a westerly direction away from its current location. This project also includes raising the elevation of the basin's circular weir to increase the hydraulic capacity for gravity water flow through the plant.

Aeration Basin - Replace Piping, Nozzles, and Drain Valves

Aeration takes place through a series of aerator nozzles and jets, which spray influent water into the air which spray influent water into the air. This project includes complete replacement of all piping, fittings, nozzles, and the aeration basin drain valve.

Aerated, Settled, and Filter Influent Conduits

Design is substantially in progress. The project is comprised of the following four sub-projects.

Settled Water Conduit - Installation of Access Hatch

Aerated and settled water is conveyed to the various treatment processes through circular and rectangular underground reinforced concrete conduits constructed in 1925. There is limited access to the upper settled water conduit as it is currently configured. Plans are to install an access hatch in conjunction with the filter rehabilitation project. The hatch will facilitate entry

into the settled water conduit by providing a safer and more convenient access point for inspection and rehabilitation operations.

Concrete Conduits Inspect / Rehabilitate

The 12 foot high by 8.5 foot wide rectangular reinforced concrete lower conduit conveys the aerated water to the tangential mixer. A bypass chamber connects the lower conduit to the upper settled water conduit. The upper settled water conduit is an 11.5 foot high by 10 foot wide rectangular reinforced concrete conduit that conveys settled water from the settling basins to the filter influent conduit which conveys the water to the 18 filters. Located directly below the filter influent conduit is a rectangular washwater drain conduit that conveys water released from backwashing operations of the filters to the main washwater drain that eventually leads to the sludge lagoons. An internal inspection and structural evaluation of the concrete structures revealed deteriorated areas that require concrete rehabilitation addressed under this project.

Influent Venturis Inspection

Aerated water enters two 72 inch diameter reinforced concrete conduits, 45 feet in length, which lead to two 72 inch by 36 inch cast-in-place venturi concrete flow meters. These venturis measure the flow rate of water entering the plant.

An internal inspection, structural evaluation, performance evaluation, and plant operational considerations concluded that it is not cost effective to rehabilitate the existing venturi meters to original specifications.

This project consists of encapsulating and abandoning the existing venturi meters in place and installing new vortex meters within the twin existing 60" plant influent conduits upstream of the junction chamber. The flow signals will be incorporated into the existing SCADA system.

Emergency Bypass - Clean Tunnel and Install Sluice Gate

A 6 foot wide by 7.5 foot high bypass tunnel connects the lower influent (aerated water) conduit to the emergency bypass chamber. The purpose of the bypass tunnel is to allow aerated water, with emergency disinfection treatment only, to flow directly to the effluent conduit in the event it becomes necessary to bypass the plant's treatment process in the event of an emergency. A

buildup of lime sludge currently occurs in the bypass tunnel due to its location downstream of the lime solution injection point in the lower conduit which would be an impediment in the event that the bypass would need to be utilized. Plans are for cleaning the lime sludge buildup, addressing required concrete rehabilitative work and installing a flap gate at the entrance of the bypass tunnel to prevent future buildup of the lime sludge.

Chemical Storage, Transfer, and Feed System

Chlorine System Upgrades

Original plans called for the replacement of the existing gaseous chlorine feed equipment. However, in light of increasing safety and security concerns associated with bulk gaseous transport and storage, the entire gaseous chlorine system will be replaced with a new sodium hypochlorite system. As part of the project, a study will be conducted to determine whether the new system should consist of the bulk storage of delivered sodium hypochlorite or on-site generation of the solution.

Ferric System Upgrades

The liquid ferric storage system was installed in 1997. The three 12,000 gallon bulk storage tanks and associated piping are in need of some rehabilitative work. Work will include repairs to the tanks' exterior urethane foam insulation, replacement of exterior pipe and strainer insulation and surface recoating of the tank containment area. Additionally, the transfer and feed system will be further inspected and rehabilitative work performed as needed.

Lime System Upgrades

Due to the expected increase in lime dosage required as a result of the new carbon dioxide chemical feed system presently being installed, the existing feed system will need to be replaced as the current lime feed system does not have the capacity to handle the expected increase while still providing sufficient redundancy. As part of the project, a study will be performed to investigate the benefits and cost of switching from quicklime to hydrated lime. In addition, the existing pipe bends for the lime transfer system will need to be replaced due to the abrasive nature of the chemical.

Filters

Filter Replacement

The filter media in the plant filters dates back to the 1960's and parts of the underdrain system date back to the plant's original construction in the 1920's. The scope of work includes reconstructing all 18 filters, raising the filter backwash troughs to provide greater filter media depth providing the option for future use of granular activated carbon (GAC), completely removing the existing underground concrete roof slab structures covering the filters with construction of above-ground protective building structures in their place which will furnish full visibility and access to the entire surface areas of the filters. The project also includes replacement of all filter piping, control valves and meters, installation of filter-to-waste piping, and the relocation and replacement of the 48" washwater pipe from inside the congested pipe gallery to an enclosed area to be constructed outside the building. Pipe gallery improvements will also consist of new lighting, HVAC, and a new outside access point that will improve safety conditions and facilitate construction activity of the project. The scope of work also includes the replacement of the existing old control board SCADA system with a new state of the art non-proprietary system.

The project is currently in the first phase of construction, focused primarily within the pipe gallery. The second phase will include the complete reconstruction of all eighteen filter boxes including construction of new concrete gullet walls, installation of new filter underdrains, installation of new backwash troughs, incorporation of an air scour system, new filter media, and erection of the new filter superstructure above the rebuilt filters.

Treatment Process Pilot Model

A bench-scale pilot is operational at the treatment plant. This bench-scale pilot models the treatment train and is being used to evaluate various treatment alternatives to ensure continued compliance with current regulations. Being studied is the potential use of granular activated carbon (GAC) as the filter media at the treatment plant. Piloting work includes determining the impact of prechlorination on its life and whether a pre-oxidant will be required to control manganese in the event that GAC media is utilized.

Inspect Washwater System

The 400,000 gallon washwater tank, which provides backwashing water to the treatment plant's filters, is a circular reinforced concrete underground tank. Two 5,600 GPM horizontal centrifugal pumps are used to fill the washwater tank between filter backwashes. Plans are to evaluate the condition of the pumps, perform a structural evaluation of the tank, and address any deficiencies that are identified.

Building, Support, and Operational Systems

Treatment Plant Building Rehabilitation

The plant will be in need of ongoing improvements. Funds are budgeted for office reconditioning, architectural and structural improvements, rehabilitation of the electrical, plumbing, and mechanical systems, security and fire system upgrades, replacement of the public address system, and site improvements as needed.

PW Lab / Equipment Improvements

Extensive testing of the raw and treated water is required on a regularly scheduled basis. The testing and monitoring equipment utilized has a normal life ranging from 4 to 15 years depending on the type of equipment and frequency of use. Plans are to replace this equipment as it becomes necessary. The budget amounts shown in the plan are for anticipated needs.

SCADA / Control System Upgrades

The budget amount in the first year of the plan represents the completion of construction for the upgrades to the existing SCADA system presently underway at the treatment plant. Improvements include new workstations, monitors servers, Programmable Logic Controllers (PLCs), I/O modules, racks and terminations, data communication network, a new operator console and WonderWare control system software upgrade.

Because computer technology is ever-changing and upgrades are routinely needed, funds have been budgeted for the upgrade of the remote PLC system and additional software programming on an as-needed basis. Annual funds are budgeted to anticipate ongoing needs which include future hardware replacements and software upgrades.

Inspect Service Water System

The 40,000 gallon welded steel service water tank, constructed in 1961, is a double ellipsoidal tank, approximately 90 feet high and 20 feet in diameter with a 36-inch diameter riser 63 feet in height. Two 1750 GPM horizontal centrifugal pumps pump water to the tank to feed the plant's service and process water system. Plans are to perform a structural evaluation of the tank, and address any deficiencies identified. As part of the scope, a coating application will be applied as needed to the interior and exterior surfaces of the tank, and the current cathodic protection system will be evaluated and replaced if needed.

Sludge Removal and Disposal

The three lagoons (1A, 1B, & 2) were constructed in 1924 during the construction of the treatment plant to receive periodic sludge discharges resulting from filter backwash and sedimentation operations at the plant. All sludge accumulation that had been previously allowed to accumulate since the plant was originally placed in operation has now been removed from all three lagoons restoring them to their original design intent of providing adequate storage and serving as a buffer that will maintain an acceptable standard of water quality discharged to the Pawtuxet River. Remaining work for sludge removal consists of transport and disposal of the previously stockpiled sludge that was dredged from Lagoon 2, with payment for this work to continue over the subsequent years.

PUMPING AND STORAGE

Neutaconkanut Reservoir Rehabilitation

Neutaconkanut Reservoir has a storage capacity of 42.1 MG. This underground tank was constructed in 1928. The facility feeds the gravity fed Low Service system and the Neutaconkanut Pump Station. The main isolation gate valve, located in a valve vault outside of the reservoir, is difficult to operate and is in need of replacement. Plans are to replace this valve with a new 48" butterfly valve.

Dean Estates Pump Station Upgrades

Construction has begun to rehabilitate the Dean Estates Pump Station. The scope of work includes combining the Garden Hills and Dean Estates pressure zones into a single pressure zone served by one pump station. To accomplish this, a new water main will be installed at the Glen Hills Drive Bridge crossing RI 37. Plans are to rehabilitate only the Dean Estates Pump Station which will allow for the abandonment of the Garden Hills Pump Station. The rehabilitation of the Dean Estates Pump Station includes installation of new variable frequency drive vertical turbine pumps, elimination of the aged hydropneumatic tanks, instrumentation and electrical system upgrades, installation of an emergency generator, and architectural improvements to the pump station building.

Various Pump Stations Improvements

Plans are to periodically inspect all mechanical, electrical, architectural, and structural components of each pump station. Funds have been budgeted for anticipated improvements to remedy deficiencies as identified.

Storage Tanks Inspections / Improvements

Providence Water's distribution storage system consists of 4 underground concrete storage reservoirs and one aboveground tank. Plans are for interior inspections of the structures every ten years to assess their condition. All five tanks are scheduled for inspection during FY2012 and FY2013. Since remedial work cannot be identified at this time, the budget amount shown is for inspection only.

TRANSMISSION SYSTEM

102" Aqueduct Inspection

The 102" aqueduct transmission line, approximately 5.2 miles in length, was constructed in the 1960's and consists of prestressed concrete cylinder pipe (PCCP). In November 1996, a section of this pipeline where it crosses Oaklawn Avenue in Cranston experienced a catastrophic break where the side wall of the pipeline failed. Following the break, a program was developed for inspecting and rehabilitating (as necessary) this critical transmission line on a regular 5-year schedule. The aqueduct has been twice inspected since the with major rehabilitative work being found needed in both cases. In accordance with the inspection schedule, plans are to again perform interior and exterior inspections of the aqueduct in 2011. Since remedial work cannot be quantified at this time, the budget amount shown is for inspection and some minor rehabilitation work only.

78" Aqueduct Inspection

The 78" aqueduct transmission line, approximately 4.4 miles in length, was constructed in the 1960's and consists of prestressed concrete cylinder pipe (PCCP) and two sections of concrete lined tunnel. The 78" pipeline was first inspected in 2008. Major deficiencies were found and significant rehabilitative work became necessary. A program has implemented for inspecting and rehabilitating (as necessary) this transmission line on a regular 5-year schedule. The next inspection of the line is scheduled in the five-year plan. Since remedial work cannot be quantified at this time, the budget amount shown is for inspection only.

90" Effluent Aqueduct Inspection

The 4.5 mile long aqueduct transmission line was constructed in the 1920's. It is comprised of a concrete lined tunnel section between the west and east portals, and reinforced concrete pipe thereafter. Plans are to perform interior and exterior inspections of the aqueduct. Since remedial work cannot be quantified at this time, the budget amount shown is for inspection only.

66", 60", 48" Transmission Mains Inspections

The 66" main, installed in 1926, is an 8500 feet long riveted steel pipeline which transitions to a riveted steel 48" main at Budlong Road in Cranston which then continues easterly an additional 1500 feet to Reservoir Avenue. The 22,140 feet long 60" Neutaconkanut Conduit was installed in 1926. The reinforced concrete steel cylinder pipeline transitions to a 2100 feet long 48" pipeline feeding Neutakoncanut Reservoir. Plans are to perform interior and exterior inspections of the pipelines, rehabilitate the pipe as needed, and provide corrosion protection where applicable. Since remedial work cannot be quantified at this time, the budget amount shown is for inspection only.

16" and Larger Valves Replacements

There are approximately 814 transmission valves in the system. Because of their size, the ability to successfully operate these valves when needed is critical in an emergency shutdown. Plans are to replace the 16" and larger valves in the system that are older than 75 years with new butterfly valves with the emphasis placed on the most critical valves. Emphasis will also be given to replacing valves that are found to be defective.

DISTRIBUTION SYSTEM

Replace / Upgrade Water Mains

The Providence Water system consists of approximately 885 miles of smaller distribution pipes ranging in size from 6" to 12". Of these, approximately 27% are pre 1900 and will be candidates for upgrading or replacement. The first order of priority will be to replace mains where water quality complaints or flow problems have been documented. Generally, older unlined cast iron mains will need to receive first priority. Factors such as flow testing, hydraulic modeling, water quality complaints, past leak history, and main sampling will all be considered. Emphasis will also be given to replacements in areas of local and state road resurfacing projects where cost savings can be realized. The upgrading or replacement of distribution mains will become an area of increasing concentration as our IFR program proceeds.

Replace Distribution Valves

Of the approximately 13,500 valves in the system, 1,900 have been identified as 6", 8" and 12" diameter valves pre 1900. Plans are to replace these valves in conjunction with the main replacement program. This will generally prioritize the replacement of valves, using the same criteria for mains. In accordance with current practice, emphasis will also continue to be given to replacements in areas of local and state road resurfacing projects where cost savings can be realized. Emphasis will also be given on replacing valves found to be defective.

Replace Lead Services

As a result of lead testing within the system under the requirements of the Lead and Copper Rule, Providence Water exceeded the lead action level of 15 ppb in more than 10% of customer taps sampled, and was required in September 2006, in accordance with the regulations, to begin the annual replacement of 7% of its 25,000 lead services. If at some future date Providence Water falls below the action level, our plan for the replacement of lead services we will reassessed.

In addition to the scheduled replacement of lead services under our formal program effort, lead services will be replaced in conjunction with the water main replacement program. Services will also be replaced on an ongoing basis under special conditions and where customers are

voluntary replacing their private side lead service. Providence Water will also continue to replace lead services in areas of local and state road resurfacing projects and where lead services are found to be leaking.

Replace Fire Hydrants

There are 6,067 hydrants in the system. Plans are generally to replace all hydrants as they become 75 years old with new breakaway style hydrants. Emphasis will also be given on replacing hydrants that are found defective.

Valve Data Collection Program

The project consists of performing an initial field assessment of the condition and operability of all valve assets, testing and operating each valve, documenting the valve data and condition, mapping with GPS to integrate water system utility information into Providence Water's GIS and asset management system.

Leak Detection

The system is comprised of approximately 885 miles of distribution mains, 114 miles of transmission mains, 814 transmission valves, 13,500 distribution valves, 74,000 services, and 6,067 hydrants. A system-wide leak detection was completed in 2010. The plan is to perform a leak detection survey at approximately 10-year intervals.

SUPPORT SYSTEM FACILITIES

Building and Facilities Rehabilitation

The Forestry Maintenance Garage, the Academy Avenue Administration Building, and the Aqueduct Reservoir Office Buildings are in need of ongoing improvements. Funds are budgeted for reconditioning the offices, architectural and structural improvements, rehabilitation of the electrical, plumbing, and mechanical systems, security and fire system upgrades, and site improvements.

Facilities Fencing and Roads Rehabilitation

Plans are to replace damaged fencing and rehabilitate deteriorated roads at some of the various distribution reservoirs, pump stations, and facilities. The fencing and road improvements are selected by priority as determined by condition assessment.

Note: Some of these projects are in progress and the cost shown for the project may be a partial costs for the remainder of the project. Therefore, in these instances the budget amount does not reflect the entire cost of the project. The balance that makes up the full project cost was identified and reported prior to fiscal year 2011.

Exhibit 13
Providence Water
15 Year IFR Expenditure Plan
Fiscal Years 2016 through 2030

	Total Amount	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
RAW WATER SUPPLY				
Large Dam Improvements	**750,000**	250,000	250,000	250,000
Secondary Dam Improvements	**450,000**	150,000	150,000	150,000
Raw Water Booster Pump Station Improvements	**200,000**	200,000		
Gainer Dam Gatehouse Improvements	**1,000,000**	1,000,000		
Raw Water Conduit Improvements	**150,000**		150,000	
Watershed Fence and Road Rehabilitation	**750,000**	250,000	250,000	250,000
Raw Water Supply Total	**3,300,000**	**1,850,000**	**800,000**	**650,000**
TREATMENT PLANT				
Central Control System (SCADA) Upgrades	**600,000**	200,000	200,000	200,000
Conduits and Structures Inspection/Rehabilitation	**280,000**	10,000	260,000	10,000
Sedimentation Basins Rehabilitation	**30,000,000**	30,000,000		
Chemical Storage/Transfer/Feed Systems Improvements	**700,000**	150,000	400,000	150,000
Filter Improvements	**200,000**		200,000	
Treatment Plant Laboratory Improvements	**750,000**	250,000	250,000	250,000
Process Meter Replacements	**225,000**	75,000	75,000	75,000
Lagoon System Improvements	**1,200,000**	1,000,000	100,000	100,000
Treatment Plant Building Improvements	**2,900,000**	2,400,000	250,000	250,000
Treatment Plant Total	**36,855,000**	**34,085,000**	**1,735,000**	**1,035,000**
PUMPING AND STORAGE				
Pump Station Improvements	**425,000**	125,000	150,000	150,000
Bath Street Pump Station Improvements	**2,000,000**		2,000,000	
Neutaconkanut Pump Station Improvements	**2,000,000**		2,000,000	
Greenville Ave Pump Station Improvements	**1,000,000**	1,000,000		
Cranston Commons Pump Station Improvements	**1,500,000**	1,500,000		
Fruit Hill Pump Station Improvements	**1,000,000**	1,000,000		
Storage Tank Inspections / Improvements	**2,000,000**		2,000,000	
Pumping and Storage Total	**9,925,000**	**3,625,000**	**6,150,000**	**150,000**

Exhibit 13
Providence Water
15 Year IFR Expenditure Plan
Fiscal Years 2016 through 2030

	Total Amount	Budget 2016-2020	Budget 2021-2025	Budget 2026-2030
TRANSMISSION SYSTEM				
78" and 102" Aqueducts Inspection / Rehabilitation	**5,400,000**	1,600,000	1,800,000	2,000,000
90" Aqueduct Inspection / Rehabilitation	**6,000,000**		6,000,000	
66", 60", 48" Transmission Main Inspections	**100,000**	50,000		50,000
16" and Larger Valve Replacements	**2,100,000**	1,000,000	500,000	600,000
Transmission System Total	**13,600,000**	**2,650,000**	**8,300,000**	**2,650,000**
DISTRIBUTION SYSTEM				
Distribution Main Upgrades	**160,000,000**	25,000,000	60,000,000	75,000,000
Distribution Valve Replacements	**1,875,000**	500,000	625,000	750,000
Lead Service Replacements	**40,900,000**	40,900,000		
Hydrant Replacements	**3,750,000**	1,000,000	1,250,000	1,500,000
Leak Detection	**100,000**		100,000	
Distribution System Total	**206,625,000**	**67,400,000**	**61,975,000**	**77,250,000**
SUPPORT SYSTEMS AND FACILITIES				
Building and Facilities Rehabilitation	**3,000,000**	1,000,000	1,000,000	1,000,000
Records Management (GIS) Upgrades	**1,500,000**	500,000	500,000	500,000
Facility Fence and Road Rehabilitation	**750,000**	250,000	250,000	250,000
Underground Fuel Storage Tank Replacements	**200,000**	200,000		
Support Systems and Facilities Total	**5,450,000**	**1,950,000**	**1,750,000**	**1,750,000**
TOTAL	**275,755,000**	**111,560,000**	**80,710,000**	**83,485,000**

EXHIBIT 14 – 15-Year IFR Project Overview – FY 2016 through 2030

RAW WATER SUPPLY

Large Dam Improvements

Plans are to inspect all 6 dams and structures and to conduct remedial work as required to extend their useful lives. Amounts are budgeted for ongoing needed improvements.

Secondary Dam Improvements

Several small secondary dams are located throughout the watershed. These secondary dams were constructed primarily for mill purposes in the mid to late 1800's prior to the development of the Scituate Reservoir. Plans are to inspect all secondary dams and structures and to conduct remedial work as required to extend their useful lives. Amounts are budgeted for needed improvements for the continual upkeep of all 6 dams and appurtenant structures.

Raw Water Booster Pump Station Improvements

Various architectural improvements are needed at the Raw Water Booster Pump Station. Work includes replacement of the garage doors, windows and roof replacement, and brick and tile restoration.

Gainer Dam Gatehouse Improvements

The gatehouse dates back to its original construction in the 1920's and is in need of architectural rehabilitation along with replacement of the two existing cranes.

Raw Water Conduit Improvements

Plans are to inspect the interior and exterior of the two 60-inch raw water conduits and the 90-inch influent conduit every 10 years. Any remedial work that may be required as a result of the inspection will be addressed. Since the quantity of remedial work cannot be anticipated in advance, the budget amount shown for this project is for inspection only.

Watershed Fence and Road Rehabilitation

There are approximately 40 miles of fencing and 66 miles of access roads and fire lanes that exist on the watershed and Providence owned property. The fences and access roads, some of which are in poor condition, date back to their original construction in the 1920's. Amounts are budgeted to perform ongoing rehabilitative work as needed.

TREATMENT PLANT

Central Control System (SCADA) Upgrades

Given that the nature of computer technology is ever changing, funds have been budgeted in the plan to address continued upgrade needs for the SCADA system. Needs will consist of hardware replacements, software upgrades, and new hardware and software additions to the SCADA system.

Conduits and Structures Inspection / Rehabilitation

This project consists of internal inspections of the influent control structure, influent/effluent aerator conduits, aerated water conduit (lower conduit), emergency by-pass tunnel, settled water conduit (upper conduit), filter influent conduit, clearwell, and washwater tank every ten years. The project also consists of an internal inspection and structural analysis of the service water tank every five years. A budget amount has been included to perform these inspections and to address minor rehabilitative work only.

Sedimentation Basins Rehabilitation

The sedimentation basins at the plant consist of two large open water surface basins that were part of the plant's original construction back in the 1920s. The massive area of concrete walls and slabs making up the basin have deteriorated over time and initially our IFR plans were to rehabilitate and renew them back to nearly original condition. In light of the outmoded nature of this sedimentation process by today's standards, we have reconsidered this approach. Providence Water is considering a new modern-design settling system to be installed in their place. Such an installation would consist of automatic mechanized removal of sludge on a continuous basis, eliminating sludge buildup and cleaning and handling requirements. This project is at this point conceptual in nature only.

Chemical Storage/Transfer/Feed Systems Improvements

Five chemicals are added in the treatment process at different locations at the treatment plant. Amounts are budgeted for needed improvements to the feed systems during the 15-year plan period.

Due to the corrosive nature of the ferric sulfate, it is anticipated that various components of the storage, transfer, and feed systems will need to be rehabilitated during the 15-year period.

The lime feeders will be replaced during the first five years of the plan. Due to the abrasive nature of the dry chemical, sections or all of the transfer piping will need to be replaced at regular intervals.

The chlorine gas system will be replaced with a liquid chlorine system during the first five years of the plan. The new system will be inspected during the 15-year plan period and remedial work will be performed as needed.

Fluoride is added as a liquid in the clearwell just prior to water leaving the treatment plant. The fluoride system was installed back in 2005. Due to the corrosive nature of the chemical, it is anticipated that various components of the storage, transfer and feed systems will need to be rehabilitated during the 15-year period.

A carbon dioxide feed system is currently under construction under the Capital Program. The new system will be inspected during the 15-year plan period and remedial work will be performed as needed.

Filter Improvements

All eighteen filters, including all valves and piping, are scheduled to be rehabilitated during the first five years of the plan. Amounts are budgeted for needed improvements for the continual upkeep of the entire filtration system during the 15-year period.

Treatment Plant Laboratory Improvements

The plan is to replace laboratory equipment and provide architectural upgrades as they become necessary. The budget amounts shown in the plan are for anticipated needs.

Process Meter Replacements

Several types of process metering and monitoring equipment are used at the treatment plant and in the distribution system for monitoring and maintaining water quality. The data is collected and logged for record and reporting purposes. Replacement of this equipment on a regular interval is required to ensure the accuracy and reliability of the data. Based on scheduled replacements, PW is planning to replace fluoride residual meters, chlorine residual meters, pH meters, turbidimeters, and a total organic carbon meter.

Lagoon System Improvements

All sludge accumulation has now been removed from the three lagoons to restore them to their original design intent of providing solids settling and an adequate buffer to maintain an acceptable standard of water quality discharged into the Pawtuxet River. Remaining work for sludge removal consists of the transport and disposal of the previously stockpiled sludge that was dredged from Lagoon 2. Payment for this work will end in the first year of the 15-year plan in accordance with contractual requirements.

Treatment Plant Building Improvements

Various rehabilitative work has been conducted at the facility. The building requires ongoing structural, architectural, and mechanical rehabilitation and upgrades.

PUMPING AND STORAGE

Pump Station Improvements

Plans are to periodically inspect all mechanical, electrical, architectural, and structural components of each pump station. Funds have been budgeted for anticipated improvements, and to remedy deficiencies as they are identified through inspections.

Bath Street Pump Station Improvements

It is anticipated that various mechanical, electrical, architectural, and structural improvements will be needed at this pump station as they are identified through inspections. Major upgrades to the station will be required in the second five-year period of the fifteen-year plan.

Neutaconkanut Pump Station Improvements

It is anticipated that various mechanical, electrical, architectural, and structural improvements will be needed at this pump station as they are identified through inspections. Major upgrades to the station will be required in the second five-year period of the fifteen-year plan.

Greenville Avenue Pump Station Improvements

It is anticipated that various mechanical, electrical, architectural, and structural improvements will be needed at this pump station as they are identified through inspections. Major upgrades to the station will be required in the first five-year period of the fifteen-year plan.

Cranston Commons Pump Station Improvements

Anticipated in the first 5 years of the 15-year plan is the replacement of the below grade pump station with an above ground pre-engineered packaged unit with its own emergency back-up generator.

Fruit Hill Pump Station Improvements

It is anticipated that pumps will need to be replaced in the first five years of the 15 year plan along with upgrades to the various mechanical and electrical systems, as well as architectural and structural improvements.

Storage Tanks Inspections / Improvements

Plans are to alternately perform a visual inspection and an extensive inspection every ten years for the 5 tanks in the system. Visual inspections will be performed by divers without dewatering the structure. More extensive inspections will be conducted in a fully dewatered structure. Since remedial work cannot be quantified at this time, the budget amounts shown in the plan are for inspection only.

TRANSMISSION SYSTEM

78" and 102" Aqueducts Inspection / Rehabilitation

The 78" and 102" aqueduct transmission lines, approximately 9.6 miles in length, were constructed in the 1960's and consist of prestressed concrete cylinder pipe (PCCP) and two sections of concrete lined tunnel. The 78" and the 102" aqueducts have both undergone significant rehabilitation as extensive corrosive damage has been discovered in previous inspections. In accordance with the inspection and rehabilitation program developed, both the 78" and 102" lines will continue to be inspected and rehabilitated, as necessary, every five years.

90" Aqueduct Inspection / Rehabilitation

The 90" effluent finished water aqueduct, constructed in the 1920's, runs approximately 4.5 miles. It is constructed of a concrete lined tunnel section between the west and east portals, and reinforced concrete pipe thereafter. This 90" aqueduct was previously inspected and rehabilitated as corrosive damage was discovered during the inspection. During the last inspection of the tunnel section, it was discovered that the contact grouting that was to have taken place during the original construction of the aqueduct was never performed, or performed incorrectly. The 90" aqueduct, including the effluent venturi meters, will be inspected on a regular schedule and future rehabilitative work will be conducted based upon the results of the inspection. An amount has been budgeted for inspection of the entire length of the aqueduct and for conducting contact grouting of the tunnel section.

66", 60", 48" Transmission Mains Inspection

The 66" main, installed in 1926, is a riveted steel pipeline and extends for 8500 feet and then transitions into a riveted steel 48" main at Budlong Road and continues easterly for an additional 1500 feet to Reservoir Avenue. The 60" reinforced concrete steel cylinder pipeline (Neutaconkanut Conduit), installed in 1926, extends for 22,140 feet and feeds into a 48" reinforced concrete steel cylinder pipeline for an additional 2100 feet to the Neutakoncanut Reservoir. Plans are to perform interior and exterior inspections of the pipelines and to provide corrosion protection where applicable. Since remedial work cannot be quantified at this time, the budget amount is only for inspection.

16" and Larger Valves Replacements

All transmission valves installed through 1955 are being targeted for replacement over the 15-year period. Plans are to replace the 16" and larger valves in the system that are older than 75 years with new butterfly valves with the emphasis placed on the more critical valves. Emphasis will also be given on replacing valves that are found defective.

DISTRIBUTION SYSTEM

Distribution Main Upgrades

The system consists of approximately 885 miles of smaller size distribution pipes ranging in size from 6" to 12". Of these mains, approximately 27 percent are pre 1900 and will be candidates for upgrading or replacement. Generally, older unlined cast iron mains will need to receive first priority. The upgrading or replacement of distribution mains will be one of the major concentrations in the future of the program. The initial general plan is to replace all pre 1900 mains, but determinations of mains to be replaced will also be based on other factors including water quality, flow capacity, and overall condition of the mains.

Distribution Valve Replacements

Of the 13,500 valves in the system, approximately 1,900 have been identified as 6", 8", and 12" diameter valves that are pre 1900. Plans are to replace these valves in conjunction with the main replacement program. This will generally prioritize the replacement of valves using the same criteria for mains, by age and overall condition. Priority will be given to replace older distribution valves that are found to be defective, and in accordance with current practice, emphasis will continue to be given to replacements in areas of local and state road resurfacing projects where cost savings can be realized.

Lead Service Replacements

The plan is to continue to replace lead services in accordance with the requirements of the Lead and Copper Rule. If at some future date Providence Water falls below the regulatory lead action level, we will reassess our plan for the replacement of lead services.

Additionally, lead services will be replaced in conjunction with the water main replacement program. Services will also be replaced on an ongoing basis under special conditions when requested by the owner in accordance with internal policy, and at sites identified by the Department of Health as having lead contamination problems. Providence Water will also continue to replace lead services in areas of local and state road resurfacing projects and where lead services are found to be leaking.

Hydrant Replacements

The objective of the hydrant replacement program will be to maintain ages of hydrants in the system no older than 75 years. Emphasis will also be given on replacing hydrants that are found to be defective.

Leak Detection

The system is comprised of 885 miles of distribution mains, 114 miles of transmission mains, 814 transmission valves, 13,500 distribution valves, 74,000 services, and 6,067 hydrants. The plan is to perform a leak detection survey of the system every ten years.

SUPPORT SYSTEM FACILITIES

Building and Facilities Rehabilitation

The Forestry Maintenance Garage, Academy Avenue Administration Building, Aqueduct Reservoir Office, and the Watershed Storage Building will be in need of ongoing improvements. Funds are annually budgeted for reconditioning the offices, architectural and structural improvements, rehabilitation of the electrical, plumbing, and mechanical systems, security and fire system upgrades, and site improvements.

Records Management (GIS) Upgrades

Given that the nature of computer technology is ever changing, a budget amount is accounted for in the plan to address continued upgrade needs for both the asset management system and GIS. Upgrades will consist of hardware replacements, software upgrades, and new hardware and software additions to the system.

Facility Fence and Roads Rehabilitation

It is anticipated in the 15-year plan that various facility access roads will need to be resurfaced. Fences will also be in need of replacement or rehabilitation.

Underground Fuel Storage Tank Replacements

Planned work is scheduled for the first five years of the 15-year plan consisting of replacing the underground diesel tank at the transformer building in Scituate, and replacing the diesel / gasoline split tank located at Academy Ave. The replacement schedule is in accordance with the life expectancy of the tanks and in consideration of EPA and RIDEM regulations for underground storage tanks.

Section IV
Revenue Requirements

Section IV – Revenue Requirements

Overview of Revenue Requirements

Exhibit 3 – Sources and Uses of Funds – FY 2011 through 2030 – Providence Water has developed a Sources and Uses of Funds Plan based on planned replacement needs, current authorized funding, and minimal proposed new funding. The Exhibit lists the projected Sources and Uses of Funds in four five-year phases. The plan is subject to change as it is implemented. Any additional funding or borrowing will be addressed as we move forward.

Exhibit 4 – IFR Funding Projections – A graphical depiction of the sources of funds in each year of the twenty-year plan.

Overview of Revenue Requirements

Providence Water has developed a Sources and Uses of Funds Plan using current authorized funds based on our anticipated replacement needs within our system. EXHIBIT-3 lists the projected Sources and Uses of Funds in four five-year phases. The current authorized funding amount is $16 million per year. Additional funding and borrowing will be required to balance the projected expenditures.

Sources of Funds

Providence Water began funding a restricted Infrastructure Replacement fund in 1996. The RI Public Utilities Commission granted Providence Water a phased-in funding approach to begin its IFR program. Over the years, Providence Water has requested and the PUC has approved several increases to the funding level consistent with our plan and accomplishments.

Providence Water has a short term revolving line of credit with Century Bank that provides Providence Water access to funds in case of an emergency or cash flow fluctuations. Providence Water does plan to issue bonds for some of our projects in our IFR plan. The plan is also balanced by projecting a number of additional increases in the funding level authorized by the PUC. Please see EXHIBIT-4. Over the 20 year period, current funding is $320 million, current available bond proceeds are $8.3 million and available funds from prior years are $15.1 million. Additional bond proceeds of $45.5 million and additional rate revenue of $115.5 million will be needed to balance the plan.

Uses of funds

Providence Water has cash funded projects totaling $385,345,000 over the 20 year period. This amount includes capitalized labor and benefits authorized by the Public Utilities Commission to be reimbursed to Providence Water's Operating Fund from the IFR Fund. Debt service is included as a use of funds in this plan. Existing debt service totals $62,809,000, and additional debt service totals $50,502,000.

To recap, total cash funded construction projects are $385.3 million, current debt service is approximately $62.8 million and additional debt service is projected at $50.5 million for total uses of funds of $498.7 million. Total sources of funds are projected at $504.4 million, resulting in a small $5.7 million projected surplus over the 20 year period. Our IFR plan is subject to change and we will invariably have to make amendments to this plan to match changing State and Federal regulations and changing field conditions. Our replacement plan, and the projected funding of the plan, is based on the best information available at this time.

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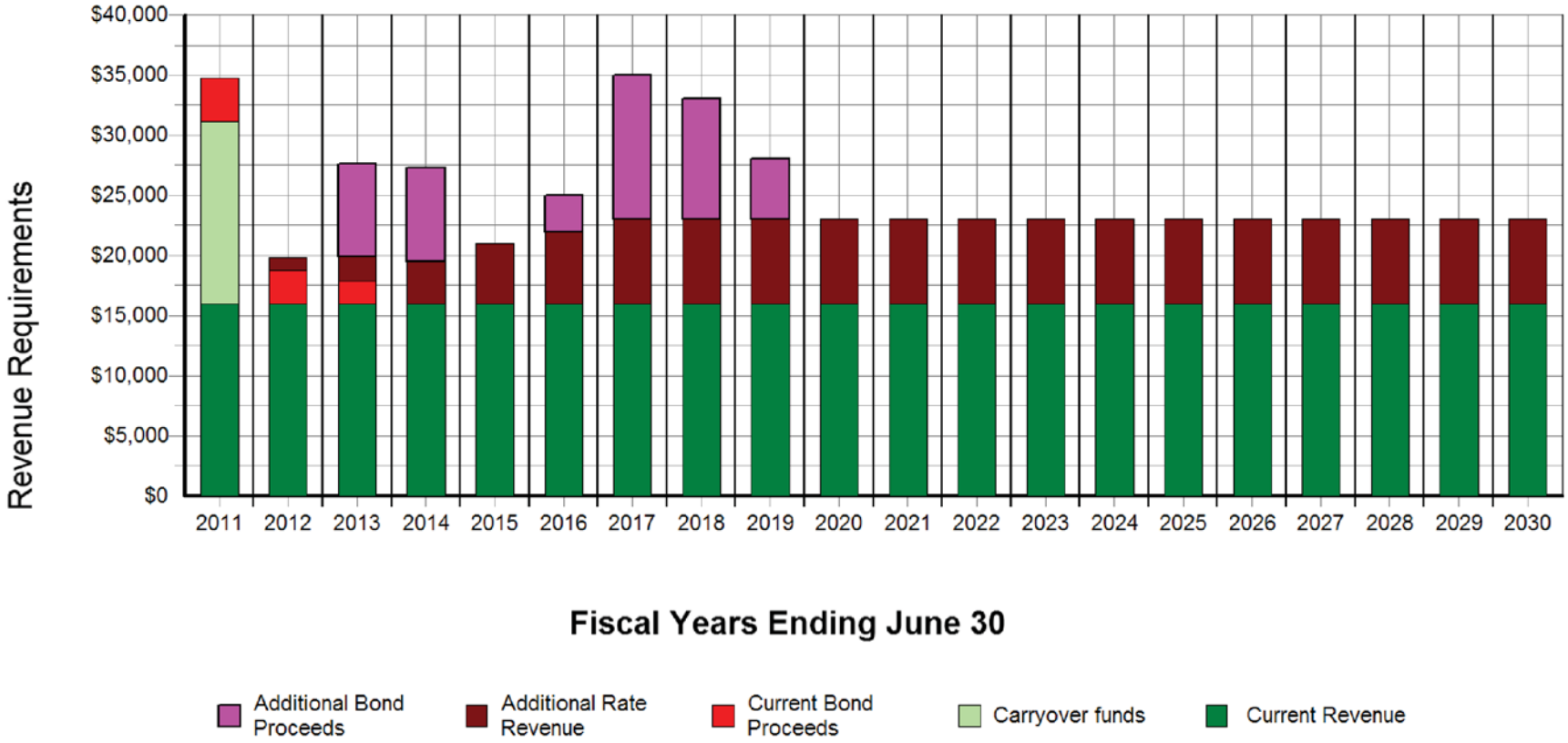
Exhibit 3

Providence Water
Sources and Uses of Funds
IFR Funding & Expenditure Projections ($000's)
Fiscal Years 2011 through 2030

	2011-2015	2016-2020	2021-2025	2026-2030	2011-2030
	Phase 1	Phase 2	Phase 3	Phase 4	Total
Sources of Funding:					
Current Authorized Funding	$80,000	$80,000	$80,000	$80,000	$320,000
Current Bond Proceeds	8,300	0	$0	$0	8,300
Funds Available from Prior Years	15,123	0	$0	$0	15,123
Additional Rate Revenue	11,500	34,000	$35,000	$35,000	115,500
Additional Bond Proceeds	15,500	30,000	$0	$0	45,500
Total Sources of Funds	130,423	144,000	115,000	115,000	504,423
Uses of Funding:					
Cash Funded Construction Projects	$109,590	$111,560	$80,710	$83,485	$385,345
Existing Debt Service	18,742	14,689	14,689	14,689	62,809
Additional Debt Service	1,775	13,948	17,390	17,390	50,502
Total Uses of Funds	130,107	140,197	112,789	115,564	498,656
IFR Program Surplus/(Deficit)	$317	$3,804	$2,211	-$564	$5,767

Exhibit 4
Providence Water
IFR Funding Projections $(000's)
Fiscal Years 2011 through 2030



Appendix

Appendix

The Comprehensive Clean Water Infrastructure Act of 1993
Chapter 46-15.6 of the General Laws of Rhode Island

Rules and Regulations for Clean Water Infrastructure Plans

Infrastructure / Capital Program Report 1996 - 2010 (September 2010)

TITLE 46
Waters and Navigation
CHAPTER 46-15.6 - Clean Water Infrastructure

Index Of Sections

§ 46-15.6-1 Short title. - This chapter shall be referred to as the "Comprehensive Clean Water Infrastructure Act of 1993".
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1.)

§ 46-15.6-2 Legislative findings, intent, and objectives. - (a) The general assembly hereby recognizes and declares that:

(1) Water is vital to life and comprises an invaluable natural resource which is not to be abused by any segment of the state's population or its economy. It is the policy of this state to restore, enhance, and maintain the chemical, physical, and biological integrity of its waters to protect health.

(2) The waters of this state are a critical renewable resource which must be protected to insure the availability of safe and potable drinking water for present and future needs.

(3) It is a paramount policy of the state to protect the purity of present and future drinking water supplies by protecting the infrastructure of potable water, including treatment plants, pipes, valves, pumping stations, storage facilities, interconnections, and water mains.

(4) It is imperative to provide a uniform and valid mechanism to base assistance for the construction, repair, protection, and/or improvement of potable water infrastructure replacement.

(5) The decay of infrastructure and related construction due to deterioration or functional obsolescence can threaten the quality of supplies and, therefore, can endanger public health; thus it is necessary to take immediate and continuing steps to repair and replace the infrastructure used to deliver water supplies in order to restore water system facilities.

(6) Failure to replace the infrastructure used to deliver water supplies may cause and probably will continue to degrade the quality of public drinking water.

(7) Protection of water quality is necessary from the collection source through the point of delivery to the ultimate consumer.

(8) The potable threat to public health caused by unsafe drinking water far outweighs the economic costs for the construction of the potable water infrastructure replacement.

(b) That the objectives of this chapter are:

(1) To establish a funding mechanism to insure that infrastructure replacement programs are carried out by each municipality and by each municipal department, agency, district, authority, or other entity engaged in or authorized to engage in the supply, treatment, transmission, or distribution of drinking water, and

(2) That the plans and their execution achieve and insure that the investment of the public in such facilities is not eroded.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1; P.L. 2007, ch. 340, § 53.)

§ 46-15.6-3 Infrastructure replacement program. - All municipalities, municipal departments and agencies, districts, authorities or other entities engaged in or authorized to engage in the supply, transmission, distribution of drinking water on a wholesale or retail basis, and which obtain, transport, purchase, or sell more than fifty million (50,000,000) gallons of water per year, shall be referred to as "water suppliers" for the purpose of this chapter. All water suppliers shall prepare, maintain, and carry out an infrastructure replacement program as described in this chapter.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1.)

§ 46-15.6-4 Content of infrastructure replacement component. - (a) The infrastructure replacement component (hereinafter referred to as "component") shall include without limitation:

(1) A detailed financial forecast of facility replacement improvement requirements for the next twenty (20) years including, but not limited to, the principal components of the water system such as reservoirs, dams, treatment plants, pipes, valves, fire hydrants, pumping stations, storage facilities, pumping and well equipment, interconnections and water mains. Each financial forecast shall analyze the condition and life expectancy of the existing facilities, prioritize needed repairs and replacements and amortize such improvement requirements on an annual basis over the next twenty (20) years in accordance with rules and regulations promulgated herein. Water suppliers which have in effect infrastructure improvement or rehabilitation programs and mechanisms for funding approved by their appropriate governing bodies may submit their existing programs for complete or partial compliance with the provisions of this section.

(2) A method that establishes and maintains fiscal controls and accounting depreciation standards sufficient to ensure proper accounting for evaluation of facility requirements necessitated by this chapter in accordance with rules and regulations promulgated herein.

(b) Components shall be consistent with applicable local comprehensive plans in which the service areas are or are planned to be located.

(c) Proceeds from the watershed protection fund shall be usable for reimbursement of water suppliers for preparation of their infrastructure replacement components as described in this chapter up to fifty percent (50%) of the cost of the component.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1.)

§ 46-15.6-5 Completion, filing, approval and implementation of infrastructure component. - (a) Each water supplier required by this chapter to prepare and maintain an infrastructure replacement component shall complete and adopt a component two (2) years subsequent to the date each party's water supply management plan per § 46-15.3-7.5 is due.

(b) Water suppliers subject to the requirements of § 46-15.6-3 shall file a copy of all components, only to the extent the components differ from plans filed under § 46-15.3-5.1 thereto with the following: the division of drinking water quality of the department of health (hereinafter referred to as "the department").

(c) A water supplier subject to § 46-15.6-3 shall review their components at least once every five (5) years and shall modify or replace their components as necessary.

(d) The department shall coordinate expeditious review of components prepared by water suppliers subject to this chapter. Upon receipt of components prepared by water suppliers under this chapter, water resources board, and the division of public utilities and carriers (for those water suppliers within their jurisdiction) shall have one hundred and twenty (120) days to review the components and submit comments thereon to the department. Upon consideration of written comments by all agencies designated herein the department shall determine whether the component complies with the requirements of this chapter. This determination shall be made within eight (8) months of the initial submission. A thirty (30) day public comment period shall be included in this eight (8) month review period. Failure by the department to notify water suppliers of its determination within the prescribed time limit shall constitute approval.

(e) Each water supplier shall implement the requirements of its infrastructure replacement program and component, including its infrastructure replacement fund, as mandated by this chapter in accordance to rules and regulations promulgated per § 46-15.6-7.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1; P.L. 1995, ch. 103, § 1; P.L. 1997, ch. 37, § 1; P.L. 1998, ch. 340, § 1; P.L. 2009, ch. 288, § 9; P.L. 2009, ch. 341, § 9.)

§ 46-15.6-6 Financing infrastructure replacement. - The cost of infrastructure replacement programs and indemnification as required by this chapter shall be financed as follows:

(1) The cost of programs to implement infrastructure replacement shall be paid by the water users. The charges shall be limited to those necessary and reasonable to undertake the actions required by this chapter. These charges shall be based upon the annual funding requirements of the facility improvements necessitated over each successive twenty (20) year period. Interest earned on money in this infrastructure replacement fund shall be credited to this infrastructure replacement fund.

(2) Each water supplier designated in § 46-15.6-3 shall establish a special account designated as the infrastructure replacement fund to be held as a restricted receipt account and to be administered by the water supplier solely to implement and carry out the replacement of infrastructure as required by this chapter.

(3) Any money which may accumulate in the infrastructure replacement fund in excess of that needed to implement the annual infrastructure replacement program or in excess of that exclusively pledged to repayment of outstanding bonds or notes or loan repayments to

implement the infrastructure replacement program shall revert to the rate payers of that particular system on a biannual basis.

(4) Each water supplier designated in § 46-15.6-3 may, as a complete or partial alternative to direct funding of its infrastructure replacement program, finance its infrastructure replacement program through bonding. The annual debt service of each bond or bonds shall be applied and credited towards the annual requirement of the infrastructure replacement program's annual funding requirements.

(5) The Rhode Island public utilities commission, as to water suppliers within its jurisdiction, shall permit an increase for just and reasonable infrastructure replacement in the portion of the water suppliers' rate structure to comply with this chapter and shall allow the water supplier to add this required funding to its rate base in accordance with this chapter.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1; P.L. 2009, ch. 288, § 9; P.L. 2009, ch. 341, § 9.)

§ 46-15.6-7 Rules governing content of programs, components, review, evaluation, funding, and implementation. - The department with the concurrence of the water resource board, and the Rhode Island public utilities commission, as to water suppliers within its jurisdiction, shall forthwith promulgate rules and regulations for the review of components as pertains to financial forecasts of facility replacement, improvement requirements and fiscal controls and accounting depreciation standards per § 46-15.6-4(a)(1) and (a)(2). The department with the concurrence of the water resource board, and the Rhode Island public utilities commission, as to water suppliers within its jurisdiction, shall promulgate the criteria or standards which it will use to evaluate the implementation of approved components, programs and funding mechanisms.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1; P.L. 1997, ch. 37, § 1; P.L. 2009, ch. 288, § 9; P.L. 2009, ch. 341, § 9.)

§ 46-15.6-8 Severability. - If any provision of this chapter or of any rule, regulation or determination made thereunder, or the application thereof to any person, agency or circumstances, is held invalid by a court of competent jurisdiction, the remainder of the chapter, rule, regulation, or determination and the application of such provisions to other persons, agencies, or circumstances shall not be affected thereby. The invalidity of any section or sections of this chapter shall not affect the validity of the remainder of this chapter.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1.)

§ 46-15.6-9 Excluding requirement of state mandated cost. - The provisions of §§ 45-13-7 - 45-13-10 shall not apply to §§ 46-15.6-1 - 46-15.6-8.
History of Section.
(P.L. 1993, ch. 312, § 1; P.L. 1993, ch. 438, § 1.)

RULES AND REGULATIONS FOR CLEAN WATER INFRASTRUCTURE PLANS

[R46-15.6-INFRA]

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATION

Department of Health

October 1994

AS AMENDED
January 1995
January 2002 (re-filing in accordance with the provisions of section 42-35-4.1 of the Rhode Island General Laws, as amended)

INTRODUCTION

The waters of this state are a critical renewable resource which must be protected to insure the continued availability of safe and potable drinking water for present and future needs. It is a paramount policy of the state to protect the purity of present and future drinking water supplies by protecting the infrastructure of potable water, including sources, treatment plants and distribution systems. The decay of water supply infrastructure due to deterioration or functional obsolescence can threaten the quality of water supplies and therefore can endanger public health. Therefore, it is necessary to take timely and continuing steps to repair and replace the infrastructure used to treat and deliver drinking water from public water suppliers. By planning and funding for future infrastructure replacement, unexpected large capital expenditures causing sudden increases in water rates can hopefully be avoided. The intent of this Infrastructure Replacement Plan is to provide a planning and funding mechanism to insure that infrastructure replacement programs are carried out by each municipality, district, agency, authority, or other entity engaged in the supply, treatment, transmission, and/or distribution of drinking water. Goals of the plan include the justification of a facility replacement program, the provision of a dedicated and sufficient funding mechanism, the prioritization of infrastructure replacement, and the prevention of the erosion of drinking water infrastructure.

These rules and regulations are promulgated pursuant to the requirements and provisions of RIGL Chapter 46-15.6 Clean Water Infrastructure of the General Laws of Rhode Island, as amended.

The terms and provisions of the rules and regulations shall be liberally construed to allow the Department of Health to effectuate the purposes of the state law, goals and policies consistent with the Clean Water Infrastructure Act, Chapter 46-15.6 of the General Laws of Rhode Island, as amended.

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SECTION 1.0 DEFINITIONS

Wherever used in these rules and regulations the following terms shall be construed as follows:

1.1 Audit--the annual formal examination of the water supplier's financial statements including all investments, interest, expenditures, and operating costs.

1.2 Commission--the Public Utilities Commission (PUC) of the State of Rhode Island.

1.3 Comprehensive Plan--the Comprehensive Plan adopted and approved in accordance with RIGL Chapter 45-22.2, the RI Comprehensive Planning and Land Use Regulation Act. A document prepared by each local municipality which contains the planning and implementation program for land use, housing, economic development, natural and cultural resources, services and facilities, open space and recreation, and circulation.

1.4 Department--the Department of Health (DOH), Division of Drinking Water Quality.

1.5 Distribution facilities--the pipes and appurtenant facilities employed specifically to deliver, to dispense, to render or to circulate potable water directly to the consumer.

1.6 Drinking Water--potable water served to the public.

1.7 Economic life--the expected financial lifespan of a component of a public water system which is used to depreciate the capital expense of the component.

1.8 Eligible expenditures--those costs and expenses necessary to fund, manage, and implement the infrastructure replacement plan, only. This may include associated accounting fees, consulting fees, replacement construction, etc.

1.9 Infrastructure--the permanent underlying framework of the public water system, including but not limited to, supplies, transmission, storage, distribution, pumping, and treatment facilities.

1.10 Life expectancy--the expected physical lifespan of a component of a public water system.

1.11 Maintenance--a planned program of inspection, adjustment, exercise, lubrication, etc. which allows the maximum continuous service of the equipment in the system at the lowest possible cost to the utility as required in the Department of Environmental Management's Water Supply Management Planning Section 8.07(c). Routine maintenance expenditures are not eligible for funding from the Infrastructure Replacement Plan.

1.12 Rate fee--the charge per unit for public water based upon a ratio, scale, or standard relative to the cost of supplying potable drinking water.

1.13 Rehabilitation--rehabilitation which restores existing facilities or components to a condition which extends the physical and economic life of the component. Rehabilitation is an eligible expenditure under the Infrastructure Replacement Plan.

1.14 Repair--expenditures to return into service a component of the infrastructure that has failed is not an eligible expenditure under the Infrastructure Replacement Plan.

1.15 Replacement--new construction to substitute for existing facilities or components which can not be rehabilitated or repaired cost effectively is an eligible expenditure under the Infrastructure Replacement Plan.

1.16 Special account--an account established by physically opening an account designated as the "Infrastructure Replacement Fund" that is acceptable under this Act. This account shall be self-contained in that deposits and withdrawals are recorded by the financial institution through a fiduciary relationship with the utility. This special account shall be a restricted receipt account dedicated solely for funding of eligible expenditures from the infrastructure replacement program and be administered by the general manager of the water supplier or his designee. All receipts, income, and interest earned on these funds shall be accrued within this special account.

1.17 Surcharge--a fee charged in addition to normal system rate fees which is used to fund extraordinary or special conditions of the water system.

1.18 Transmission facilities--shall mean the pipes, pumping stations, and storage facilities required to carry raw and/or potable water from a water source to or throughout an area served or to be served by a water supply system for the specific purpose of supplying water to support a general population.

1.19 Water supplier--any municipality, municipal department, agency, district, authority, or other entity engaged in or authorized to engage in the supply, treatment, transmission, or distribution of drinking water on a wholesale or retail sales basis.

1.20 Water supply sources--are Department of Health approved sources of supply connected to a water supply system and available for distribution. These sources may be surface waters or groundwater wells.

1.21 Water supply management plan--a plan prepared by applicable public water suppliers which plans and implements effective and efficient conservation, development, utilization, and protection of water supply resources consistent with the present and future needs of the State and its people as defined in RIGL 46-15.4.

SECTION 2.0 APPLICABILITY - PREPARATION OF PLANS

2.1 All water suppliers which supply, obtain, transport, distribute, purchase, and/or sell on a wholesale or retail basis, more than fifty million (50,000,000) gallons of water per year shall be required to prepare, maintain, and carry out a clean water infrastructure replacement plan as described in these regulations.

SECTION 3.0 CONFORMITY WITH OTHER LEGISLATION

3.1 The clean water infrastructure replacement plans shall be in conformity with all applicable provisions of state and federal laws including the federal Safe Drinking Water Act (42 USC Section 300f et seq.); Chapter 46-13 of the General Laws of Rhode Island, Public Drinking Water Supply. Infrastructure replacement plans must be consistent with the Comprehensive

Plan for the community or communities associated with the water system. Infrastructure replacement plans shall also be consistent with the Water Supply Management plans required under Chapter 46-15.4.

SECTION 4.0 CONTENTS OF PLANS

4.1 Clean water infrastructure replacement plans shall be prepared in the format, and shall address each of the topics listed in this section, to the extent that each is relevant to the water supplier, the water source, the water system, and the transmission/distribution/storage system. Systems which currently have an infrastructure replacement plan may review the existing plan and utilize existing information to the extent that it is consistent with the intent of the infrastructure replacement plan outlined below. The initial plan may include a schedule for the completion of the evaluation of major components or items which require detailed investigation. The schedule must demonstrate an expeditious, responsible, and reasonable time period for compliance.

4.2 All principal components of the water system such as sources, reservoirs, dams, spillways, intakes, treatment plants, pump stations, storage facilities, pumping and well equipment, shall be listed and evaluated. Relatively small and numerous components of the system such as water mains, distribution piping, valves, hydrants, and interconnections may be evaluated as a group. This evaluation shall consider the following:

a. A brief description of the system with a schematic of the process flow will be included in the plan. This description of the system may be taken directly from the Water Supply Management Plan where relevant and is not intended as a duplicate effort but to facilitate the evaluation of individual components. Age and condition of the existing component and the necessity for replacement of the component within a twenty (20) year time frame shall be evaluated. Specific components may be in need of immediate replacement while others may extend well beyond the twenty year time frame. Replacement should be evaluated and prioritized over a minimum of five (5) year intervals. The level of detail in the analysis of the component should reflect the priority of the component to the proper operation of the system as well as the age and known condition of the component. A detailed schedule for the initial five year interval must be included. No infrastructure replacement construction is required to take place within any time interval if demonstrated to not be necessary.

b. Life expectancy of the component shall be determined. Life expectancy shall be determined by design criteria, specific site conditions, maintenance records, manufacturer's documentation, engineering evaluation, physical inspection, invasive and/ or non-destructive integrity testing, or a combination of all of the above. Records of inspection and maintenance may be reviewed when determining the life expectancy of the component. The attached Guideline, Appendix 1, is intended to serve as a general rule of thumb for component life expectancy and actual life expectancy within an individual system may be demonstrated to be significantly more or less than the Guideline value.

c. Consideration shall be given to the public water system's ability to meet current and future requirements of the Safe Drinking Water Act. Treatment requirements should be analyzed to the extent possible to insure that infrastructure replacement and/or rehabilitation will comply with mandated requirements consistent with the Safe Drinking

Water Act.

d. A financial forecast shall be based on the analysis of the condition and life expectancy of the existing facilities, prioritized needed repairs and replacements and amortize proportionally such improvement requirements on an annual basis over the next twenty years consistent with their respective life expectancy. The forecast shall include contingency costs, range of construction costs, and/or confidence limits of the financial forecast.

e. Infrastructure replacement shall meet the needs of the water suppliers, however priority of anticipated replacement and grouping of replacement projects by time of replacement, similarity of projects, and importance of the component to the system shall be considered when establishing the schedule. Priority should be given to components which have a known need for replacement and less detailed analysis given to relatively new infrastructure items.

4.3 When planning infrastructure replacement, the water supplier shall consider sizing facilities to meet the approved local comprehensive plans for existing or proposed service areas. The existing or proposed service area shall be defined consistent with that described in the supplier's most recent Water Supply Management Plan. Funding for proposed expansion shall come from the capital improvement program utilizing new capital rather than from replacement funding. It is intended that the infrastructure replacement plan evolve from the Water Supply Management Plan and expand the concepts of capital improvement planning initiated in the Water Supply Management Plan. The infrastructure replacement plan shall be consistent with sound waterworks practice.

4.4 The infrastructure replacement plan must recognize and maintain existing fiscal controls and accounting standards in accordance with Generally Accepted Government Accounting Principles sufficient to ensure fiscal responsibility for the evaluation and implementation of the infrastructure replacement. These fiscal controls and accounting standards must be established where none currently exist. The financial requirements of the plan shall conform to those outlined in Section 6.0 of these regulations.

4.5 Funds from the watershed protection fund may be used for the preparation of clean water infrastructure replacement plans up to fifty (50) percent of the cost of the plan. Disbursements from the fund shall be in accordance with Chapter 46-15.3-11 of the Public Drinking Water Resources Board Operating Fund. The remaining costs are eligible for funding through the Safe Drinking Water Revolving Loan Fund. The plan shall incorporate the proposed rate structure impacts, schedule of proposed rate changes, and schedule for full funding consistent with the funding requirements for scheduled infrastructure replacement.

SECTION 5.0 REVIEW OF PLANS

5.1 Water suppliers subject to the requirements of this chapter shall file six copies of the clean water infrastructure plan with the Division of Drinking Water Quality of the Department of Health (the Department). Plans must be submitted no later than one year subsequent to the date the system's water supply management plan is due in accordance with RIGL Section 46-15.4-4.

5.2 The Department shall coordinate review of the plan with the Department of Environmental Management's Division of Water Supply Management, the Department of Administration's Division of Planning, the Water Resources Board, and the Public Utilities Commission. The PUC shall only review Plans for those systems which are regulated by the PUC. Each Department shall have 120 days to review the plan and submit comments to the Department of Health. Upon consideration of the comments, the Department shall determine if the plan complies with the requirements of these regulations within two hundred forty days (240) of the initial submission. A thirty day public comment period is inclusive in this two hundred forty day (240) review period.

5.3 Water suppliers shall review and update their infrastructure replacement plans at a minimum frequency of every five years. Major modifications or revisions to the infrastructure replacement plan shall be submitted for review more frequently as necessary.

5.4 Water suppliers shall implement the infrastructure replacement plan according to the approved plan. On-site review of facility components may be conducted by the Department when appropriate and/or applicable. The responsible official of the water supply system shall be required to verify that construction expenditures are consistent with the plan.

SECTION 6.0 FINANCING INFRASTRUCTURE IMPROVEMENTS

6.1 Each water supplier subject to the requirements of this chapter shall establish a separate special account designated as the Infrastructure Replacement Fund to be held as a restricted receipt account and to be administered by the water supplier solely to implement and carry out the replacement or rehabilitation of infrastructure in accordance with the approved plan. The dedicated account should be invested in accordance with the standards established for the agency, municipality, or water supplier.

6.2 The costs of programs to implement infrastructure replacement shall be paid by the users of the water system at a rate directly proportional to the users' consumption of water. Charges shall be limited to those necessary and reasonable for implementation of the plan. These charges shall be based upon the annual funding requirements of the facility improvements necessitated over each successive twenty year period.

6.3 Interest earned on this account shall be credited to this account only. Accumulated funds in excess of that estimated to be necessary to implement the plan shall revert to the rate payers of the system on a biannual basis. Funds will be allowed to accumulate with the intent to build sufficient capital to finance the estimated costs of major projects. It is understood that annual investments may be necessary over many years to fund major projects. Funds accumulated that are in excess of that estimated to implement the plan will cause the water supplier to reduce the future charges for infrastructure replacement.

6.4 Water suppliers may alternatively fund the infrastructure replacement program through partial or complete external funding at the option of the water supply system. Debt service and debt service issuance costs for any and all funding shall be an eligible expense as part of the program's funding requirements.

6.5 The Public Utilities Commission, as to water suppliers within its jurisdiction, shall permit an increase for just and reasonable infrastructure replacement in the portion of the water

suppliers' rate structure to comply with this chapter and shall allow the water supplier to add this required funding to its rate base in accordance with this chapter. Proposed increases in rates by regulated water utilities to finance infrastructure improvements shall be filed and reviewed in conformance with Chapter 39 of the RI General Laws.

6.6 The applicable section of the water supplier's annual audit shall be submitted to the Department to verify compliance with the funding intentions of the infrastructure replacement plan. The dedicated fund for infrastructure replacement will be a separate line item in the audit. Financial and summary status reports shall be submitted for each on-going project which outlines funds spent on the project, funds remaining, percentage of completion, and a brief description of work completed and work remaining. Project expenditures must be consistent with the plan and be eligible expenditures under the plan. Audits shall be submitted within 180 days from the end of the water suppliers fiscal year. Extensions will be allowed for reasonable cause.

SECTION 7.0 SEVERABILITY

7.1 If any provision of these rules and regulations or the application thereof to any person or circumstance is held invalid by a court of competent jurisdiction, the remainder of the rules and regulations shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections shall not affect the validity of the remainder of these rules and regulations.

APPENDIX 1

TYPICAL LIFE EXPECTANCY

EQUIPMENT	YEARS
Source of supply plant	
Structures and improvements	35-40
Collecting/impounding reservoirs	50-75
Intake structures	35-45
Wells and springs	25-35
Galleries and tunnels	25-50
Supply mains	50-75
Pumping plant	
Structures	35-40
Pumping equipment	10-15
Other pumping plant	20
Water treatment plant	
Structures	35-40
Water treatment equipment	15-20
Transmission/Distribution	
Structures	35-40
Reservoirs and tanks	30-60
Mains	50-75
Services	30-50
Meters	15
Hydrants	40-60
General plant	
Structures	35-40
Furniture/equipment	15-20
Transportation equipment	7
Stores equipment	10
Tools, shop equipment	7-10
Laboratory equipment	10-15
Power operated equipment	10
Communication equipment	10