

## EXECUTIVE SUMMARY

### WARWICK DEPARTMENT OF PUBLIC WORKS WATER DIVISION WATER SUPPLY SYSTEM MANAGEMENT PLAN

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#### GENERAL

The Water Division of the Water Department of Public Works completed the Water Supply System Management Plan in 2001 in accordance with the State of Rhode Island Water Resources Board "Rules and Procedures for Water Supply System Management Planning". This Executive summary was developed to highlight the findings and recommendations of Warwick's Water Supply System Management Plan. The five year update will only highlight major changes since the last 30 month update. A comprehensive overview of all sections of the WSMP will take place in the future as required by regulation.

#### GOALS

The goals of the Warwick Water Division are to conserve water through the implementation of various programs, reduce non-account water, maintain water quality in accordance with the Safe Drinking Water Act, and conform to the goals of State Guide Plan Element No. 721.

#### SYSTEM OVERVIEW

The Warwick Water Division serves about 88% of the population of the City of Warwick. The Cowesett, Natick, Apponaug, Tollgate, and portion of the Greenwood sections of Warwick are served by the Kent County Water Authority.

The Warwick Water Division receives all of its water from interconnections with the Providence Water Supply Board and the Kent County Water Authority, which serves the Potowomut section of Warwick. The Warwick Water Division does not produce any water. The Warwick Water Division owns no water sources and does not operate a treatment plant.

The Warwick Water Division also sells wholesale water to the Kent County Authority through its interconnection on Quaker Lane.

The Warwick Water Division water system includes over 110,000 linear feet of transmission main; approximately 314 miles of distribution main, 5 active or emergency interconnections, 3 storage tanks, and one pump station.

## WATER QUALITY

The Warwick Water Division receives treated water from the Providence Water Supply Board and the Kent County Water Authority. It is the responsibility of the Warwick Water Division to protect the quality of the water until it reaches the customer. The Warwick Water Division routinely tests the water as required by Safe Drinking Water Act (SDWA). The 2006 Consumer confidence Report stated that water supplied by the WWD has consistently met all SDWA standards.

## AVAILABLE WATER VS. DEMAND

The comparison of available water vs. demand for the 5-year and 20 year planning period is:

YEAR	AVAILABLE WATER* (MGD)	AVERAGE DAILY DEMAND (MGD)	SURPLUS WATER (MGD)
2007	11.35	9.54	1.81
2020	11.42	9.60	1.82

\*-available water was determined by multiplying the service area population (75,511 people in 2000) by 150 gallons per capita per day according to the agreement with PWSB.

## DEMAND MANAGEMENT

The Warwick Water Division has instituted several programs to reduce demand and promote water conservation including a Residential Retrofit Program, Major User Technical Assistance Program, and Public Education Program.

Under the current Residential Retrofit Program, over 8,000 kits have been distributed to customers. In 2008 THE Warwick Water Division will begin annual notification of the Residential Retrofit Program through the insertion of “stuffers” in the water bills subject to resources being approved by the City Council.

Warwick Water Division personnel currently participate in the Rhode Island Water Works Association education programs. The Warwick Water Division will review available educational information for use in the schools and will work with the school department to provide information for use in the classroom.

The Warwick Water Division has started the basis of a Major User Technical Assistance Program (MUTAP) by interviewing all major users. The Warwick Water Division is concentrating on completing the high volume meter retrofit program prior to establishing any additional major user program. The Major User Technical Assistance Program has been instituted by the Warwick Water Division in 2002 and will continue for the foreseeable future subject to resources being approved by the City Council.

## SYSTEM MANAGEMENT

To reduce non-account water, the Warwick Water Division has instituted a Meter Installation and Maintenance and Repair (MIMR) Program, a Leak Detection and Repair Program (LDR), and a Preventative Maintenance Program.

### Meter Installation and Maintenance and Repair (MIMR) Program

The Warwick Water Division began an accelerated meter replacement program in the mid 1990's when older residential meter were replaced and remote reading systems were installed on a turnkey contract such that more than 99% (>17,000) of the remaining residential meters were upgraded and equipped for remote reading.

The Water Supply System Management Plan had required installation of remote meter reading system by July 1, 2001. The Warwick Water Division is essentially in full compliance with the requirement that all accounts are metered and all meters are read remotely.

The Water Supply System Management Plan had required all water systems to implement reading and billing at less than a 1 year interval by July 1, 2001. Warwick Water has implemented a plan to quarterly meter read and water bills all of its customers. The resources necessary to implement the reading and billing process was approved in the budget for the foreseeable future.

### Leak Detection and Repair (LDR) Program

The Warwick Water Division is planning to implement a Leak Detection and Repair (LDR) program in 2008, pending approval of resources by the City Council during the Fall of 2007. The LDR program will cover the entire system over the 2008 calendar year. It is recommended that the LDR Program be repeated every 3-5 years thereafter.

### Preventative Maintenance Program (PM)

The Warwick Water Division's present Preventative Maintenance (PM) Program includes hydrant flushing, valve exercising, pump station maintenance, storage tank maintenance, and interconnection maintenance. The Warwick Water Division is scheduled to enhance its preventative maintenance program. The hydrant flushing program will be formalized to a unidirectional flushing program during 2008. The valve exercising program will be increased so that each valve is exercised in conjunction with the unidirectional flushing program, the storage tanks will be inspected and repainted during the 2008 calendar year. The existing pump station and interconnection maintenance programs have continued since the last update.

**EMERGENCY MANAGEMENT**

The Warwick Water Division has completed a Vulnerability Assessment and developed an Emergency Response Action Plan which is in the appendix the Water Supply System Management Plan. The following tables identify the Critical Facility Components identified through the Vulnerability Analysis.

**CRITICAL COMPONENTS  
WATER QUALITY RELATED**

Tier NP Quality Condition Components	Operational Area
Pettaconsett Connection to Providence	Wholesale Water Purchase
Natick Connection to Providence	Wholesale Water Purchase
Bald Hill Storage Facility	Transmission/Distribution
Warwick Neck Storage Facility	Transmission/Distribution
State Street Booster Pump Station	Transmission/Distribution
Post/Forge Rd Connection to Kent County	Wholesale Water Purchase

**CRITICAL COMPONENTS  
WATER QUALITY RELATED**

Tier 2 Quantity Condition Components	Operational Area
<b>WARWICK SECTION</b>	
Natick Connection to Providence	Wholesale Water Purchase
42inch transmission main from Natick Connection to Bald Hill Rd	Transmission/Distribution
42inch transmission main in Bald Hill Rd From Tollgate Road south to Bald Hill Storage Facility and Quaker Lane connection to Kent County Water Authority	Transmission/Distribution
Bald Hill Storage Facility	Transmission/Distribution
36inch transmission line from Bald Hill Storage Facility	Transmission/Distribution
Pettaconsett Connection to Providence	Wholesale Water Purchase
30inch transmission line from Pettaconsett Connection to Post Road	Transmission/Distribution
12 and 10 inch transmission lines from State Street Booster Pumping Station south along Warwick Neck Ave	Transmission/Distribution

<b>POTOWOMUT SECTION</b>	
10 inch transmission main along Forge/Ives Rd to Potowomut	Transmission/Distribution
<b>Tier 3 Quantity Condition Components</b>	<b>Operational Area</b>
<b>WARWICK SECTION</b>	
Two Providence Connections at same time	Wholesale Water Purchase
<b>POTOWOMUT SECTION</b>	
Forge/Post Road connection to Kent County Water Authority	Wholesale Water Purchase

### IMPLEMENTATION SCHEDULE

The following schedule has been developed to implement the programs discussed in the Water Supply System Management Plan:

<b>IMPLEMENTATION PLAN FOR WATER SUPPLY SYSTEM MANAGEMENT PLAN</b>					
Elements to be addressed Action		Responsible Agency	Schedule	Remarks Est. Cost	
<b>DEMAND MANAGEMENT</b>					
Residential Retrofit Program	Distribute Retrofit Kits	Warwick Water Division	Ongoing	Approx 8,000 kits distributed o date	Kits provided to customers
Public Education Information	Conservation Promotional and informational bill stuffers	Warwick Water Division	Ongoing	Create conservation awareness	\$2,500 annually
	Participate in "Water Week" Public Education Program	Warwick Water Division	Annual		Cost limited to WWD staff time
Major Users Technical Assistance Program	Continue high volume meter retrofit program	Warwick Water Division	Ongoing	Reduce Consumption	\$10,000
	Conduct follow-up site visits of major users	Outside Contractor/staff	Ongoing	Evaluate effectiveness of program	\$10,000

Building Code Enforcement	Require low-flow plumbing fixtures	Warwick Building Department	Ongoing	Reduce Consumption	No cost to WWD
Water Rates and Pricing	Complete water study rate	Outside contractor	2007/2008	Analyze adequacy of current rates	\$15,000
	Revise rate schedule	Outside Contractor	To be determined	Stability in rates	In rate study
SYSTEM MANAGEMENT					
Leak Detection And Repair	Leak Detection Survey	Outside Contractor	2008	Reduce non-revenue water	\$30,000 per survey
	Repair located leaks	Warwick Water Division	2008	Reduce non-revenue water	\$20,000 per year

<b>IMPLEMENTATION PLAN FOR WATER SUPPLY SYSTEM MANAGEMENT PLAN</b>					
<b>Elements to be addressed</b>	<b>Action</b>	<b>Responsible Agency</b>	<b>Schedule</b>	<b>Remarks</b>	<b>Est. Cost</b>
Preventative Maintenance Program	Uni-directional Flushing	Outside Consultant and Warwick Water Division	Annually (beginning 2008)	Cleaner Water	\$20,000 plus WWD staff time
Preventative Maintenance Program	Enhanced Valve Exercising	Warwick Water Division	Annually	Prevent Broken Valve	WWD staff time
Rehabilitation of Distribution/Transmission System	Five year capital improvements program	Outside Contractor	**to be determined	Address system deficiencies and rehabilitation needs	\$2 million per year
Meter Installation, Maintenance and Repair Program	Meter replacement	WWD Staff	2006-2010 ongoing	Replace meters every 15-20 years	\$200,000 every year beginning in 2007
	Meter testing	Outside Contractor and Warwick Water Division	2008	Meters 2" and larger	\$10,000 every year and WWD staff time
<b>SUPPLY MANAGEMENT</b>					
Water Quality Protection	Water quality monitoring	Warwick Water Division	Ongoing	Sampling sites are continuously monitored	\$15,000 annually
	Coordination with local governments	Warwick Water Division	Ongoing	Represent WWD interests in local planning process	Cost limited to WWD staff time
Emergency Plan	Implement Plan	Outside Consultants and Warw Water	Ongoing	Update annually and after each emergency	\$2,500 annually

## **FINANCIAL MANAGEMENT**

The Warwick Water Division hired an engineering consultant to develop a computerized hydraulic model of the Water System. The model is finalized and was completed by the summer of 2002. The hydraulic model was developed to assist in the preparation and implementation of the Water System Master Plan. The Water System Master Plan will include a capital improvements program that has identified specific upgrades to the water system along with a schedule for implementation.

The Warwick Water Division will commission a rate study to be completed during the first six months of 2008. The new rate study will hopefully include approximately \$2,000,000 annually for implementation of the Capital Improvements Program.

The Water Division has maintained a rate structure that includes a service charge based on the size of the meter and a consumption charge that is charged at a flat rate. Other charges to customers are based upon the actual cost of providing service; e.g. private fire protection, service installations, etc.

Currently meters are billed on a quarterly basis. The Water Division has completed installation of new remote reading meters for all customers. The resources necessary to implement the quarterly reading and billing process have been approved in our annual budget for the foreseeable future.

## **COMMENTS**

The Warwick Water Division takes pride in the high quality of the water delivered to its customers. The Water Division is constantly striving to operate the system to benefit the citizens and businesses of Warwick while maintaining efficiency such that the rates and charges are appropriate to operate, maintain, and protect the integrity of the water system.