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STONE BRIDGE FIRE DISTRICT

**WATER SUPPLY SYSTEM
MANAGEMENT PLAN**

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

STONE BRIDGE FIRE DISTRICT

WATER SUPPLY SYSTEM MANAGEMENT PLAN

GENERAL

In July of 2001, the Stone Bridge Fire District completed a Water Supply System Management Plan in accordance with the State of Rhode Island Water Resources Rules and Procedures for Water Supply System Management Planning. In accordance with the above referenced regulation, the Stonebridge Fire District is required to review its plan at least once every five years from the date of Board approval. This Executive Summary for the five year update of the Water Supply System Management Plan is developed to highlight the historical operations and future considerations of the Administrative Board of the Stone Bridge Fire District (District).

GOALS

The District is organized and operates to serve the water supply needs of the owners of the system; i.e. the citizens and businesses of the service area that generally consists of the section of the Town of Tiverton commonly described as Stone Bridge. As such the District complies with all laws, rules, regulations, and directives of appropriate legal authorities and operates the system in accordance with generally accepted standards for water systems.

SYSTEM OVERVIEW

The District operates a water system that obtains all of its water from Stafford Pond, a surface water supply owned by the City of Fall River, and distributes that water to approximately 1,079 service connections (Dec 2006) through a pipeline system consisting of approximately 24 miles of pipe (approximately 8 miles 8 in – 12 in transmission and approximately 16 miles of 6 in – 8 in distribution lines). Water from Stafford Pond is treated in a treatment plant using a pulsator-clarifier treatment process prior to distribution. The system was developed in the late 1940s with the majority of the piping installed in the late 1940s and 1950s. Pipelines are primarily transite (asbestos-cement) material. There is one pressure zone for the retail system. Water is also delivered to one wholesale customer; North Tiverton Fire District. There are two distribution storage reservoirs, a 500,000 gallon welded steel standpipe owned and operated by the Stonebridge Fire District and a one million gallon steel standpipe, owned by North Tiverton Fire District and operated by the Stonebridge Fire District.

SOURCE WATER QUALITY PROTECTION

The Stone Bridge Fire District has completed a Water Quality Protection Plan (WQPP) in accordance with the Rhode Island Water Quality Protection Act of 1987. The Plan was submitted to and approved by the Rhode Island Water Resources Board as required by the Water Quality Protection Act.

The WQPP along with a Limnological Study of Stafford Pond have identified the following ongoing programs for protection of the watershed and recharge areas:

- Management and maintenance of the land owned by the District
- Maintaining a liaison with enforcement agencies dealing with various aspects of control in watershed areas such as local police, planning, zoning and health boards, EPA and Rhode Island DEM
- Participation in public meetings regarding planning and zoning for all land in watershed areas
- Involvement with all federal and state agencies and the Town of Tiverton regarding any aspects of land use that may affect water quality.

The Administrative Board historically has had concerns about the continued gradual deterioration of the raw water quality in Stafford Pond. The Board's efforts since development of the WQPP and the Limnological Investigation include:

Specific Water Quality Protection Actions

Recommendations	Actions to Date
Begin Ecological Monitoring Program	The RI Department of Environmental Management provided a grant to complete a Limnological Investigation of Stafford Pond that was completed in 1997.
Acquiring Land or Development Rights in Watershed	<p>The District has been active in acquiring control of activities on watershed land through purchase and other means of control including:</p> <ul style="list-style-type: none"> - acquiring 15 acres from Town on Industrial Road - acquiring approximately 4 acres on pond and approximately 2 acres on land adjacent to District land in exchange for 12.5 acres near High School/Middle School complex - negotiating to acquire approximately 8 acres on pond abutting District property - cooperating with Town on use of 52 acres adjacent to Water Treatment Plant and 1500 feet along shoreline of pond
Creation of a Stafford pond advocacy group	<p>The Stafford Pond Steering Committee consisting of :</p> <ul style="list-style-type: none"> - Tiverton Conservation Commission - Stone Bridge Fire District - Stafford Pond Improvement Association - URI Cooperative Extension Water Quality Program - RI Department of Environmental Management - RI Bass Federation <p>Was created to protect the pond for all uses</p>

Development of interagency communication and cooperation	Through the Stafford Pond Steering Committee
Upgrading of substandard septic systems	The Town of Tiverton has in effect an Onsite Wastewater Management Program, established by Ordinance, which addresses the requirements for management, design, siting, installation, operation, maintenance, and inspection of septic systems. On July 17, 2006 the Town Council adopted an ordinance, establishing an Onsite Wastewater Management District consistent with the Tiverton Comprehensive Plan and the Tiverton Onsite Wastewater Management Plan. There are a total of 256 On-site Sewerage Disposal Systems (OSDS) in the Stafford Pond Watershed Protection overlay district. To date 88 have been inspected with the remainder to be inspected by July 1, 2008. All cesspools identified during the inspection will have to be upgraded by the July deadline.
Upgrading storm drainage systems	Storm drains have been rehabilitated and upgraded by state of Rhode Island to capture sediment and reduce leakage into watershed grounds

A watershed survey and update of potential pollution sources to the 1992 plan was performed as part of the 30-month update to the WSSMP performed in September of 2005.

The Stafford Pond Steering Committee has an active public information program that encourages citizens to be involved in the protection of the water quality in the pond.

HISTORIC USAGE

Table I describes the recent historic purchases and usage to serve the District.

Table I-Historic Water Use

DESCRIPTION	1997 MG	2001 MG	2004 MG	2006 MG
Withdrawn from Stafford Pond	416.23	225.67	230.15	238.62
Retail sales	61.28	72.48	85.12	85.4
Wholesale sales	278.0	105.82	107.94	111.9
Fire Fighting	1.23	1.57	1.61	1.62
System Use	23.44	20.28	17.04	29.77
Total Billed and Accounted for	363.95	200.15	211.71	228.18
% Accounted For Water	87.4	88.7	92.0	95.0

Notes: 1. Portsmouth Water and Fire District was a significant wholesale customer until April 1999; however, since that time Portsmouth only takes water on an emergency basis.

WATER CONSERVATION PROGRAMS

The District has distributed approximately 250 water conservation retrofit to its customers. The District is seeking a vendor who will supply the kits at a reasonable cost. Customers will be notified of the kits availability and water department personnel will provide information regarding the installation of the devices. The Superintendent makes presentations, which incorporate water conservation in the curriculum, to local middle school students. .

SYSTEM NEEDED IMPROVEMENTS

The District intends to develop a hydraulic model of the distribution system, which would aid in the evaluation of system weaknesses and improvements. The long and protracted replacement of the Sakonnet River Bridge has delayed development of this model because a final design of the bridge will have an impact on the configuration of the distribution mains. If the model is to be used as a tool to identify system weaknesses and identify future projects, then this analysis should be made with the most complete and up to date information, which will not be available until the bridge replacement design has been finalized. The District has identified improvements to the system associated with the elimination of dead ends to help improve water quality.

ANTICIPATED FUTURE NEEDS

The assumptions and calculations for the anticipated five (5) and twenty (20) year planning horizons are included in the main report. Table II is a summary of the anticipated demands.

Table II
Summary of Anticipated Water Demands

Year	Actual/Est	MGD	MGY
2001	Actual	0.618	225.67
2006	Actual	0.654	238.62
2011	Estimated	0.809	295.4
2026	Estimated	1.12	408.8

AVAILABLE WATER

The water available to the District is limited by agreement with the City of Fall River as the owner of the water rights to Stafford Pond. The City of Fall River has agreed to allow Stone Bridge to withdraw a maximum of 1.9 million gallons per day and further agrees to maintain the level in Stafford Pond such that the maximum amount is available for withdrawal. Consequently Stone Bridge determines its water availability to be 1.9 million gallons per day. Table III compares the 2006 available water to the 2006 water use. Table IV compares the anticipated future demand to the available water in the 5 and 20 year planning scenarios.

The District considers its agreement with Fall River to be sufficient for the five (5) and (20) year planning scenarios.

Table III.
Available Water vs Water Use – 2006

Available Water (MGD)	Actual Use (MGD)
1.90	0.654

Table IV
Available Water vs Anticipated Water Use

Planning Year	Estimated Available (MGD)	Estimated Demand (MGD)
2011 (5 yr)	1.90	0.809
2026 (20 yr)	1.90	1.12

NON-ACCOUNT WATER

The District maintains a policy (as identified in the Goals statements) of complying with all Federal and State regulations, policies, and guidelines. As such the District strives to maintain Non-Account Water below the 15% guideline identified in the State Guide plan Element 721. The District also has identified its long-term goal of reducing Non-Account Water to 10% as recommended by the Water Supply Management Plan regulations. Accordingly Table V provides a historical representation of Non-Account Water for the District. A three year calculation of non-account water is also provided since the meter readings may not be coincident within a year and the three year average is a better indicator of trends than a one year calculation.

Table V
Historical Non-Account Water

Calendar Year	% Non-Account Water (including 1.5% Fire Fighting Allowance)	
	Annual Basis	Three Year Trend
2006	5.0	7.0
2005	7.9	7.4
2004	8.0	8.7
2003	6.4	9.8
2002	11.7	13.4
2001	11.3	16.0
2000	17.1	17.3
1999	19.7	15.5
1998	15.8	13.1
1997	12.6	12.3
10 year average	13.8	NA

METERING

The District maintains a policy of metering 100% of the users of water and in fact has historically metered 100% of the users.

The District tests meters on a schedule such that each meter is replaced no less frequently than every fifteen (15) years.

The District has one Master Meter at each wholesale connection. Each master meter connection is owned and maintained by the wholesale customer. The connections are tested and calibrated at least annually.

EMERGENCY MANAGEMENT

The District has completed a Vulnerability Assessment and developed an Emergency Response Action Plan which is included as part of the main report. Table VI identifies the Critical Facility Components identified through the Vulnerability Analysis.

Table VI - Critical Facility Components

Stafford Pond Intake Structure
Stafford Pond Water Treatment Plant/Pump Station
All 12 inch and 12/8 inch transmission lines
500,000 gallon standpipe

IMPLEMENTATION SCHEDULE, RESPONSIBLE ENTITIES, AND PROJECTED COSTS

Table VII identifies the activities and responsibilities for implementation of the elements of this Plan.

Table VII
Implementation of Plan Elements

Plan Element	Scheduled Completion Date	Source of Funding	Responsibility for Completion
Implement Residential Users Technical Retrofit/Major Assistance Program	On-going	Annual Budget	Superintendent
Develop system hydraulic model	TBD	Annual Budget	Superintendent/Consultant
Purchase of Land/Development rights of parcels in Watershed	On-going	Annual Budget/Water Quality Protection Funds	Admin Board/Superintendent
Leak detection Survey/Repair	2008	Annual Budget	Superintendent
Valve Replacement	2008	Annual Budget	Superintendent
Central Ave/Evans Ave loop	TBD	Annual Budget	Admin Board/Superintendent
Main installation Susan St/Causeway	TBD	Annual Budget	Admin Board/Superintendent
Upgrade of cesspools in Stafford Pond watershed	2008	Property owners	Wastewater Collection Superintendent
Consideration of implementing a conservation oriented water rate structure	TBD	Annual Budget	Admin Board/Consultant

FINANCIAL MANAGEMENT

The District operates the water system in a financially sound manner, in fact the District has no sources of revenue other than those fees, rates, and charges levied against the customers of the water system. All costs of implementing the elements of this Plan will be paid for from the normal charges to the customers of the water system.

The District maintains 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. This rate structure is fully in compliance with the State of Rhode Island policies.

Currently all customers are billed quarterly based upon two actual meter readings collected every six months, and two estimated reads generated three months after each actual read .

COORDINATION

This Plan was developed in coordination with the Town of Tiverton and using the 2006 Updated Town of Tiverton Comprehensive Plan information.

COMMENTS

The Administrative Board of the Stone Bridge Fire District takes pride in the developed system and is constantly concerned that the system is developed and operated for the benefit of the citizens and businesses of Stone Bridge and the Town of Tiverton while maintaining efficiency such that the rates and charges are appropriate to operate, maintain, and protect the integrity of the water system.