



Water Supply
System
Management Plan
**Executive
Summary**

May 2007

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

212736
North Tiverton Fire
District



TABLE OF CONTENTS

| SECTION | PAGE NO. |
|---|----------|
| 1. INTRODUCTION..... | 1-1 |
| 2. BACKGROUND..... | 2-1 |
| 2.1 Legal Agreements | 2-1 |
| 3. GENERAL SYSTEM DESCRIPTION..... | 3-1 |
| 3.1 Water Supply Sources | 3-1 |
| 3.2 Water Treatment Facilities..... | 3-1 |
| 3.3 Water Storage Facilities..... | 3-2 |
| 3.4 Pumping Stations | 3-3 |
| 3.5 Transmission Lines and Distribution System..... | 3-3 |
| 3.6 Interconnections | 3-4 |
| 3.7 Populations Served and Projections..... | 3-4 |
| 3.8 Meters..... | 3-5 |
| 3.9 System Production Data..... | 3-5 |
| 3.10 Non-Account Water Use..... | 3-6 |
| 3.11 Demand Management | 3-6 |
| 3.12 Water Conservation..... | 3-6 |
| 3.13 Supply Management..... | 3-7 |
| 3.13.1 Anticipated Future Demands | 3-7 |
| 3.13.2 Available Water | 3-7 |
| 3.14 System Management..... | 3-8 |
| 3.15 Rate Structure | 3-8 |
| 3.16 Financial Management | 3-9 |
| 3.17 Emergency Management..... | 3-9 |
| 4. IMPROVEMENT PLAN & SCHEDULE..... | 4-1 |

LIST OF TABLES

| TABLE | PAGE NO. |
|---|----------|
| Table 1: Water Supply Sources (1926-Present)..... | 3-1 |
| Table 2: Distribution Storage | 3-2 |
| Table 3: Pumping Station Information | 3-3 |
| Table 4: Primary Transmission Lines | 3-4 |
| Table 5: 2005 Monthly Wholesale Water Purchases in MG | 3-5 |
| Table 6: Historical Non-Account Water..... | 3-6 |
| Table 7: Summary of Anticipated Water Demands..... | 3-7 |

| | | |
|-----------|---|-----|
| Table 8: | Available Water vs. Water Use (MGD) | 3-8 |
| Table 9: | Available Water vs. Anticipated Water Use | 3-8 |
| Table 10: | Implementation Schedule | 4-1 |

LIST OF FIGURES

| FIGURE | | PAGE NO. |
|-----------|---|----------|
| Figure 1: | Treatment Processes for the State Avenue and Carey Land Pump Stations | 3-2 |

1. INTRODUCTION

The North Tiverton Fire District (NTFD) prepared this Water Supply System Management Plan (WSSMP) as required under Rhode Island General Laws 46-15.3, titled “Public Drinking Water Supply System Protection Act” (Act) for the Rhode Island Water Resources Board (RIWRB). The Executive Summary is developed to highlight the historical operations and future considerations of the NTFD.

This Executive Summary contains a general description of the water system including: the background and organizational structure, supply sources, infrastructure components, interconnections, meters, and water conservation to serve as a guide to employ the proper decision making process.

2. BACKGROUND

The NTFD absorbed the former Tiverton Water Authority (TWA) in June 2004, and the former TWA transferred all assets of the Tiverton Board of Water Commissioners to the NTFD. The TWA asset information was sparse, and as a result, the NTFD does not have sufficient information regarding inventory, population demand and distribution, and demand management for the former TWA site. Action items were called out during this plan to address the lack of records and system information, to reevaluate the population projections, demands, and water use, and to address conservation management. The improvement of the master metering along with the creation of a metering operation and maintenance plan were also addressed.

2.1 LEGAL AGREEMENTS

The NTFD water supply is limited through its contracts with the Stone Bridge Fire District (SBFD) and the City of Fall River. The contract with the City of Fall River expired on May 11, 2007, and this water currently services a portion of the historic North Tiverton neighborhood. The rest of North Tiverton and the former TWA, are served by the SBFD, and this contract does not expire until July 1, 2013.

3. GENERAL SYSTEM DESCRIPTION

The NTFD operates a water system that purchases all of its water from two separate sources, the City of Fall River and the Stone Bridge Fire District, and distributes that water to 2,586 service connections through a pipeline system consisting of approximately 43 miles of pipe. The system was developed in the late 1920's with the majority of the piping installed between 1940 and 1980. Pipelines are primarily unlined cast iron or cement lined ductile iron. The primary transmission line from the north end to the south end of the system has been completely replaced since early 1980's. There is one pressure zone for the system serving the historic North Tiverton (NT) service area and a second higher (approximately 12- 15 psi) pressure zone serving the former TWA service area.

3.1 WATER SUPPLY SOURCES

The North Tiverton Fire District continues to obtain all of its water supply by direct wholesale purchase from the City of Fall River, Massachusetts (Watuppa Water Board) and the Stone Bridge Fire District. Currently, the NTFD has two interconnections to the City of Fall River and five interconnections to the Stone Bridge Fire District.

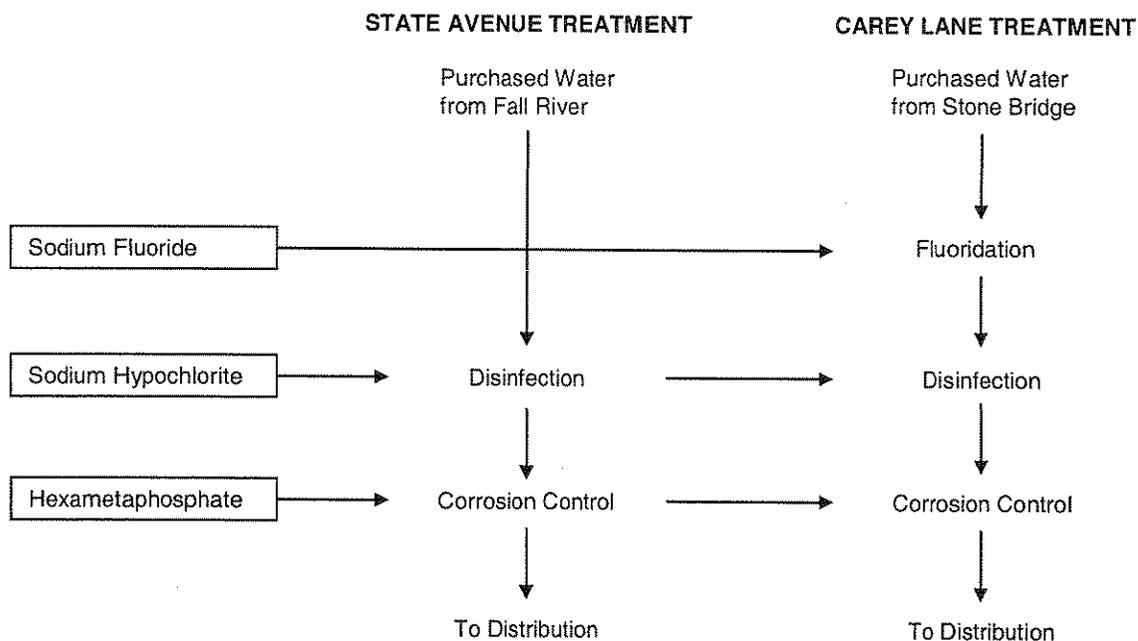
Table 1: Water Supply Sources (1926-Present)

| Water Supply Source | Operating Status | Comments |
|---|--|---|
| Kelly and Osborn Well Fields – Tiverton, RI | Active (1926 – 1965) Abandoned (1965 – Present) | Wells were abandoned in 1965 due to an inability to rehabilitate the wells to recover previous yields |
| North Watuppa Pond – Watuppa Water Board, Fall River, MA | Active (1965 – Present) | |
| Stafford Pond - Stone Bridge Fire District, Stone Bridge, RI | Active (1983 – Present) | |

3.2 WATER TREATMENT FACILITIES

The NTFD provides fluoridation, disinfection and corrosion control as necessary to the water purchased from the Stone Bridge Fire District at the Carey Lane Pump Station. The NTFD provides disinfection and corrosion control as necessary to the water purchased from the City of Fall River at the State Avenue Pump Station. Treatment is not provided at any connections to the former TWA service area or the new Industrial Way gravity connection to the historic NTFD. A schematic of the treatment processes is shown in Figure 1.

Figure 1: Treatment Processes for the State Avenue and Carey Land Pump Stations



3.3 WATER STORAGE FACILITIES

The NTFD has two finished water reservoirs in the system. In 2006, the new 2 MG (million gallon) Hambly Road standpipe came online. Currently, the new 2 MG tank and the existing 1 MG sod topped, ground level reservoir are both online. The new tank receives its water from a direct gravity transmission line with Stone Bridge and helps feed the existing tank, but does not directly feed the distribution system. The distribution system is fed from the existing tank. The Quintal Drive 1 MG Standpipe was acquired by the NTFD as a transfer of assets from the former TWA. Table 2 summarizes characteristics of these three storage facilities.

Table 2: Distribution Storage

| Location | Hambly Road – Old | Hambly Road – New | Quintal Drive |
|--|--|--------------------|---------------|
| Storage Facility Type | Covered, Sod Topped Ground Level Reservoir | Concrete Standpipe | Standpipe |
| Total Storage Volume (gal) | 1,030,000 | 2,140,000 | 1,000,000 |
| Usable Storage Volume (gal) | 950,600 | 2,000,000 | 1,000,000 |
| Facility Age | Built 1927 | Built 2005 | Built 1948 |
| Facility Condition | Fair | New | Good |
| Hydraulic Grade Line (HGL) Max. Elevation (feet) | 330 | 365 | 365 |

3.4 PUMPING STATIONS

The NTFD has two pressure boosting stations; one at State Avenue and one at Carey Lane that are essentially integrated into one distribution system for the historic NTFD and former TWA. These two pump stations also supply the existing ground storage tank on Hambly Road. Table 3 provides operational information for the two pump stations.

A third pumping station has been constructed at Stafford Road to temporarily provide emergency supply to the former TWA service area from Fall River and to boost system pressures. This pump station consists of three 500 gpm pumps and two 100 gpm pumps which are controlled by Variable Frequency Drives (VFDs). The NTFD anticipates that this pump station will be fully online after the Quintal Avenue tank is painted and the check valves and meter is installed. There will also be a bypass around this check valve to deliver emergency supply to Fall River from Stafford Pond.

Table 3: Pumping Station Information

| | State Avenue | Carey Lane |
|---|-----------------------|-------------------------|
| Treatment Information | | |
| Sources Treated | Water from Fall River | Water from Stone Bridge |
| Maximum Flow | 700 GPM | 600 GPM |
| Chemical Feed Equipment | Yes | Yes |
| Capacity / Operations Information | | |
| Type of Pumping Station (Booster, Transmission) | Booster | Booster |
| Number of Pumps in Station | 2 | 2 |
| Emergency Power? | Yes (Portable) | Yes |
| Generator Power Rating (nearest KW) | 40 (Portable) | 30 |

The Townsend Hill Tank in Fall River feeds the State Avenue pump station and will be upgraded within the next year with a new hydraulic grade line (HGL) of 365 feet. The piping into the pump station from Fall River has already been upgraded to a 12 inch main. The NTFD will need to upgrade the pump station to accommodate the new HGL. The NTFD will also need to evaluate the existing high pressure areas and determine installation locations and quantities of pressure reducing valves.

3.5 TRANSMISSION LINES AND DISTRIBUTION SYSTEM

The NTFD distribution system consists of approximately 43 miles of pipe. The system was developed in the late 1920's with the majority of the piping installed between 1940 and 1980. The pipelines are primarily unlined cast iron or cement lined ductile iron. The NTFD has been involved in an infrastructure rehabilitation program that has resulted in significant improvements to the system operational efficiency. Substantial portions of distribution system piping have been replaced each year for more than fifteen years. Information regarding the primary transmission lines is summarized in Table 4.

Table 4: Primary Transmission Lines

| Location | Material | Date Installed | Size (inches) | Length (feet) | Condition |
|---|----------|----------------|---------------|---------------|-----------|
| From State Ave. along Main Road (Route 138) to Carey Lane (approx. 1/3 of distance from State Ave) | DI | 1980/1 | 12 | 3,960 | Good |
| From State Ave. along Main Road (Route 138) to Carey Lane (approx. 1/3 of distance from State Ave to approx. 2/3 of the distance from State Ave) | DI | 1982 | 12 | 3,960 | Good |
| From State Ave. along Main Road (Route 138) to Carey Lane (approx. 2/3 of distance from State Ave to Carey Lane and including Hambly Road to Reservoir) | DI | 1994 | 12 | 3,960 | Excellent |
| From Industrial Way along Fish Road to the Hambly Road Reservoir | DI | 2004 | 16 | 6,000 | New |

The NTFD maintains a database of North Tiverton pipe segments by street with the following information; pipe size, footage, pipe material, and other notes. This database has not yet been updated with information for the former TWA system.

In addition to the pipe database, the NTFD has created a water system model using the software H2O Map Water GIS Suite 7.0. The NTFD is now in the process of updating and calibrating their water system model.

3.6 INTERCONNECTIONS

The NTFD has two primary interconnections, one with the City of Fall River and one with the Stone Bridge Fire District. There are another five connections for the entire service area; an emergency connection from Stone Bridge for the historic NTFD, three additional connections to Stone Bridge to serve the former TWA service area, and a service connection to Fall River at Stafford Road to serve as a back-up for the former TWA service area.

In February 2007, the Industrial Way meter was transferred to North Brayton Road between Ledger Lane and South Christopher Avenue. This meter was transferred to include the power company on Industrial Way and the neighborhood on Christopher Avenue which are part of the NTFD. The NTFD has estimated that there are a total of 2,919 service connections in the combined NTFD and TWA areas. All of the buildings within the historic North Tiverton District's limits are provided with public water. However, many in the former Tiverton Water Authority service area are served by private wells. It is estimated that in 2000, 11.6 percent of the population (452 of 3,912 people) in the TWA service area was provided public water. The total population in Tiverton has only increased by 76 people from 2000 (15,260) to 2005 (15,336). The disproportionate increase in service connections since 2000 indicates that eligible areas within the TWA service area have been provided with public water.

3.7 POPULATIONS SERVED AND PROJECTIONS

The population estimates for the combined North Tiverton Fire District and former Tiverton Water Authority service area are obtained by subtracting the Stone Bridge service area population from the population of the entire town (obtained from the Stone Bridge Fire District approved WSSMP). Likewise, population projections for 5 and 20 years were developed from the Comprehensive Community Plan for the entire town

and subtracting the Stone Bridge estimated population served (obtained from the Stone Bridge Fire District approved WSSMP).

3.8 METERS

The NTFD has installed a master meter at each of the connections with the wholesale suppliers; Carey Lane, Industrial Way, Jiley Hill, Emma James, and Quintal Drive for Stone Bridge and State Avenue and Stafford Road for Fall River.

The meters at the two primary connections to the historic NTFD are currently read daily. The Stone Bridge meter at Carey Lane is calibrated annually. The Fall River meter at State Avenue is under the control and ownership of the City of Fall River. After many years of erratic behavior and attempts to repair the meter, Fall River replaced the meter in January 2001. Numbers regarding the Fall River meter used in this plan prior to 2001 are estimated because of the unreliable actions of the meter. The new meter at the State Street connection can be read continuously inside the pumping station. The NTFD carefully monitors the pumping at the Fall River connection since the previous meter was frequently out of service. The new meter has remote reading capabilities and District personnel were able to read the meter daily until 2005. The meter appears to be malfunctioning again, and the NTFD is working with Fall River to resolve this issue.

The NTFD has obtained additional master meters as a result of the absorption of the former TWA service area (Jiley Hill, Emma James, and Quintal Drive), the construction of an additional connection to Stone Bridge (North Brayton Road), and the construction of an emergency connection to Fall River for the TWA service area (Stafford Road). The meters at Jiley Hill and Emma James district are oversized for the amount of flow and, therefore, are not currently used. A compilation of the connections serviced from the area served by these meters is used to determine the amount of water purchased from Stone Bridge.

3.9 SYSTEM PRODUCTION DATA

The NTFD obtains water solely from interconnections with the City of Fall River and the Stone Bridge Fire District. Annual supply from each connection and the total for 2005 is reported in Table 5. The accuracy of the quarterly readings and billing from Fall River is questionable due to the suspected malfunction of the master meter, as described in the previous section. The NTFD has not observed the anticipated decrease in water purchased from Fall River since the new 2 MG standpipe has been online.

Table 5: 2005 Monthly Wholesale Water Purchases in MG

| | City of Fall River | Stone Bridge |
|-----------|--------------------|--------------|
| January | - | 6.57 |
| February | - | 6.48 |
| March | 21.89 | 7.85 |
| April | - | 8.67 |
| May | - | 10.93 |
| June | 3.26 | 13.11 |
| July | - | 13.26 |
| August | - | 11.49 |
| September | - | 9.83 |
| October | 9.79 | 9.72 |
| November | - | 7.46 |

| | City of Fall River | Stone Bridge |
|-----------------------|--------------------|--------------|
| December ¹ | 6.71 | 8.65 |
| TOTAL | 42 | 114 |

Note: ¹ The available 2005 data was not representative of the November and December 2005 purchased water from Fall River. Therefore, the 2004 data was used.

3.10 NON-ACCOUNT WATER USE

The calculation for non-account water is based upon the water delivered to the system versus the actual water purchased from Fall River (or estimated due to meter problems) and Stone Bridge. The meter reading periods are not consistent for either the purchased or the delivered water; consequently the non-account water for any one year is approximate. A better representation of the non-account water is to use an average of the most recent three years that will smooth out the inaccuracies for any one year. The calculations of one year and three year averages for calendar years through 2005 are included in Table 6. This amount includes estimates for historical fire-fighting use as well as the other possible un-metered uses particularly in the years were high levels of pipe replacement occurred.

Table 6: Historical Non-Account Water

| Year | Water from Sources (MG) | Water Sold or Accounted For (MG) | Percent Non-Account Water | Percent Non-Account Water (3 year avg) |
|------|-------------------------|----------------------------------|---------------------------|--|
| 2005 | 155.7 | 146.2 | 6.1 | 8.2 |
| 2004 | 148.3 | 136.5 | 8.0 | 8.7 |
| 2003 | 136.6 | 122.3 | 10.5 | 11.0 |
| 2002 | 136.7 | 126.4 | 7.5 | 8.7 |
| 2001 | 132.8 | 113.0 | 14.9 | 5.1 |
| 2000 | 120.3 | 115.7 | 3.8 | 3.9 |

3.11 DEMAND MANAGEMENT

The NTFD will implement the elements of the Demand Management Program stipulated by the Water Management Act and the Rules and Regulations as described in this section.

There are no major users in the service area, and consequently the NTFD has no need to establish a major Users Technical Assistance Program.

3.12 WATER CONSERVATION

NTFD has water conservation retrofit kits available for use by water customers. The program has included an initial notification to all customers. This program was terminated due to a lack of public interest. The Implementation Schedule section describes recommendations to improve the water conservation program.

3.13 SUPPLY MANAGEMENT

The North Tiverton Fire District is dependent upon the Stone Bridge Fire District and the City of Fall River, Massachusetts Watuppa Water Board to protect the water supply for the NTFD. The following discusses the anticipated future demands along with the available water to NTFD.

3.13.1 Anticipated Future Demands

Anticipated future demands should be developed based upon several factors. The projected population for the NTFD in 2010 and 2025 were taken from the Comprehensive Community Plan. The method used to calculate the anticipated demands and the projected population for the NTFD and TWA service areas was likely too general and inadequate to provide meaningful results and will require updating. Table 7 is a summary of the anticipated demands.

Table 7: Summary of Anticipated Water Demands

| Year | Actual / Estimated | MGD | MGY |
|-------------------|--------------------|------|-------|
| 1995 | Actual | 0.35 | 126.6 |
| 2000 | Actual | 0.32 | 115.9 |
| 2005 ¹ | Actual | 0.52 | 187.9 |
| 2010 ¹ | Estimated | 0.86 | 315.6 |
| 2025 ¹ | Estimated | 1.12 | 408.8 |

Notes: 1. Water demands from 2005 through 2025 include the absorption of TWA into the historic NTFD.

3.13.2 Available Water

The NTFD receives its water from two supply sources. Table 8 compares the available water to the actual usage for 2005 and for the five most recent years. Use of information for previous years is not appropriate since the NTFD has expanded its service area. Table 9 compares the maximum water available with the anticipated usage for the 5 and 20 year planning periods.

Table 8: Available Water vs. Water Use (MGD)

| Year | Available from Source | Total Available | Total Usage |
|------|--|-----------------|-------------|
| 2005 | Fall River – 0.55 Stone Bridge – 0.15 | 0.70 | 0.52 |

Table 9: Available Water vs. Anticipated Water Use

| Year | Estimated Available (MGD) | Est. Total Available (MGD) | Estimated Demand (MGD) |
|--------------|---|----------------------------|------------------------|
| 2010 (5 yr) | Fall River – 0.55± ¹ Stone Bridge – 0.150 | 0.70 | 0.86 |
| 2025 (20 yr) | Fall River – 0.55± ¹ Stone Bridge – Up to 0.75 ² | Up to 1.30 | 1.12 |

- Notes:**
1. The Fall River contract expires in May 2007 and the available daily supply will be renegotiated.
 2. The Stone Bridge contract expires in July 2013 and the available daily supply will be renegotiated. This figure includes the amount contractually available from Fall River and Stone Bridge as well as the excess of supply from Stone Bridge due to deletion of Portsmouth from the Stone Bridge demand.

3.14 SYSTEM MANAGEMENT

In general, all operational policies described below will apply to the entire system including the former TWA Service area.

The NTFD is currently on a continuous meter change out program. A portion of the meters are replaced every year so that all of the meters are replaced on a twenty (20) year rotating schedule. The last leak detection and repair occurred in 1994. The NTFD is targeting 2007 or 2009 to administer another leak detection survey.

The NTFD has an informal ongoing preventative maintenance plan which includes exercising all valves, flushing and repairing hydrants, and lubricating all rotating equipment. In addition all standby equipment is operated routinely.

The NTFD maintains an inventory of pipes, valves, hydrant parts and critical pump parts for immediate use in the event of an emergency. The NTFD has developed this inventory in order to have available those parts and supplies that may not be immediately available from local distributors.

As an independent water system, the NTFD does comply with all testing requirements of the Safe Drinking Water Act and the Rhode Island Department of Health Regulations.

3.15 RATE STRUCTURE

The NTFD's approved rate structure includes a flat minimum charge and a consumption charge. The minimum charge includes 258 cubic feet (1930 gal) per billing period. A flat rate is charged for the consumption as follows:

Minimum Charge \$15/billing period/service connection ⇒ \$ 45/year

Consumption Charge for all water passing through the meter⇒ \$3.98/Hundred Cubic Feet

Consumption Charge for the Tiverton Power Association ⇒ \$10.50/Thousand Gallons

The NTFD charges for meter and service installations, for temporary connections or services, for both public and private fire protection connections, and for meter repairs. The NTFD also has taxing authority and levies a tax of \$0.62/\$1,000.

3.16 FINANCIAL MANAGEMENT

The North Tiverton Fire District operates as an independent water district organized as a public corporate entity under the laws of Rhode Island. The NTFD is self-supporting through user charges and obtains a portion of its revenue by a tax levy on the ratable property in the District. Operations of the NTFD are financed from water revenues in the form of user fees and in tax revenues. The budget for the NTFD is prepared to incorporate all the costs of operating the NTFD and the water rates are established so that the users pay for all of the activities of the NTFD. User fees, charges and taxes levied by the NTFD are established by the Board and are subject to approval by the voters of the Water District at an Annual Meeting.

The North Tiverton Fire District seeks to provide funding for the implementation of this plan as well as for the development of any capital needs through the most cost effective financing available. In general the District will utilize their capacity to issue Bonds to finance major projects; however, the District may seek to utilize loans from the Rhode Island Clean Water Finance Agency (RICWFA) if the RICWFA has the authority to issue loans for water system improvements and is cost effective for the NTFD. The NTFD has used in the past and may in the future seek to utilize the Farmers Home Administration for financing water system projects.

3.17 EMERGENCY MANAGEMENT

The Emergency Response Action Plan (ERAP), which included provisions for Drought Management, has been reviewed and needs minor adjustment. The NTFD has improved its capability to respond to emergencies through the installation of an additional connection to Stone Bridge and an additional connection to Fall River. One adjustment needed to the ERAP is to identify the circumstances that will dictate the need to utilize either or both of these new connections.

The Drought Management plan needs to address the drought management of the Fall River and Stonebridge districts. A statement regarding the triggers of water bans and reductions should be included in this plan.

4. IMPROVEMENT PLAN & SCHEDULE

For the NTFD to bring the water supply system for the historic North Tiverton and former Tiverton Water Authority service areas into compliance with the requirements for the Water Supply System Management Plan and applicable regulations and planning documents, the following action items are recommended to be completed within the specified timeline. Table 10 identifies the activities and responsibilities for implementation of the elements of this 5-year Plan. There are no major capital improvements planned at this time.

Table 10: Implementation Schedule

| Plan Element | Scheduled Completion Date | Responsibility for Completion | Projected Budget Needs |
|--|---|-------------------------------|------------------------|
| Action Items from Section 2 of this Plan | | | |
| <p>Pipe Inventory & Water System Model. Continue to improve the water system model. Use model to make water system decisions. Incorporate TWA transmission system information into Town Pipe Inventory database.</p> | <p>Incorporate 50 percent of former TWA pipelines into database from June 1, 2007 to December 31, 2009.</p> <p>Incorporate 100 percent of former TWA pipelines into database from January 1, 2010 to May 31, 2012.</p> | Consultant/ Superintendent | \$4,000 |
| <p>Improve Record Keeping. While the NTFD Superintendent and staff are very knowledgeable of the service area and system, record keeping should be improved to keep a more accurate count of service connections (metered and non-metered) and billing. As part of improved record keeping, NTFD must track water use by NAICS category.</p> | <p>Create digital system of record keeping for easily accessible billing and use records by September 1, 2007.</p> | Superintendent | |
| <p>Reevaluate Population Projections. The new NTFD needs to reevaluate their population projections based on the 2006 update to <i>The Comprehensive Community Plan</i>, accounting for projected development and using most recent population statistics for Tiverton instead of relying on Stone Bridge's projections. This will incorporate population distribution, projected land use patterns, economic status of users, and other population demographics.</p> | <p>Reevaluate present population statistics and future population projections for the combined service area. Resubmit Worksheet #8 to the Rhode Island Water Resources Board by May 31, 2008.</p> <p>Submit this information in the 30-Month Interim Report in December 2009.</p> | Consultant | \$15,000 |
| <p>Private Wells in Former TWA Service Area. Collect additional information as to how many homes are not served by water supply and their locations. Determine the</p> | <p>Submit this information in the 30-Month Interim Report in December 2009.</p> | Superintendent | |

| | | | |
|--|---|---------------------------------------|---|
| <p>need and availability for providing public water supply.</p> | | | |
| <p>Master Metering. a) Fall River Metering. It is important to obtain accurate metering data from the State Avenue Pumping Station. When Fall River upgrades the Townsend Hill Tank and increases the HGL, upgrades at the State Avenue Pump Station should be evaluated. Also evaluate existing high pressure areas which will be affected by the new HGL.</p> | <p>Pending Townsend Hill Tank replacement.</p> | <p>Fall River/ Consultant</p> | <p>Modeling Costs and Letter Report \$10,000</p> |
| <p>b) Stone Bridge Metering. The NTFD will use SCADA to obtain real-time data from the oversized and inaccurate Jiley Hill and Emma James master meters. The NTFD with their consultants will identify and implement metering improvements for more accurate readings.</p> | <p>Make repairs to the Jiley Hill and Emma James Master Meters and receive accurate water use data by May 31, 2008.</p> | <p>Consultant</p> | <p>Meter Upgrades and SCADA Integration \$15,000 for each Meter</p> |
| <p>c) Master Meter Operation & Maintenance Program. The NTFD needs to formalize their maintenance program for master meters owned by the NTFD. This program will include a schedule for testing, calibration, and routine maintenance and a method for recording repairs and replacement. The goal of this program is to improve reliability of readings and maximize efficiency monitoring water losses.</p> | <p>O&M program in place for the 30-Month Interim Report due in December 2009.</p> | <p>Superintendent/ Consultant</p> | <p>Operations & Maintenance Program \$5,000</p> |
| <p>Water Use Analysis. Once master metering is improved and population data is obtained, the NTFD must analyze system-wide and per capita water use. This will help the NTFD identify meter inaccuracies, major leaks, and other non-account water use. This analysis will include an estimate of the anticipated future demand. The American Waterworks Association (AWWA) Water Loss Control Committee Water Audit Software can be used as a tool to identify areas of improved efficiency and cost recovery.</p> | <p>Improved Water Use Analysis for 2008 and 2009 included in the 30-Month Interim Report due in December 2009.</p> | <p>Consultant</p> | <p>Water Use Data Management and Analysis: \$10,000</p> |
| <p>Water Conservation and Demand Management. The NTFD needs to implement additional water conservation measures, which may include public education and outreach and repeated notification to customers of the conservation retrofit kits in the expanded service area. The NTFD should put a notice in the Annual Consumer Confidence Report to state that</p> | <p>Once record keeping and water use analysis has been improved, begin water conservation measures in January 2008.</p> | <p>Superintendent/ Consultant</p> | <p>Water Use Data Evaluation: \$15,000</p> |

| | | | |
|--|--|-----------------------|--|
| <p>conservations kids are available at the office. Water use data should be evaluated before and after such measures to gage the impact on per capita use and use by category.</p> | | | |
| <p>Ongoing Action Items</p> | | | |
| <p>Update Emergency Management Plan</p> | <p>May 31, 2008.</p> | <p>Consultant</p> | |
| <p>Continue to upgrade remote meter reading systems</p> | <p>NTFD is converting to a radio meter read system and approximately 20 percent of the meters have been changed.</p> | <p>Superintendent</p> | |