
**TOWN OF JAMESTOWN
WATER SUPPLY SYSTEM MANAGEMENT PLAN
EXECUTIVE SUMMARY
JAMESTOWN, RHODE ISLAND**

**Prepared for:
Town of Jamestown
P.O. Box 377
Jamestown, RI 02835**

Prepared by:
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

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EXECUTIVE SUMMARY

This Water Supply System Management Plan (WSSMP) has been prepared as required under Rhode Island General Laws 46-15.3, as amended and titled “The Water Supply System Management Planning Act” (Act). The legislative authority to effectuate the goals and policies of this Act has been conferred to the Rhode Island Water Resources Board (RIWRB). To this end, the RIWRB has promulgated the Rules and Regulations for Water Supply System Management Planning, October 1998, as amended to implement the provisions of the Act.

Under this legislation, the Town of Jamestown – Jamestown Water District (JWD), as a water purveyor supplying over 50 million gallons of water per year, is responsible for the preparation and adoption of a WSSMP. It is also required that the Town update this WSSMP periodically, as significant changes warrant, and every five years, or as otherwise stipulated in the Regulations.

This WSSMP has been prepared to provide the proper framework to promote the effective and efficient conservation, development, utilization and protection of the natural water resources of the State as utilized by the Town. Further, the overall goals shall be consistent with State Guide Plan Element 721, “Water Supply Policies for Rhode Island.” The purpose of this WSSMP is to outline the objectives of the Water Supply System Management Planning process for the Town of Jamestown Water Supply System, and to serve as a guide to employ the proper decision making processes toward meeting that goal.

The WSSMP contains a detailed description of the water system and includes the policies and procedures related to its general operation and management. The Emergency Management section relates to the vulnerability assessment of the water system for use in emergency planning. It shall be incumbent upon the JWD to implement the recommendations and procedures outlined in this WSSMP in order to comply with the overall requirements of the Act.

Background

The JWD was established by legislation of the General Assembly of the State of Rhode Island in March 1869. The original system, privately developed and owned, dated back to 1890. The source of supply was derived from two surface water storage impoundments, the North and South Ponds, constructed in 1901 and 1909, respectively. The JWD, to this day, continues to derive its primary source of supply from these reservoirs. The North reservoir was expanded to increase overall capacity in the early 1900s.

A conventional water treatment plant was originally installed in 1920 and upgraded periodically over time into the 1950s. By the 1950s, the system served approximately 2,000 year round residents and up to 4,000 seasonal residents. A distribution system and storage tank was in place to serve the southern portion of the island south of Rhode Island Route 138. In 1991, the Town constructed a new pretreatment and main treatment plant at the storage reservoirs. The reservoirs continue to be the main source of supply, however, the Town has pursued other options of water supply (i.e. interconnection with the Town of North Kingstown and installation of bedrock wells).

The main service area for the public water supply is the Village area of Town. The urban district is the area which has historically served as the commercial and residential focus for the island. Public services and facilities have traditionally been located in the Village area. Water service is



also supplied to the rural water district, the area to the south of the Village area. Water service connections in the rural water district area are subject to the approval of the Town's Board of Water and Sewer Commissioners and must be consistent with the Comprehensive Community Plan.

Water System Description

The JWD supply and distribution system is classified by the Rhode Island Department of Health as a "Community" Public Water Supply System. As such, the system is required to conform to applicable rules and regulations of the RIDOH and the Federal Safe Drinking Water Act (SDWA). The water system currently maintains full compliance with the stipulations of these rules and regulations.

The existing JWD system was developed primarily from the original water supply system that originated in the 1890's. Improvements to the infrastructure have been implemented over the years to maintain and upgrade the system to keep pace with increasingly stringent water quality regulations. The water quality has consistently been rated as good to excellent with occasional exceedances of secondary water quality standards for color and turbidity from the surface water supply of the reservoirs.

The water supply consists of two reservoirs that capture surface water runoff. The North reservoir has a watershed of approximately 192 acres and a water body of 28 acres with a net usable water volume of 51 million gallons. The South reservoir has a watershed of approximately 448 acres and a water body of 7.3 acres with a net useable volume of 8 million gallons. The two reservoirs are interconnected and deliver water to the treatment facility through a 10-inch PVC main. The total maximum safe day yield for the North Reservoir is 194,000 gallons and 89,000 for the South Reservoir.

In addition, the JWD also maintains an emergency interconnection (6 inch flexible water line) with the Town of North Kingstown water system across the Jamestown Verrazano Bridge. The interconnection has the capability of supplying the JWD with up to 200,000 gallons daily. Two bedrock wells, JR-1 (installed 1996) and JR-3 (installed 2004) are used to supplement available water supply at a rate of approximately 50,000 gpd, each.

The system employs a pretreatment facility located at South Reservoir. This facility pretreats between 180,000 to 350,000 gallons per day. Pretreatment consists of pH adjustment, chlorine dioxide (ClO₂) bleaching for odor, color, and taste, and flow monitoring. A new water treatment and filtration plant with automated controls was constructed in 1991. The water treatment process is upflow "clarafloculator" filtration package units, pH adjustment, disinfection, and corrosion control.

The transmission and distribution system consists of upwards of 20.5 miles of asbestos cement, cast iron, and polyvinyl chloride (PVC) pipeline, the majority of which is less than 20 years in age and ranges in size from 6 to 12-inch. New and replacement main sections consist predominantly of PVC pipe.

The service area is operated as a single pressure zone that is controlled by the overflow elevation (204.0 feet MSL) of the one million gallon storage standpipe. This establishes the hydraulic grade and maintains system pressure in the range of 30 to 60 psi. The useable storage capacity of this tank is estimated at 0.7 million gallons.

The source and distribution system is 100% metered. The water department staff is responsible



for the daily operation and maintenance of the water system that also includes metering and billing of customers. The JWD is operated as an “Enterprise Fund Agency” within the municipal corporation of the Town of Jamestown. The Town has established enterprise funds for operations that are organized to be self-supporting through user charges. It is the intent that all costs of providing the services to the general public on a continuing basis be financed or recovered fully through user charges.

Policy and Procedure

The service population is comprised of residential, commercial, and government customers of which there are approximately 1,447 metered accounts. The service population is approximately 3,168 of the roughly 5,843 residents in Town. The remaining residents not serviced by the public water system are served via private individual wells. Current average day demand is 196,000 gallons with a maximum day demand of 393,000 gallons. The total available water is equal to 583,000 gallons (with 200,000 gallon capacity from North Kingstown). Under projected water demand for the 5- and 20-year planning periods, it is expected that the average day demand will be equal to 207,000 gallons and 235,000 gallons, respectively. Corresponding, maximum day projections are 455,000 gallons for the 5-year and 517,000 gallons for the 20-year planning periods. These projections are based primarily on population growth projections and do not account for significant water savings potentially realized through implementation of demand management strategies. A 15 percent unaccounted allowance for water has been incorporated into the growth projection.

In the past the JWD was faced with an increasing water demand and limited available water resources. This resulted in the establishment of the emergency interconnection with the Town of North Kingstown and the enactment of strict conservation measures. These measures included extensive residential retrofit programs. The Town has implemented several recommendations of the FS&T study in hopes of increasing the capacity of the surface water sources. Included in these improvements are recommendations to improve water quality in order to reduce filter backwashing to further result in water savings. Based on forecasts of available water volumes, it is envisioned that the available safe yield can be raised to approximately 500,000 gallons per day, which will meet the projected demand for the 5- and 20-year projections, and beyond. The JWD also implemented a vigorous leak detection program. All of these measures have helped to increase supply and lower demand throughout the JWD.

The JWD historically maintains a non-account water volume in the range of 25 percent (\pm 5%). However, the current year 2005 had 13.9% total non-account water. This is largely due to leak detection. Large volumes of water are required to backwash filters and for water quality monitoring. Excluding these estimates for treatment plant use, the system non-account water is historically equal to approximately 15 – 20 percent with the current year at 8.2%, which is consistent with State guidelines and goals historically and well below for the current year.

The system’s per capita water demand has been reduced from 53.7 gpcd in 1998 to 45.4 gpcd in 2005. This is largely attributed to increased conservation measures employed by the general water consumer. This is considered to be well below the State average of 75 gpcd.



Water quality protection is an important aspect to the JWD as the source of supply continues to be affected by growth, potential pollution sources, and increases in demand. The Town currently employs zoning ordinances, site plan reviews, and has made numerous land purchases within wellhead protection area. It has also created conservation easements for parcels within the wellhead protection area.

Given the current goal of achieving a 15% unaccounted water volume and the long-term goal of reducing this value to 10%, the JWD is also prepared to implement appropriate system management strategies to maintain compliance with these goals. The JWD shall employ demand management procedures of a suitable nature to promote the ultimate goal of permanent long-term savings through efficient water use. Water use trends can be affected significantly by changes in water use practices, which can occur as result of technologic changes and demand management and/or water conservation policy and practice. This is to be achieved through a combination of measures that promote efficient water use, recycling, conservation, retrofit and new installation of low flow plumbing fixtures, public education and appropriate use of fees, rates and charges. It is the ultimate goal to minimize peak demand use requirements and to minimize average day demand use requirements.

The JWD shall continue to employ proper system management procedures including programs for meter management (source and distribution), leak detection and repair, implementation of a preventive maintenance plan, infrastructure rehabilitation, and a billing rate schedule which promotes efficient and non-wasteful water use. It is intended that the financial management of the system will be one in which normal operation, maintenance, and rehabilitation will be funded through operating revenue from the customer base. Where possible, the JWD shall seek alternate funding sources such as State and Federal grants, for major improvement projects.

The Emergency Management section of the Plan establishes the responsibilities and authority within the JWD for responding to most probable emergencies and outlines specific tasks for carrying out functional and constructive solutions based on a review of the potential emergencies and risks. The procedures outlined are consistent with the goals of the State Emergency Water Supply System Management Plan. It is also intended that this document provide guidance to ensure that the primary aspects of recovery from an emergency are addressed in an organized manner to aid in an efficient response and in maintaining drinking water quality and quantity.



