CLEAN WATER INFRASTRUCTURE REPLACEMENT PLAN FOR THE SOUTH KINGSTOWN PUBLIC SERVICES DEPARTMENT

PREPARED FOR:

TOWN OF SOUTH KINGSTOWN,
RHODE ISLAND
509 COMMODORE PERRY HIGHWAY
WAKEFIELD, RHODE ISLAND 02879

PREPARED BY:

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Section 1.0
Introduction

1.1 Overview

This Clean Water Infrastructure Replacement Plan (Plan) has been prepared in accordance with the Rules and Regulations for Clean Water Infrastructure Replacement Plans 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 and maintains consistency with the Clean Water Infrastructure Act, Chapter 46-15.6 of the General Laws of Rhode Island, as amended.

This Plan was prepared in conformance with applicable provisions of State and Federal laws including the Federal Safe Drinking Water Act (42 USC Section 300 f eq. seq.) and Chapter 46-13 of the General Laws of Rhode Island, Public Drinking Water Supply.

Further, this Plan maintains consistency with the goals and policies of the Town of South Kingstown Comprehensive Community Plan and the Water Supply System Management Plan for the Town of South Kingstown Water Supply System.

1.2 Purpose of Plan

The Infrastructure Replacement Act, Title 46, Chapter 15.6 designates the Rhode Island Department of Health (RIDOH) as the primacy agency to administer the program for Clean Water Infrastructure Replacement Plans. This Act requires that all water purveyors on an annual basis purchase or sell over 50 million gallons of water prepare, maintain and implement a detailed infrastructure plan of the principal components of the water system. Each water system is required to provide a mechanism for funding to replace and/or rehabilitate identified components at the end of their useful life within the framework of the Regulations.

This CWIRP provides an effective infrastructure rehabilitation management and planning tool for use by the Town. By employing the methodologies presented in this document for infrastructure replacement/rehabilitation, the Town can continue to efficiently and economically serve its customers for the next twenty years and beyond.

1.3 Goals of Plan

The Town of South Kingstown is committed to providing a safe, reliable, and adequate potable water supply to its customers. RIDOH's Rules and Regulations for Clean Water Infrastructure Replacement Plans require that Plans address all principal components of the water supply system. The goal of this CWIRP is to comply with the provisions of the Act as detailed in the Rules and Regulations for Clean Water Infrastructure Replacement Plans, by developing a comprehensive infrastructure plan for the Town's Water Supply and Distribution System. This Plan was developed by reviewing and evaluating the condition of the major system infrastructure components, which were assigned a life expectancy, and necessary

improvements were defined within the context of the regulations. Appropriately, a cost and schedule for identified improvements or replacements were developed. The funding will be completed through establishment of an Infrastructure Replacement Fund (IRF) as required by the Act or through the water system's general operation fund, budget surplus or bonding, as is determined appropriate for the project. It is intended that any improvements in the form of rehabilitation and/or replacement be completed through a program in which the water system is upgraded and maintained to ensure the present and future needs of its service customers.

The Town's Water Division also recognizes that maintenance and component replacement should not be deferred until failure and full replacement becomes necessary. It is current policy that all water system components be maintained continuously to avoid malfunction or unexpected failure, as emergency repairs can be costly and inconveniencing to the consumer. In addition, the Water Division has also developed an infrastructure cataloging system for its water mains. The initial function of this water main catalog system is to create a full system inventory of the transmission and distribution system piping components. This database was constructed utilizing a computer-based spreadsheet format to catalog and inventory the pipes in the water system. This database was then utilized in conjunction with a pipeline-rating schedule to identify those pipe sections with the highest priority for rehabilitation. Those pipelines with the highest priority for rehabilitation shall be considered in the future by the Town for various improvement alternatives. It is envisioned that the catalog system will in the future include distribution system valves, hydrants and other critical water system infrastructure components.

1.4 Background

The South Kingstown Water Division (SKWD) continues to provide potable water and fire protection service for the geographic area to the south of U.S. Route 1 from Green Hill to East Matunuck including the Perryville area of Town. This portion of the water system is known as the South Shore. Beginning in the Fall of 2002, the SKWD began purchasing all of its water on a wholesale basis from neighboring Veolia (formerly SUEZ, United Water RI, Wakefield Water), as a result of ongoing iron discoloration problems associated with the SKWD's primary groundwater supply well field in the South Shore system at Factory Pond. These wells previously provided the sole source of water supply for the South Shore system.

The transition to the Veolia (formerly SUEZ, United Water RI, Wakefield Water) system on a full-time basis was implemented in February 2003 via a temporary interconnection with the Town of Narragansett through the Jerusalem portion of the Narragansett water system. This was accomplished through retrofit of a meter pit through which the SKWD previously supplied the Jerusalem area of Narragansett. This underground concrete vault, which is located at the South Kingstown/Narragansett Town line off Succotash Road, was retrofit with a booster pump that was designed to boost water from the Veolia (formerly SUEZ, United Water RI, Wakefield Water) water system via the Narragansett water system and into the South Shore portion of the South Kingstown water system. Narragansett purchases all of its water on a wholesale basis through Veolia (formerly SUEZ, United Water RI, Wakefield Water).

Subsequently, the SKWD constructed a permanent 12-inch water main and interconnection including a master meter vault along U.S. Route 1 at the intersection with Kettle Pond Drive. This interconnection and master meter vault went into permanent service in the summer of 2005. SKWD relies on Veolia (formerly SUEZ, United Water RI, Wakefield Water) water on an interim basis for its primary source of water supply to the South Shore portion of the water system. It is noted that as in the past, the SKWD shall continue to rely on Veolia (formerly SUEZ, United Water RI, Wakefield Water) to supply the Middlebridge area of Town. The South Shore and Middlebridge areas operate as two (2) separate systems and are not physically interconnected.

SKWD personnel shall continue to test pump, exercise and routinely monitor the three (3) South Shore wells, which would be available in the event of an emergency or possibly during peak demand periods. The SKWD is considering a project for a water treatment plant at the well field to provide the necessary treatment and conditioning of the raw water supply to render the source water more aesthetically pleasing and palatable to the consumer. At this time, there is no exact date for design and implementation for such a treatment facility.

Section 2.0
Water Supply System Description

This section describes the Town of South Kingstown's water supply and distribution system including legal and managerial aspects and physical infrastructure components of the water system.

2.1 Organization and Legal Structure

The following outlines a description of the organization and management framework of the Town's water system. Also provided is a legal basis for the system and a description of the system's service territory.

The Town of South Kingstown is operated under the Town Council/Town Manager form of government wherein the Council enacts local legislation/policy and the Town Manager appointed by the Council executes the laws and the administration of the Town Government in accordance with Town Charter. **Figure 2-1** provides a chart of the organization framework of the water system, which falls under the Department of Public Services. This chart provides a breakdown by job classification.

2.2 Description of Responsibilities

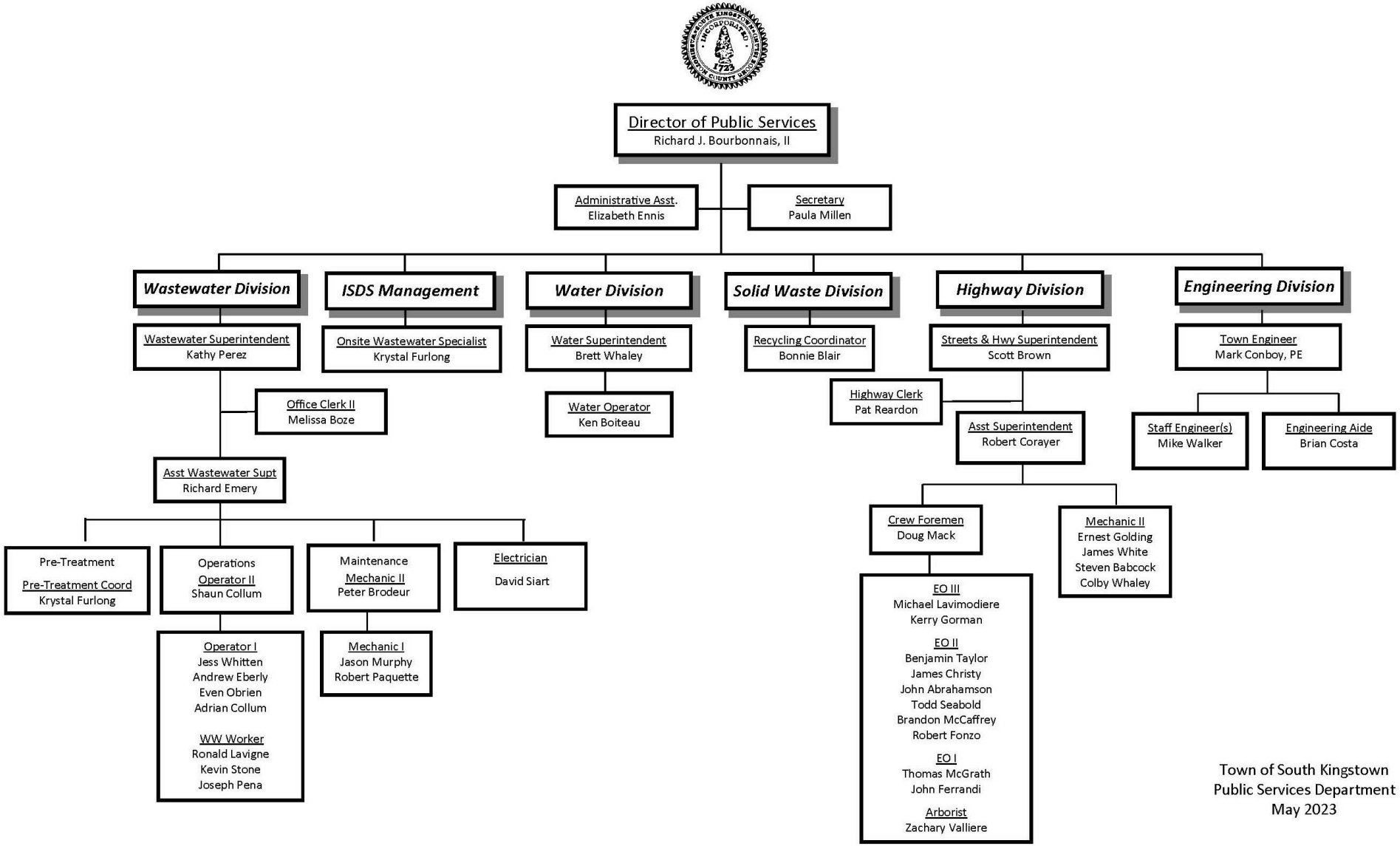
The Town of South Kingstown, Public Services Department, operates the SKWD water supply and distribution system. In addition to the Public Services Director, two staff members (the Water Superintendent and a Water Operator) are assigned to water operations, and staff member(s) are assigned to administration. Additional administrative support staff at the Town Hall is available to assist in billing and collection. A portion of Town Hall personnel are paid from the water enterprise fund operations budget. The Public Services Director is tasked with the administration, engineering and business function of the water system. This includes managing the operations and staff, maintaining regulatory compliance, maintaining intergovernmental and customer relations, performing engineering analysis and design, coordinating the activities of the Town's professional consultants, advising the Town Council and Town Manager and implementing policy decisions.

The Superintendent and Water Operator are responsible for all of the day-to-day administration, operations and maintenance of the water system, including water customer interaction, meter readings and repair, start-ups and shutdowns, well pump operations, maintenance of the pump stations, and maintaining records. Specialized maintenance and repair is completed by outside contractors.

The full time staff, as described above, has been determined to be of adequate qualification, experience and number, to effectively and efficiently perform the duties necessary to operate and maintain the current water distribution system.

Section 19, Article III of the South Kingstown Town Code contains regulations pertaining to the water supply, including billing, ownership, maintenance, metering, and other issues.

Figure 2-1. Public Services Department Organization Chart



2.3 Legal Structure

As provided in the South Kingstown Town Code, Article III, Division 7, the SKWD is operated as an enterprise system. Accordingly, a Water Enterprise Fund is established as a depository for all Water Division revenue and for payment of all Water Division expenditures.

The water system's revenues include water sales, fees, charges, and assessments. Expenditures can include operating costs, extensions, improvements, supplies and services. The Finance Director for the Town is responsible for maintaining financial records of the SKWD in compliance with generally accepted accounting principles. Section 19, Article III of the South Kingstown Town Code contains regulations pertaining to the water supply system, including billing, ownership, maintenance, metering, and other related issues.

The legal and mailing address for the Town of South Kingstown Water Division is:

Town of South Kingstown
Public Services Department
509 Commodore Perry Highway
Wakefield, RI 02879
Telephone: (401) 789-9331
Facsimile: (401) 782-8068

2.4 Service Area

The Town of South Kingstown comprises 79.8 square miles, portions of which are served by four- (4) separate water utilities. The Town is situated on the southern coast of Rhode Island on the shores of Block Island Sound. The SKWD serves the South Shore and Middlebridge areas of Town via its municipal water system. The Water Distribution System map, provided in **Appendix A,** identifies the geographic service area of the water distribution system.

As noted above, there are a total of five (5) public water purveyors within the Town of South Kingstown. These include the two (2) water systems owned by the Town of South Kingstown, Veolia (formerly SUEZ, United Water RI, Wakefield Water), University of Rhode Island and the Kingston Water District. Of these, only the Kingston Water District has district boundaries established under Rhode Island General Law. It is not considered likely that the Town's water system existing service area will extend beyond current service boundaries.

2.5 System Overview

The SKWD, which is operated under the Department of Public Services, owns and operates two (2) separate and independent water systems – the South Shore and Middlebridge systems.

The South Shore system is comprised of approximately 48 miles of water transmission and distribution mains, hydrants, meters, a booster pump station, two (2) elevated hydrospheroid

water storage tanks, system interconnection, wells, and appurtenances that serve 2,809 service accounts (e.g. residential, commercial, and governmental) as of spring 2023.

The Middlebridge system is comprised of approximately 3.6 miles of water transmission and distribution main, hydrants, meters, system interconnection, and appurtenances that serve 287 service accounts (e.g. residential) as of spring 2023. The Middlebridge water system has no pumping or water storage facilities and relies on the Veolia (formerly SUEZ, United Water RI, Wakefield Water) water system hydraulic gradient for adequate supply and pressure.

The transmission and distribution system as a whole consists water main, ranging in size from 4 to 14 inches, with installation dates from the late 1960s to the present. New and replacement mains consist predominantly of polyvinyl chloride (PVC) and cement-lined ductile iron (DI) pipe materials. The majority of the transmission and distribution system at present is comprised of asbestos-cement (AC) water mains.

The interconnection between the South Shore System and Veolia (formerly SUEZ, United Water RI, Wakefield Water) is situated along U.S. Route 1 near the intersection with Kettle Pond Drive where a 12-inch water main and master meter are located.

The SKWD will continue to test pump, exercise and routinely monitor the three (3) existing South Shore wells which would be available in the event of an emergency or to augment supply during peak demand periods. The Town is also considering a capital improvement project for a water treatment facility at the well field to provide treatment for removal of iron and manganese. At this time, there is no exact date for design and implementation for such a treatment facility.

The South Shore water system has two zones each controlled by the water elevation within its respective water storage tank. The overflow elevation at each of the water storage tanks is Elevation 210 feet Mean Sea Level (MSL). Water is received from the interconnection with Veolia (formerly SUEZ, United Water RI, Wakefield Water), which in turn fills the Victoria Lane storage tank. A SCADA system controls an altitude valve in the interconnection meter pit such that it is deactivated when the tank reaches overflow elevation and it is activated when the water drops to a preset level in the tank.

An in-line booster pump station is located on Card's Pond Road which boosts service to the south-central and southwestern regions of SKWD. The booster pump station works on radio telemetry with the Mautucket Road storage tank and boosts water from the system to replenish this tank. The hydraulic grade of the South Shore is maintained by the water level in the water storage facilities (i.e. 210 feet MSL).

The Town does not own or operate any surface or groundwater resources within the Middlebridge system. As such, wholesale water is purchased from Veolia (formerly SUEZ, United Water RI, Wakefield Water), which constitutes the sole source of supply to this portion of the water system.

The water supply and distribution system for both water systems is 100% metered. The master meter for Veolia (formerly SUEZ, United Water RI, Wakefield Water) for the South Shore area is located off of Route 1 near the intersection with Kettle Pond Drive. A second master meter is located downstream of the South Shore wells meters 100% of the SKWD water production whenever the well field is in use.

There are two (2) master meters for the Middlebridge water system. The incoming Veolia (formerly SUEZ, United Water RI, Wakefield Water) master meter is located at the base of Torrey Road. Veolia (formerly SUEZ, United Water RI, Wakefield Water) subsequently uses the Middlebridge water system to "wheel" water to its Narragansett customers via a water main affixed to the Middlebridge bridge. A second Veolia (formerly SUEZ, United Water RI, Wakefield Water) master meter is located on the easterly side of Middlebridge bridge.

Finally, every service connection in each water system is metered at the point of sale, thus providing 100% distribution system metering.

Section 3.0
System Infrastructure Component Analyses

3.1 General

This section provides analysis and description of the major infrastructure components of the Town's water system. Specifically, this includes a discussion related to component condition, function, and original date of construction, future life expectancy, and record of latest maintenance and repair. As allowed per the Regulations, small and numerous system components such as water mains, valves, hydrants and service connections, shall be evaluated collectively as a group.

Physical inspection and observation, inquiry with SKWD staff, record plans, available engineering and inspection reports and studies were all utilized to determine component condition and future life expectancy. On this basis, life expectancy of a particular component may vary from the guidelines provided in the Regulations. In addition, by employing proper routine maintenance in combination with replacement of critical items and "wear use" components, the useful life expectancy of a particular system component may be extended significantly. Where applicable, estimated costs are provided for necessary rehabilitation/replacement of system components. These costs are provided in present day (year 2023) dollars.

3.2 Distribution Storage Components

The Town maintains two (2) storage facilities located in the South Shore portion of the system. There are no storage tanks in the Middlebridge portion of the system as this area of the system is supplied and "floated" off storage tanks in the Veolia (formerly SUEZ, United Water RI, Wakefield Water) system.

In the South Shore system, the Victoria Lane storage tank is located near the intersection of Succotash Road and Victoria Lane in the northeast portion of the South Shore system. The Mautucket Road water storage tank is located near the intersection of Mautucket Road and Abalone Drive in the northwest portion of the South Shore system. Both tanks are of welded steel, elevated sphere design and 400,000-gallon nominal capacity with overflow elevation equal to 210 feet MSL.

The storage facilities are regularly maintained by SKWD staff, which includes grounds keeping, fence repair, visual inspection, etc. In addition, each tank is inspected at approximately five-year intervals. This inspection is performed by a qualified subcontract firm and includes a detailed inspection and report in relation to the condition of the structure and appurtenances, including condition of interior and exterior protective coatings and tank condition with recommendations for maintenance, as applicable. The cost to clean and maintain the functionality of the distribution storage systems, is identified as a line item in **Table 5-1** as an Infrastructure Replacement Cost.

3.2.1 Victoria Lane Storage Tank

Construction Date/Age: 1970 / 53 years

Description: The Victoria Lane storage tank is a welded steel elevated storage tank of sphere style (constructed by CBI) and located near the intersection of Succotash Road and Victoria Lane in the northeast portion of the South Shore system of South Kingstown, RI. The structure is of 400,000 gallon nominal capacity, approximately 173-ft-6-inches in height to the high water level with the bowl measuring 51 feet in diameter and a 35 foot head range with an overflow elevation equal to 210 feet Mean Sea Level (MSL). The Town leases space on the water tank to telecommunication companies for the placement of antenna structures.

Recent Rehabilitation/Repairs: On the basis of recommendations contained in a tank inspection report completed by Robert L. Merithew, Inc. (Merithew) in November 2003, the tank was sandblasted to white metal, removing the lead based exterior coatings followed by a three-coat epoxy system. The interior "wetted" surface was also sandblasted and recoated with three-coat epoxy system. The interior "dry" portions of the coating system were found to be in "very good" condition and were not rehabilitated. The overall structural integrity of the subject tank appeared to be in very good condition.

The tank was drained, cleaned and inspected by Veolia (formerly SUEZ, United Water RI, Wakefield Water) in November 2020 and found to be in good condition. The tank's anchor bolts were replaced, as initially indicated in the 2006 report, which stated:

"There is evidence of varying degrees of metal loss along all retention nuts with (4) of the nuts exhibiting as much as a 15% reduction in size. These retention nuts should be replaced at such time as the subject tank is rehabilitated."

Component General Condition	***Life Expectancy***
Structure: Good to excellent per tank inspection report of 2003	50 years +
Protective Coatings: Good (recoating completed in 2005)	20 years+
Concrete Foundation: Good per tank inspection report of 2003	50 years +
Interior Riser Pipe: Good, to be replaced in 2005	50 years +
Altitude Valve/Piping/Vault: Fair per visual inspection in 2004	15 years

Required or Scheduled Rehabilitation/Replacement - Victoria Lane Storage Tank

Time Interval/Year	***Description***	***Estimated Cost***
5-year/2028	Cleaning and SCADA Upgrades	$180,000
10-year/2033	Altitude Valve / Piping Replacement Recoating (interior and exterior)	$24,000 $240,000
15-year/2038		
20-year/2043	--	--

3.2.2 Mautucket Road Storage Tank

Construction Date/Age: 1970 / 53 years

Description: The Mautucket Road storage tank is a welded steel elevated storage tank of sphere style (constructed by CBI) and located near the intersection of Mautucket Road and Abalone Drive in the northwest portion of the South Shore system of South Kingstown, RI. The structure is of 400,000 gallon nominal capacity, approximately 155-feet in height to the high water level with the bowl measuring 51 feet in diameter and a 35 foot head range with an overflow elevation equal to 210 feet Mean Sea Level (MSL). The Town leases space on the water tank to telecommunication companies for the placement of antenna structures.

A flow meter within a vault was installed in 2016 for control of a chlorination system located at this tank. The chlorination system, also installed in 2016, is located in an above grade pre-cast concrete structure located adjacent to the tank. Equipment includes a day tank with containment pallet, metering pump with associated pipe (Pulsafeeder), tubing, pressure gauges and injection assembly, residual chlorine analyzer (ATI), SCADA controls and unit heater for the building.

Recent Rehabilitation/Repairs: Partial rehabilitation of the tank coating in 2005 included removing the lead based exterior coatings by abrasive blast cleaning followed by a three-coat epoxy urethane system. The interior "wetted" surfaces were also sandblasted and recoated with a three-coat epoxy system. Interior metal surfaces were rehabilitated (i.e. pit fills and/or seam welds). The interior 12-inch riser pipe was replaced with Class 53 ductile iron pipe from the base to the bottom of the bowl. The interior "dry" portions of the coating system were found to be in "good" condition and were not rehabilitated. The tank was inspected, drained and cleaned by Veolia (formerly SUEZ, United Water RI, Wakefield Water) in November of 2022. Based on the coating(s) rehabilitation, age of the structure and visual observation, the structure was determined to be in excellent condition. At that time, the anchor bolts were replaced.

Component General Condition	***Life Expectancy***
Structure: Good to excellent per tank inspection report of 2013	50 years +
Protective Coatings: Good (recoated in 2004/2005)	20 years +
Concrete Foundation: Good to excellent per tank inspection report of 2013	50 years +
Interior Riser Pipe: Good, replaced in 2004	50 years +
Altitude Valve/Piping/Vault: Fair per visual inspection in 2004	15 years
Flow Meter/Vault: Excellent, installed in 2016	15 years
Chemical Feed Systems: Excellent, installed in 2016	15 years
Chemical Feed Building: Excellent, installed in 2016	50 years+

Required or Scheduled Rehabilitation/Replacement - Mautucket Road Storage Tank

Time Interval/Year	***Description***	***Estimated Cost***
5-year/2028	Cleaning, SCADA and Repairs	$56,000
10-year/2033	Altitude Valve / Piping Replacement Recoating (interior and exterior)	$24,000 $240,000
15-year/2038	Flow meter Replacement	$12,000
20-year/2043	Chemical Feed System Replacement	$12,000

3.3 Well and Pump Station Facilities

The Town's interconnection includes a master meter assembly along the south right of way of U.S. Route 1 near the intersection with Kettle Pond Drive.

The SKWD will continue to test pump, exercise and routinely monitor the three (3) existing South Shore wells which would be available in the event of an emergency or possibly to augment supply during peak demand periods. These well stations shall continue to be an integral part of the water system. The Town is also considering a capital improvement project for a water treatment plant at the well field to provide the necessary treatment and conditioning of the well supply to render the source water more aesthetically pleasing and palatable to the consumer. At this time, there is no exact date for design and implementation for such a treatment facility.

Since the Fall of 2002, the well stations have been relegated to a status of backup/emergency supply sources. The following is an assessment of the Water Division's well station facilities.

3.3.1 Well Station No. 1

Construction Date /Age: 1979 / 44 years

Description: Well Station No. 1 was constructed in 1979 at the Factory Pond well field site. This facility consists of a substantial cast in place concrete above grade enclosure that is secured by a 6-foot chain link fence. The structure is approximately 20 x 25 feet, single story consisting of cast in place concrete foundation, floor and walls. The roof is flat and constructed of precast, prestressed concrete panels with a composite roof cover system. The station is supplied by an 18 inch, 56 feet deep gravel packed well which was drilled in 1979. The well is fitted with 12 feet of screen and is equipped with a deep well electric driven vertical turbine pump assembly. The well is typically pumped at 800 gallons per minute (gpm). During power failures, well #1 can be operated by propane-fired engine that drives a right angle drive assembly for emergency operation. Adjustment of the raw water pH has historically been performed by the addition of potassium hydroxide (45%) from the nearby chemical feed building. This was discontinued in 2002 due to "red" water occurring in the system.

Until such time that a water filtration plant is designed and constructed, all water is purchased from Veolia (formerly SUEZ, United Water RI, Wakefield Water). In the interim, well redevelopment has been deferred indefinitely until such time that a water filtration plan is constructed and operable. However, each well is exercised each month to ensure continued viability of the infrastructure.

Component General Condition	***Life Expectancy***
Building Structure & Foundation: Good per visual inspection.	50 years +
Roof Cover System: Fair per visual inspection.	10 years
Mechanical Systems: Good per visual inspection.	20 years
Electrical: Fair per visual inspection.	20 years
Instrumentation and Control: Good per visual inspection.	20 years

3.3.2 Well Station No. 2

Construction Date /Age: 1976 / 47 years

Description: Well Station No. 2 was constructed in 1976 at the Factory Pond well field site. This facility consists of a substantial concrete block and brick structure that is secured by a 6-foot chain link fence. The structure was added onto in the early 1990's to accommodate chemical feed (sequestering) equipment. The existing structure is approximately 25 x 30 feet, single story consisting of cast in place concrete foundation and floor. The roof is timber framed with an asphalt shingles roof system. The station is supplied by an 18 inch, 58 feet deep gravel packed well which was drilled in 1976. The well is fitted with 16 feet of screen and is equipped with a deep well electric driven vertical turbine pump assembly with rated capacity of 450 gallons per minute (gpm). The facility is supplied with electric power but has no provision for emergency power. Adjustment of the raw water pH has historically been performed by the addition of potassium hydroxide (45%) from the nearby chemical feed building. This was discontinued in 2002 due to "red" water occurring in the system.

Until such time that a water filtration plant is designed and constructed, all water is purchased from Veolia (formerly SUEZ, United Water RI, Wakefield Water). In the interim, well redevelopment has been deferred indefinitely until such time that a water filtration plan is constructed and operable. However, each well is exercised each month to ensure continued viability of the infrastructure.

Component General Condition	***Life Expectancy***
Building Structure & Foundation: Good per visual inspection.	50 years +
Roof Cover System: Fair per visual inspection.	10 years
Mechanical Systems: Good per visual inspection.	20 years
Electrical: Fair per visual inspection.	20 years
Instrumentation and Control: Good per visual inspection.	20 years

3.3.3 Well Station No. 3

Construction Date /Age: 1999 / 24 years

Description: Well Station No. 3 was constructed in 1999 at the Factory Pond well field site with the primary intent of replacing / augmenting the supply capacity from Well Station No.1. This facility is housed in a concrete block structure that is secured by a 6-foot chain link fence. The structure is approximately 30 x 30 feet, single story consisting of cast in place concrete foundation and floor with concrete masonry block wall construction. The roof is flat and constructed of precast, prestressed concrete panels with a composite roof cover system. The station is supplied by a 12-inch, 47-foot deep gravel packed well which was drilled in 1999. The well is fitted with 10 feet of screen and is equipped with a deep well electric driven vertical turbine pump assembly with a rated capacity of 500 gallons per minute (gpm). There are provisions in the building structure to house an emergency generator, however, until the wells are placed back into operation, the generator will not be installed. A sequestering system is

provided with the intent on minimizing the customer effects of taste and odor associated with the iron and manganese from the source water.

Until such time that a water filtration plant is designed and constructed, all water is purchased from Veolia (formerly SUEZ, United Water RI, Wakefield Water). In the interim, well redevelopment has been deferred indefinitely until such time that a water filtration plan is constructed and operable. However, each well is exercised each month to ensure continued viability of the infrastructure.

Component General Condition	***Life Expectancy***
Building Structure & Foundation: Good, installed in 1999.	50 years +
Roof Cover System: Fair, installed in 1999.	20 years
Mechanical Systems: Good, installed in 1999.	30 years
Electrical: Good, installed in 1999.	30 years
Instrumentation and Control: Good, installed in 1999.	30 years

3.3.4 South Shore Interconnection with Veolia (formerly SUEZ, United Water RI, Wakefield Water)

Construction Date /Age: *2003 / 20* years

Description: The Veolia (formerly SUEZ, United Water RI, Wakefield Water) interconnection for the South Shore System is located along Route 1. The interconnection is a below grade concrete vault containing a 10-inch Ultra Mag McCrometer magnetic flow meter and altitude valve with associated isolation valves and sample taps. The open/close altitude valve controls the flow based on the water level in the Victoria Lane Tank. A manual gate valve, located upstream of the meter and altitude valve, is mostly closed in order to restrict the flow rate to a range of 600-700 gpm, otherwise the flow rate would exceed the rate authorized by Veolia (formerly SUEZ, United Water RI, Wakefield Water). The vault, altitude valve and SCADA is owned and maintained by the Town. The water meter is owned and maintained by Veolia (formerly SUEZ, United Water RI, Wakefield Water).

Component General Condition	***Life Expectancy***
Structure: Good, installed in 2003	50 years+
Electrical: Good, installed in 2003	30 years+
Instrumentation and Control: Good, installed in 2003	20 years+
Altitude Valve: Excellent, installed in 2003	20 years+

Required or Scheduled Rehabilitation/Replacement -
South Shore Interconnection with Veolia (formerly SUEZ, United Water RI, Wakefield Water)

Time Interval/Year	***Description***	***Estimated Cost***
5-year/2028	Interconnection Rehabilitation	$30,000
10-year/2033	Instrumentation and Control, and Altitude Valve / Piping Replacement	$2,500
15-year/2038	--	--
20-year/2043	--	--

3.3.5 Middlebridge Interconnection with Veolia (formerly SUEZ, United Water RI, Wakefield Water)

Construction Date /Age: *1970 / 53* years

Description: The Veolia (formerly SUEZ, United Water RI, Wakefield Water) interconnection for the Middlebridge System is located along Torrey Road. The interconnection is a below grade concrete vault containing an 8-inch Ultra Mag UM0608 magnetic flow meter with associated isolation valves and sample taps. This structure is owned and maintained by Veolia (formerly SUEZ, United Water RI, Wakefield Water). Veolia (formerly SUEZ, United Water RI, Wakefield Water) also owns and maintains a second meter pit on the easterly side of Middlebridge bridge, which is used to Veolia (formerly SUEZ, United Water RI, Wakefield Water) to "wheel" water to its Narragansett customers.

3.3.6 Matunuck (Card's Pond) Booster Pump Station

Construction Date /Age: *2001 / 22* years

Description: This facility is located off Card's Pond Road and was constructed to alleviate hydraulic deficiencies that existed in the Matunuck and East Matunuck region of the South Shore water distribution system. The pump station was originally installed to be able to fill the Victoria Lane Tank when the South Shore wells were still the supply sources. At that time the water level in the Mautucket Road Tank controlled the start/stop of the wells. An altitude valve was used to prevent the Mautucket Road Tank from overflowing since it would fill more quickly than the Victoria Lane Tank. At times before the booster pump station was installed, the Victoria Lane was slow to fill resulting in low water storage volume, especially during high demand summer months. The booster pump station was installed to prevent this tank from emptying completely during times of high demand. When the source of supply was changed to the interconnection with Veolia (formerly SUEZ, United Water RI, Wakefield Water), the booster pump station was reconfigured to supply water in the reverse direction to prevent the Mautucket Road Tank from emptying completely during times of high demand.

The facility consists of a prefabricated self-contained, below grade structure as manufactured by the Gorman-Rupp Company. The pump station enclosure is fiberglass construction with an above grade stainless steel NEMA 4X rated enclosure for pump controls and electric equipment. The facility is on automatic level control with the Mautucket Road storage tank. There are two vertical in-line pumps, Patterson Pump Company Model 6X6VIP with impeller pattern D-6920. The pumps have a design rate of 500 gpm at 20 feet with 5 HP motor. A 6-inch magnetic flow meter is located in a separate meter manhole at the site.

In 2018, a 6-inch flow control valve was installed in the flow meter manhole structure to prevent water from slipping by the pumps and essentially locking out the tank flow at times. The flow control valve is a hydraulically operated open/close differential piston control valve by Golden-Anderson.

Component General Condition	*Life Expectancy*
Pump Station Structure: Good, installed in 2001	50 years+
Mechanical Systems: Good, installed in 2001	15 years
Electrical: Good, installed in 2001	30 years+
Instrumentation and Control: Good, installed in 2001 and updated 2018	20 years+
Flow Meter Manhole: Good, installed in 2001	20 years+
Flow Meter: Good, installed in 2001	15 years
Flow Control Valve: Excellent, new in 2018	20 years

Required or Scheduled Rehabilitation/Replacement – Matunuck (Cards Pond) Booster Pump Station

Time Interval/Year	*Description*	*Estimated Cost*
5-year/2028	Pump and Piping Systems Upgrades	$10,000
10-year/2033	Flow Meter, Pump and Piping Systems Upgrades	$22,000
15-year/2038	--	--
20-year/2043	--	--

3.4 Transmission and Distribution System Components

3.4.1 Transmission and Distribution Water Mains

There exists 51.6 miles of water transmission and distribution piping throughout the South Kingstown Water Systems (South Shore and Middlebridge) with installation dates ranging from the late 1960's to the present. The South Shore portion of the system comprises the majority of the water mains (approximately 48 miles) ranging in size from 4 to 14-inches. The Middlebridge portion of the system comprises approximately 3.6 miles of water main ranging in size from 4 to 12 inches. There are also several isolated areas of 1 to 2-inch copper piping within the street right of way, the total length of which is considered negligible. These smaller diameter mains are hydraulically designed to serve isolated areas (up to several service connections) and are not intended to afford fire service protection. It is likely that these smaller mains will ever be extended due to physical constraints prohibiting development.

By far, the most prevalent type of pipe material within the transmission and distribution system is asbestos cement (AC), which accounts for approximately 95% of the total pipe material. The remainder of the system is comprised of cement lined ductile iron (DI) and polyvinyl chloride (PVC). Typical of many New England water systems, asbestos cement or "transite" pipe, as it is sometimes referred, was the pipe material of choice through the 1960 - 1970's for the Town due to its availability, low cost, durability and ease of installation. It is primarily for these reasons that the Town incorporated this type of pipe material throughout its distribution system. The useful life of properly installed AC pipe is estimated at 75 – 100 years, or longer. PVC and DI pipe materials are estimated to maintain a useful life that exceeds 100 years. On this basis, the AC water mains installed in the South Kingstown water system are approaching half of their "anticipated" useful life expectancy.

Transmission and distribution water mains are arguably the most critical and expensive infrastructure components for replacement in any water system. The Town, in recognition of this fact, has sought to develop a pipeline inventory that can be used in the decision planning process to assist in evaluating and prioritizing for any potential future replacement and/or rehabilitation of the water mains within the water system. Although the Town's water system is relatively "young" in comparison to most of the water systems in New England, the Town is intent on taking a proactive approach to water main replacement/ rehabilitation. The intended approach is to plan for scheduled maintenance and rehabilitation rather than to repair or replace by necessity due to breaks, leaks or otherwise deteriorating conditions.

This planning process was premised on first developing an accurate pipeline database and inventory that can be used in the future in establishing a predictive model as these pipelines continue to age. This database will assist in the decision planning process and ensure that all pipelines are properly documented and accounted.

This decision process is not necessarily used to determine the useful life of a particular pipe section but rather defines, based on a set of "decision" variables, which pipe section(s), when compared to others in the system, should be given a higher priority for replacement. Decision planning is considered a dynamic process that will require periodic update as additional data is collected and becomes available and potentially other decision variables are introduced. Given that the Town's water system is comprised of approximately 95% asbestos cement pipe, this was considered the most critical type of pipeline material, which was considered in the analysis.

Development of the database inventory was the first critical step in the decision planning process, as this information would be the basis for the assessment. This included assembling an accurate database of all the transmission and distribution pipelines in the Town's water system. It was also useful to note and record critical data, such as maintenance history, breaks, dead ends, etc., that were also used to characterize and evaluate pipeline sections. Discussions were conducted with Town staff to identify other potential, concerns, such as areas with pressure problems, locations of pipeline leaks and breaks, areas requiring frequent maintenance, etc. This information is also critical when developing an infrastructure pipeline rehabilitation program and may assist in prioritizing future improvements.

The following pipe characteristics were determined to be most significant with respect to the Town's water system when developing the pipeline database:

- Material
- Size (diameter)
- Location in System (i.e., high groundwater)
- Length (feet)
- Age (installation date)
- Remarks (i.e., dead ends, breaks, etc.)

This information was cataloged for each pipeline section and input into a computerized spreadsheet. This spreadsheet allows flexibility during evaluations as information can be sorted

numerically or alphabetically for any category, and in ascending or descending order. Information can easily be edited or added in the future to maintain an updated and accurate pipeline database. The completed pipeline database for the entire distribution system with the six pipe characteristics is included in Appendix B.

The next step involved is identifying particular variables that will be utilized to categorize the various pipeline sections. As the Town's water system is predominately asbestos cement pipe material, it was vital to utilize the Water Division personnel's first-hand knowledge and experience in assessing those variables that are most relevant to this type of pipe material. It is critical in that each water system has its own characteristics and therefore certain criteria or variables may be more relevant for one water system than another. To supplement the information from the Water Division, it was felt necessary to gather information from other sources in regard to first-hand experience with the use and long-term integrity of asbestos cement pipe particularly in other water systems throughout Rhode Island and New England. Of most interest were water systems that contain similar pipe materials but were considerably older than the Town's water system and their experience with the pipe material as it ages.

Numerous sources were consulted including water system managers and field personnel, contractors and sales representatives all of whom were queried as to their knowledge of the use and long-term integrity of asbestos cement pipe materials produced by various manufacturers. There was an effort to target systems that were of similar circumstance to the Town's, in that a large portion of the system contains asbestos cement pipe. This information along with specific characteristics and information obtained in regards to the Town's water system was utilized to develop a pipeline-rating schedule. The rating schedule identified particular variables that were used to rank each pipe segment in the pipeline database.

These variables were applied to each pipeline in the database in order to rank one pipeline as compared to others. These rankings are what will be used to compare one pipe section to another and ultimately will establish a hierarchy of pipeline sections, which when the time approaches could first be targeted for rehabilitation and/or replacement by the Town. With consideration of all things being equal, a pipeline section with a higher ranking is one that should be considered for replacement and/or rehabilitation prior to a pipe section with a lower ranking. This creates a method by which any particular pipe segment can be compared against another in the system in terms of prioritizing for rehabilitation. It should be noted however that the Town would also consider replacement of those pipe sections for which major roadway improvement projects are planned. These projects provide the added benefit of reduced cost (through shared costs such as pavement restoration) and also decrease the likelihood of disturbing existing asbestos cement pipe, which could lead to premature failure or increased risk of pipe breaks.

The most significant findings of fact based on the information obtained, including in some cases personal opinion, from the various sources regarding the use and long-term integrity of asbestos cement pipe materials developed from the information search are as follows:

- There existed primarily two manufacturers of asbestos cement (transite) pipe, which date back to approximately 1935 and up until approximately 1980 when installation and use was curtailed in Rhode Island due to Department of Health Drinking Water Regulations. This included Johns-Manville, (producing a product known as "Simplex" pipe) and Certain-Teed (producing a product known as "Century" pipe). Almost exclusively, all of the water systems in Rhode Island that installed asbestos cement pipe utilized products manufactured from one of these two manufacturers in either the 100-, 150-, or 200-pressure class. The 150-pressure class was by far the most prevalent.

- On the basis of opinion from most sources, Johns-Manville pipe was widely recognized as a superior product. Certain-Teed, during various stages of manufacturing and development, experienced problems with "curing", "beam strength", "quality control of pipe manufacturing", "joints" and "rings or rubbers". In certain instances, large shipments of Certain-Teed pipe were distributed with one or a number of these problems inherent in the pipe. These problems occurred predominately in the early 1930's throughout the 1940's. During the later years of production (i.e. 1950 - 1970's), these problems were largely corrected and the general concurrence was that the Certain-Teed pipe product was equal to that of Johns-Manville.

- Installation techniques of the asbestos cement pipe are critical to maintaining long-term physical integrity. This type of pipe required proper bedding, bends and thrust blocks, etc. and when installed correctly and under optimum conditions, the pipe is felt to have a life expectancy of 100 years or longer.

- Construction activities in vicinity to the pipe can seriously affect the overall structural integrity of asbestos cement pipe. When exposed, care must be taken not to "knick", "undermine" or otherwise disrupt the bedded pipe. Given the opportunity and when disturbed, most of the informational sources felt that the asbestos cement pipe section should be replaced with a more durable pipe material product such as ductile iron or polyvinyl chloride that would be less susceptible to disruption.

- Direct tapping of the asbestos cement pipe for customer services is critical. Direct threaded taps will eventually leak and fail without the use of saddle assemblies.

- There have been numerous reports of asbestos cement pipe that tends to degrade from the exterior when bedded in areas of high groundwater and aggressive soils. The cement matrix at the pipe exterior tends to weaken and decay and become "punky" over time. It was reported by one reference that in extreme instances the pipe could be crumbled by hand. In this condition, which appears to occur anywhere from 40-80 years, the pipe is subject to failure at any time. Water hammer and surges will likely cause or prematurely contribute to the failure. It appears that in areas with fluctuating water tables, where air is allowed to contact the pipe, the deterioration process may be exacerbated. It should be noted that not all references reported such deteriorating conditions in high groundwater. This appears to be more closely related to the specific environmental conditions rather than asbestos cement pipe in general.

The Water Division has observed and noted the following with respect to asbestos cement pipe in the South Kingstown water system.

- The original South Shore portion of the water system was constructed largely from the late 1960's through the early 1970's using Johns-Manville asbestos cement pipe material. Following this, and up until approximately the late 1970's, both types of pipe (Johns Manville and Certain-Teed) were installed with perhaps a greater concentration of Certain-Teed pipe. The time of the installation (mid 1960's through 1970's) is such that both manufacturers were reportedly producing a good quality pipe material. Therefore, given the time period of installation, the manufacturer of the pipe is not considered to be a significant variable in rating the asbestos cement pipe in the Town's water system. This is largely premised on the fact that both manufacturers were producing a pipe material of comparable quality during this period.

- There has not been a wide incidence or history of failures of asbestos cement water mains occurring in the water system. There have been sporadic breaks however, a large number of these have been attributed to adjacent construction activities, improper installation techniques and bedding. There have been rare occurrences of leaks and blowouts of corporation stops that were directly tapped into the main. It is now policy to install all new and replacement corporations with a saddle on all asbestos cement pipelines.

- In areas where asbestos cement pipe is bedded in high groundwater, the exterior of the pipe can at times be deteriorated. This is generally limited to a depth of approximately 1/8 inch or less and tends to affect the cement matrix such that it can be scraped or etched onto the surface. However, Water Division staff indicate little, if any, asbestos cement pipe deterioration, even in areas of high groundwater table. Water Division staff will continue to evaluate asbestos cement pie when it is exposed in conjunction with water distribution system work (ex.: new service taps, main repairs, etc.).

From this data, a determination was made as to those variables, which are most significant in assessing any future rehabilitation efforts for the Town's water system. The determination was that the type of pipe, age, location (permanent dead ends), bedding conditions and number of breaks were all critical variables in developing a pipeline-rating schedule. Further, it was concluded that the type of pipe, location and age were the most significant variables in assessing the condition of the Town's piping system. As these were the most significant factors for determining potential improvements, they were assigned a correspondingly higher weighting factor. The other two variables, breaks and bedding conditions, were considered less significant and were assigned a lesser-weighted factor.

A pipeline-rating schedule was developed which included five variables, the relative weighted factor and the rating system by which to categorize each pipe for each variable. The pipeline-rating schedule is detailed as **Table 3-1**. The maximum weighted value for each variable was calculated by multiplying each weighting factor by the maximum of 10. This maximum value of 10 was used to define the relative condition of each pipe in the system when applying all the variables and the weighting value to each of the pipeline sections.

TABLE 3-1
PIPELINE RATING SCHEDULE

Variable	Weight	Rating	Weighted Value
1. Dead End Main	0.25	10 points (permanent dead end)	2.5
2. Type of Pipe	0.25	8 points (asbestos cement pipe)	2.0
3. Age	0.25	2 points (35 years old)	0.5
4. Bedding Conditions	0.15	0 points (no groundwater)	0.0
5. Breaks	0.10	0 points (no record of break)	0.0
Totals	**1.00**		**5.0**

For any given variable, the ratings range from a low of 0 to a maximum of 10. The higher the number rating the more likely a particular pipe section should be considered for rehabilitation when considering that particular variable.

To rate the distribution system, every pipeline section in the pipeline database presented in **Appendix B** was evaluated under this rating schedule. The rating for each variable was multiplied by the appropriate weighted factor for each pipeline section and the summation of the points generated from each variable determined the total rating value.

A spreadsheet was prepared which ranks every pipeline in the database based on the five variables and the associated weighted rating factor. The weighted variable was totaled for each pipeline and then sorted in descending order by total rating value. The results of this pipeline ranking are attached in **Appendix C**. The pipelines receiving the highest total rating could necessarily be considered first in any improvement or rehabilitation plan. By developing this ranking schedule and spreadsheet format to rank the pipelines, the Town has provided a mechanism to target pipelines in most need of rehabilitation based on the defined variables in relation to other pipelines in the system. Alternatively, the inventory also allows the Town to identify and target pipelines with a specific set of variables.

The aspect of predicting the remaining useful life of a particular pipeline section is difficult at best. The ranking schedule, previously presented, identifies those pipelines which based on certain variables are considered candidates for a rehabilitation program. This does not imply that a pipeline that exceeds or falls outside a range of ranking numbers in the rating schedule has a specific remaining useful life. Rather, these are qualitative numbers that are used to compare pipelines throughout the system. In fact, the age of the pipeline is only one of six variables being considered in the rating schedule. It would be expected that those pipelines with a higher-ranking number would be targeted for rehabilitation, however the age or remaining useful life is only one factor being considered. The Town has opted to rate each of the pipelines in order to maintain a proactive approach to maintenance and to effectively appropriate capital expenditures. This approach provides the Town the ability to prioritize preventive maintenance activities and water main replacement, which can be performed on a predetermined schedule.

In order to predict the useful life of the pipelines, the information that was gathered from other older water systems is considered to be most beneficial. For example, water systems that have installed asbestos cement pipe in the mid 1930's report that these mains continue to be fully functional. There was no indication that these mains began to experience an increase in failures or reduction in hydraulic capacity. In fact, a physical inspection of one of these mains installed in the 1930's indicated no significant problems. It was further reported that this water main would appear to have many years of serviceability remaining.

Due to the fact that asbestos cement pipe has been in existence for approximately 75 years and that under normal circumstances the useful service life appears to extend beyond this point, it would appear that the useful life of asbestos cement pipe can be conservatively estimated at a minimum of 80 – 90 years, or longer. Currently, the oldest pipelines in the Water Division's inventory are approximately 45 years in age, which is significantly below the expected useful life. This would categorize the oldest pipeline sections in the Town with an estimated useful life of approximately 50 years, or longer. It shall be incumbent upon the Town to monitor the results that the older water systems are experiencing with asbestos cement pipelines. This information will likely provide the most beneficial data in support of determining remaining useful life of the Town's pipelines and if and when a comprehensive replacement program is warranted. At this time, there is no immediate plan to initiate a comprehensive pipeline replacement program. An allowance in the Infrastructure Plan for the replacement, upgrade and looping of various pipeline sections per year is depicted in **Table 5-1**.

The useful life of other pipeline materials such as ductile iron and polyvinyl chloride is expected to be 100 years, or longer.

3.4.2 Hydrants (Fire)

There exist approximately 239 fire hydrants that are owned, operated and maintained by the Water Division. Fifteen (15) of these hydrants are located within the Middlebridge system. The Water Division coordinates new installation and replacement of hydrants with the Town's Fire Department. In general, hydrants are of the same age of the pipe section on which they are installed. The majority of the hydrants in the system date back to circa 1970 and are approximately 53 years in age. Remaining hydrants are located in areas of the system, which were developed in the 1980's and 1990's and are approximately 33 - 43 years in age.

The replacement of hydrants is included in the water main replacement line item depicted in **Table 5-1**. This covers those hydrants that either due to failure, are malfunctioning or are inoperable and would require replacement.

There is currently no comprehensive hydrant replacement program due to the relatively overall "young" age of the hydrants in the system. Hydrant assemblies are expected to have a useful serviceable life of between 60-75 years when at such time they shall be candidates for replacement or upgrade. It is not anticipated that any system-wide replacement program will be required within the next 20 years.

3.4.3 Valves

The isolation valves in the Town's system, estimated at upwards of 750, were installed within the pipe section or hydrant assembly on which they are located, and consist of buried, double-disk and resilient seated, wedge style gate valves. In general, they are of similar age of the pipe section or hydrant assembly on which they were installed.

There is a maintenance program in place whereby the Water Division ensures the functionality of the valve. Unlike fire hydrants, inoperative valves are not repaired, but replaced with new resilient seated gate valves. Valve replacement occurs when a valve is found to be inoperable, leaking or otherwise malfunctioning. The replacement of valves is included in the water main replacement line item depicted in **Table 5-1**.

The useful life of a particular valve is considered equal to the pipe section or hydrant assembly on which it is contained and will be upgraded with the pipe or hydrant, as required. The cost associated with any valve replacement / upgrade will be included in the cost of the pipe or hydrant assembly. Generally, the useful life of valves, based on interviews and inquiries with older water systems, which maintain infrastructure over 100 years in age, is expected to be at minimum 80 years, or longer.

3.4.4 Customer Meters

The Water Division owns, maintains and replaces all customer service water meters within the system, which total approximately 2,862. All of the customer service meters (i.e., $^{5}/_{8}$-inch through 1½-inch) were replaced in 2007/ 2008 with radio read "Master" meters and are read by a drive-by wireless radio reading system. This system allows Water Division personnel to read all meters by radio frequency in approximately four (4) hours. The meter readings are recorded by customer account and electronically transferred to the Water Division's computerized billing system. These meters have data logging capabilities. The remote reader feature of each meter is powered by a battery which has a useful life of approximately 10 years. All of the meters were replaced in phases starting in 2019 through 2020.

3.4.5 Customer Services

The Water Division owns and maintains that portion of the customer service that lies within the public right-of-way, generally from the corporation stop at the water supply main to a curb stop valve located in the vicinity to the property line of the customer. From the point of the curb stop valve to the internal plumbing system, the customer is responsible for ownership and maintenance of the line. This portion of the service is referred to as the customer service line or service line. There are approximately 2,862 customer service lines within the Water Division's service territory.

Curb stops were generally installed to the customer's property line at the time of distribution main installation throughout a particular area and as development in an area occurred. At the time of distribution system construction in early 1970's, the standard material for all curb stops and service lines was type "K" copper tubing. Copper pipe (tubing) is a widely utilized material

for customer service connections in the water services industry and has a useful life of over 75 years. High density polyethylene (HDPE) is used for all new and replacement service lines.

The Water Division does not have an active replacement program for copper curb stops, but does pursue, through methods of leak detection, any areas of service line failure. There has been a generally low incidence of failure of service lines. The greatest incidence of failure (which is still low) occurs along services, which are directly tapped into the asbestos cement water main. These failures are repaired through use of a saddle fitting connection. It is considered by the Water Division to be more cost effective to identify and target failures through a leak detection program rather than to implement a system wide service line replacement program. The replacement of curb stops is included in the water main replacement line item depicted in **Table 5-1**.

3.4.6 Factory Pond Dam

The Factory Pond Dam consists of a small earthen dam that serves to impound the water at Factory Pond. The location of this dam is in proximity to the Factory Pond well field and the three well pump stations and Field Office. The Town of South Kingstown owns and is responsible for the maintenance of this facility. The earthen dam currently employs a narrow riprap channel to maintain normal pool elevation of Factory Pond. The dam was fully reconstructed in June 2011 and includes a natural fishway.

3.5 Administrative Components

3.5.1 Building Structures

The Water Division maintains operation from two primary locations; the Public Services Building located on US Route 1 and the Field Office at the Factory Pond well field site. The Public Services Building is utilized as a central shared location for all Town utility and engineering related services. In addition, matters pertaining to administration and engineering services for the water system are performed from this location. The care and maintenance of this structure is administered through the Town's general operations budget. Overall, the facility is in good condition and is routinely maintained by the Town. The administration of billing and collection for the Water Division are performed at the Town Hall.

The Field Office is located at the Factory Pond well field site and serves as the primary location for the Water Division's day-to-day operations. The structure is of wood and masonry construction, single story with concrete slab and ringwall footing. The roof is of timber truss construction with asphalt shingle covering. The original structure (chemical feed and storage building) was built in 1996 and was recently expanded to include Field Office facilities. This building structure is approximately 40 by 30 feet and houses bulk chemical storage and feed equipment for pH adjustment (discontinued operation in 2000) including a bulk storage tank, containment area, etc. The building is utilized to store various water works maintenance equipment, spare and replacement parts including meters, pipe, and fittings, etc.

The Field Office portion of the structure is utilized as the main office for Water Division personnel and serves as the SCADA central monitoring station. Current and historical records, data and general storage are performed at this location. The head-end of the SCADA system is located at this office from which the entire water system is routinely polled for collection of critical water data (i.e. pump rates, tank levels, alarms, etc.), which is stored on the main SCADA computer. Operations personnel maintain the ability to monitor and control all critical water system infrastructure from this location.

Overall, the structure is in good condition and serves adequately for its intended purpose. A line item for DPS Office Building Contribution is included in **Table 5-1**.

3.5.2 Vehicles

The Water Division owns, operates and maintains a fleet of three (3) service vehicles including two utility trucks and a pickup for use in normal day-to-day system operation and maintenance. Overall, the fleet is in good to excellent condition. An allowance in the Infrastructure Plan for the purchase and replacement of vehicles is included in the rolling stock equipment replacement line item depicted in **Table 5-1**. This program ensures that no vehicle is older than approximately eight years and maintains the serviceability and reliability of the entire fleet.

3.5.3 Computer Equipment/Billing Software

The Water Division periodically upgrades its computer system for general administration and billing purposes and the cost of which is included in the general operations budget. This included networking a system of personal computers at the main office of the Public Services Building along with the upgrading of the customer billing software program. Meter reading software was upgraded in phases between 2019 and 2020 at the time of system-wide meter replacement. The computer system is considered to be in good condition and is replaced on an as-needed basis.

In addition, the Town maintains a commitment to keeping pace with available technology and seeks to upgrade where it is economically justifiable. The useful life of this equipment is based on its technological capabilities rather than functional physical obsolescence. At the current rate of technological advances in both software and hardware, it is estimated that this system may be obsolete within 5 years. There are no near-term plans within the next five years for other improvements/rehabilitations at this facility. A line item for DPS Office Building Contribution is included in **Table 5-1**.

3.5.4 Supervisory Control and Data Acquisition System

The Water Division's Supervisory Control and Data Acquisition (SCADA) system consists of a PC-based control system with specialized applications software that was installed in 2001. The main PC terminal or head-end of the system is located at the Field Office at the Factory Pond well field. Remote communications between the head-end and all remote locations is achieved via radio telemetry, which forgoes the need for leased land line (telephone) connections. An RTU (remote terminal unit) is located at each facility from which data is collected locally and

transmitted to the SCADA head-end. Signals are sent and received by the head end via radio telemetry to the various remote facilities (i.e. pump stations, meter and control vaults, tanks, etc.) for data collection, status indication and report back and remote operation and control. This system permits automatic control of all major system components such as automatic sequencing of pumps to start and stop based on predetermined water levels in tanks, etc. or can be used to remotely operate facilities.

The use of this PC based SCADA system provides operations personnel with an easy and quick method by which data is collected throughout the system. Operations personnel can then utilize this data to make critical decisions with regard to the timing of pump operation to maximize energy efficiency, monitoring of water elevations in tanks, etc. In addition, the operators can instantly, through viewing the screen, review and assess a number of system operational variables at a given time. The system allows management and on-call operators to dial-in to the SCADA system from home to monitor water system performance and address alarm conditions. The system stores data electronically on hard disk and computer disks, rather than paper charts or printouts, providing for easier and more comprehensive review of historic information.

Periodic replacement/maintenance will be required for various components such as radio's, PC's, RTU's and printers, etc. **Table 5-1** has identified $78,000 for various infrastructure improvements in the SCADA equipment.

Section 4.0
Compliance with Water Quality Regulations/Planning Documents

4.1 Water Quality Regulations

The Water Division is cognizant of the requirements of the Safe Drinking Water Act (SDWA) and maintains a diligent and continual effort to ensure compliance. To a large extent, the Town relies upon Veolia (formerly SUEZ, United Water RI, Wakefield Water), the primary wholesale supplier, to meet specific compliance requirements of the SDWA to ensure that water quality standards are being met. The Water Division continues to perform analytical testing of its Factory Pond well field (although currently inactive) should its supply be required in an emergency. These test results allow the Town to determine compliance standards and consequently potential changes in operations.

The Rhode Island Department of Health (RIDOH) is the primacy agency for enforcing these regulations. The Water Division is designated by the RIDOH as a public water system. As such, the Water Division is required to sample water from the distribution system that is representative of that which consumers drink to assure conformance with these regulations. For the Water Division, this most notably includes the "Total Coliform Rule" whereby the Water Division is required to collect samples from the distribution system to verify the presence/absence of total coliform. The Water Division also performs sampling for lead and copper at select individual consumer taps in accordance with the Lead and Copper Rule (LCR). The Water Division maintains compliance with the total coliform rule and LCR.

4.2 Compliance with Planning Documents

This Clean Water Infrastructure Replacement Plan is intended to be consistent with the goals and policies outlined in the "Water Supply System Management Plan for South Kingstown Public Services Department (dated 2023)" as amended and the Town of South Kingstown Comprehensive Community Plan (dated 2021).

Section 5.0
Infrastructure Replacement Plan

5.1 General

The purpose of this Plan has been to identify water system infrastructure components within the Town's water system, which require rehabilitation and replacement in accordance with the requirements of the Rules and Regulations for Clean Water Infrastructure Replacement Plans. It is the obligation of the Town of South Kingstown that in combination with these infrastructure improvements and general system maintenance, operation and upkeep that the water system operates and provides a safe and reliable water supply for an indefinite period of time. **Table 5-1** summarizes the infrastructure costs for the five and twenty-year planning periods.

As required by the regulations, the five-year costs that are more quantifiable have been established and presented on an annual basis. The twenty-year costs, which at this juncture are not as quantifiable, have been presented in totalized increments of five-year intervals (i.e., 5–10, 10–15 and 15–20). These twenty-year costs will be refined and updated with future revisions of this Plan. All costs have been presented in present day (year 2023) dollars.

5.1.1 Operation

The Water Division operates as an Enterprise Fund Agency within the municipal corporation of the Town of South Kingstown within the prescribed limits of the existing service territory. The Town has established enterprise funds for operations that are intended to be self-supporting through user charges (i.e., the intent of the governing body is that all costs - expenses, including depreciation of providing these services to the general public on a continuing basis be financed or recovered through user charges).

All operations of the Water Division are financed from water revenues in the form of user fees. The budget for the Water Division is prepared to incorporate all the costs of operation and the water rates are established so that users pay for all activities of the Water Division. Use fees and charges levied by the Water Division are established by the Town Council as an Ordinance of the Town of South Kingstown.

The Town's financial statements include an audit of the financial accounts of the Water Division. The Water Fund is audited separately as an Enterprise Fund. The Enterprise Fund audits are combined with the complete Town audit but are depicted separately in the Town's Annual Comprehensive Report.

The Town of South Kingstown's general government provides various overhead services to the Water Division including personnel and payroll, billing and collections assistance, accounting, purchasing, financing, legal assistance, user fee collection, etc. In addition, the Town is responsible for the overall management and supervision of the Water Division. The Town assesses these charges based upon actual costs incurred and prorated using accounting that is appropriate to the particular function.

5.1.2 Funding

The Water Division has available and utilizes a variety of sources for funding of water system improvements including those costs associated with infrastructure replacements. In general, the Water Division seeks to secure funding through the most cost-effective financing alternatives available. The Water Division does not necessarily utilize each of the available funding sources detailed herein, but rather these are options that are currently available for consideration. The following are the major available sources of revenue/financing for the Town and Water Division.

5.1.3 Customer Charges

The Water Division raises revenue through water use and service charges. This revenue is used to fund operations, capital improvements and to pay debt service on outstanding notes. The Town adjusts these charges as necessary when the annual budget is established to ensure an adequate source of revenue for the budgeted expenses.

5.1.4 General Obligation Bonds

The option is available to the Town for any of its financing needs including capital needs of the Water Enterprise Fund. The cost of debt obligations associated with the Enterprise fund are recognized in the operating budget of the Fund. The Town's Finance Department and the Town Council must evaluate the desire to use General Obligation debt for future water projects. The Water Division currently has not outstanding debt service.

5.1.5 Cash Reserves

The Town maintains cash reserves in the Water Enterprise Reserve Fund for special projects, improvements and emergencies for which an immediacy of need is required. These reserves are accumulated through budget surpluses.

5.1.6 RI Water Resources Board

The Rhode Island Water Resources Board (RIWRB) has grant and loan programs available for implementing various water system projects. Under the program, the RIWRB finances and builds the improvements to the requirements of the water system and leases the improvements to the system charging enough to pay back the bonded indebtedness for the project. The RIWRB also promotes initiatives for various projects such as water system emergency interconnections. The RIWRB will provide grant money to water systems that seek to create emergency interconnections with adjoining water systems for the purpose of creating a permanent emergency interconnection.

5.1.7 Rhode Island Clean Water Finance Agency

The State of Rhode Island passed legislation in 1993 creating the Safe Drinking Water Revolving Fund under the auspices of the Agency and the Department of Health. This program

established a subsidized loan program for eligible publicly and privately organized drinking water supplies in the State of Rhode Island. In order to determine which projects are to be funded, the RIDOH annually prepares a Priority Project Listing. This listing is the basis for appropriation of funds. The Town is aware of the availability of this program and participates to the extent practical for specific projects.

5.1.8 Infrastructure Replacement Fund (IRF)

The Water Division currently funds its infrastructure replacement program via depreciation of assets. The depreciation funds are reserved in the Water Enterprise Fund's unrestricted net assets for future capital improvement projects.

Moving forward, the Town has established a restricted cash account within the Water Fund which is designated as an Infrastructure Replacement Fund. In accordance with the requirements of the Rules and Regulations for CWIRP and in conjunction with the Town's five and twenty-year "Plan", to be refined and updated every five years, the earmarks the required contribution amortized annually over the useful life of 20 years of the "Plan". In the 2022-2023 budget, the Town has allocated $512,857 for capital outlay and depreciation. This was an increase of $107,328 over the 2021-2022 budget. Historically, the Town has budgeted $183,000 to $210,000 in depreciation expense, annually, and based on Table 5-1 it is anticipated that this funding level will continue to increase in subsequent budgets. The RIDOH Regulations have set no specific guidelines as to the method by which the IRF fee is calculated, however, requirements per RIGL 46-15.6-6 are:

- Any monies collected be deposited into a dedicated fund;
- That the charge to the user be proportional to actual usage;
- That funds collected are identified as a separate line item in the annual audit; and
- The IRF financing be reviewed, and adjusted (if necessary) on a bi-annual basis.

The IRF could not be utilized for debt service payment on bonds, but rather the reserve funds would be applied directly to the designated infrastructure replacement project(s) which will reduce the need for borrowing.

5.2 Funding and Cash Flow Analysis

In order to meet the Rules and Regulations for preparation of a Clean Water Infrastructure Replacement Plan, an analysis of the existing infrastructure of the Water Division's water system was completed. The previous sections have provided an analysis and discussion of the system infrastructure components related to condition, remaining useful life and anticipated replacement and/or rehabilitative costs. This specifically included those components for which a remaining useful life of 20 years or less was identified. In general, the infrastructure rehabilitation or replacement of any particular component has been prioritized by the time interval based on its expected useful life.

A discussion was also provided for those improvements categorized as general operations and maintenance expenses of the water system. These, by definition of the Regulations, do not

qualify for funding under the IRF, but rather must be funded through the general operations budget. This is consistent with current practices of the Water Division.

5.3 Financial Analysis

The Rules and Regulations for Clean Water Infrastructure Plans require that a financial element be addressed as a method to fund identified infrastructure improvements. The purpose of this financial analysis is to evaluate the financial impact of the identified infrastructure improvements on the water system and to identify appropriate funding source(s). The Infrastructure Replacement Fund (IRF) qualified costs have been presented in **Table 5-1** for the 5 and 20-year planning horizons, respectively. This Table provides a detailed breakdown for the five-year period that totals $1,101,000. The Table also provides a summary breakdown for the twenty-year period that totals $3,616,000 (includes the 5-Year total). These are the dollar values that the Town must endeavor to collect through user fees in order to fund the necessary infrastructure rehabilitation and meet the requirements of the IRF.

The Town shall seek to establish an IRF to cover the identified infrastructure costs for the five-year planning period. It is envisioned that funding of the IRF would commence in the next fiscal year following approval of this Plan. This would also necessitate a modification to the existing water rate schedule to account for the IRF surcharge that would also be performed. Subsequently, from that point forward, the annual audit shall reflect the IRF as a separate identified line item. It is the intent of the Water Division to review the IRF on a biannual basis and to make any necessary adjustments to ensure compliance with the Infrastructure Regulations. Documentation with regards to fund expenditures, account balance, project completion and funding allocation, etc. for the IRF shall be maintained consistent with requirements of the Infrastructure Regulations.

Currently, the Town maintains a method of customer rate charges based on full cost of service allocation accounting. In other words, the Water Division seeks to recover all the costs associated with administration, operation, and maintenance of the system through customer rate charges. This type of system establishes uniform rates for customers and maintains individual customer bills based on the actual volume of water used. In addition, all customers pay an annual minimum service charge based on meter size to cover the cost of meter maintenance, administration and billing. The rate charges also include surcharges by the Department of Health and State Water Quality Protection Charge. Therefore, the final customer bill is comprised of a minimum charge, which includes a base service charge including 1,250 cubic feet of water (per quarter), an overage usage charge per 100 cubic feet of water, and the RIDOH and State surcharges.

The IRF shall be funded through customer usage proportioned to the volume of water used per individual account. The purpose in developing this form of financing for the IRF is to maintain a uniform rate that would not vary significantly nor require adjustment from year to year and yet would accumulate sufficient funds for the identified infrastructure improvements, when required. To develop an approximation of the initial IRF rate, a simple straight-line calculation was assumed for purposes of this Plan. This approach averages the necessary funds for the five-year identified improvement equally over each individual year. This will be adjusted accordingly once further analysis of the rate structure is completed.

TABLE 5-1 CLEAN WATER INFRASTRUCTURE REPLACEMENT PLAN - SOUTH KINGSTOWN WATER DIVISION										
	Fiscal Year 2023-2024	**Fiscal Year 2024-2025**	**Fiscal Year 2025-2026**	**Fiscal Year 2026-2027**	**Fiscal Year 2027-2028**	**5-Year Total**	**Fiscal Years 2028-2033**	**Fiscal Years 2033-2038**	**Fiscal Years 2038-2043**	**20-Year Total**
Mautucket Water Tank Inspection	$0	$0	$0	$0	$10,000	**$10,000**	$10,000	$0	$10,000	**$30,000**
Mautucket Water Tank Cleaning	$0	$17,000	$0	$19,000	$0	**$36,000**	$50,000	$50,000	$55,000	**$191,000**
Mautucket Water Tank Repainting	$0	$200,000	$0	$0	$0	**$200,000**	$0	$0	$0	**$200,000**
Mautucket Water Tank Alt. Val./Piping Repl.	$0	$20,000	$0	$0	$0	**$20,000**	$0	$0	$0	**$20,000**
Mautucket Tank Flow Meter Replacement	$0	$0	$0	$0	$10,000	**$10,000**	$0	$0	$0	**$10,000**
Mautucket Tank Chemical Feed System Replacement	$0	$0	$0	$10,000	$0	**$10,000**	$0	$0	$10,000	**$20,000**
Victoria Lane Water Tank Inspection	$0	$0	$0	$0	$10,000	**$10,000**	$10,000	$0	$10,000	**$30,000**
Victoria Lane Water Tank Cleaning	$0	$17,000	$0	$19,000	$0	**$36,000**	$50,000	$50,000	$55,000	**$191,000**
Victoria Lane Water Tank Repainting	$0	$200,000	$0	$0	$0	**$200,000**	$0	$0	$0	**$200,000**
Victoria Lane Water Tank Alt. Val./Piping Repl.	$0	$20,000	$0	$0	$0	**$20,000**	$0	$0	$0	**$20,000**
SCADA / Telemetry Upgrades	$38,000	$0	$0	$0	$0	**$38,000**	$40,000	$0	$50,000	**$128,000**
Water Supply										
RIDOH Capital Infrastructure Plan	$0	$0	$0	$0	$25,000	**$25,000**	$25,000	$25,000	$25,000	**$100,000**
RIDOH Vulnerability Assessment Plan	$0	$0	$0	$0	$25,000	**$25,000**	$25,000	$25,000	$25,000	**$100,000**
Water Supply Management Plan Reaffirmation	$0	$0	$0	$0	$25,000	**$25,000**	$25,000	$25,000	$25,000	**$100,000**
Cards Pond Booster Pump Station Repairs	$0	$12,000	$0	$0	$0	**$12,000**	$0	$20,000	$0	**$32,000**
Well Pump Station Infrastructure	$0	$0	$10,000	$0	$0	**$10,000**	$0	$0	$20,000	**$30,000**
South Shore Interconnection	$0	$0	$0	$0	$0	**$0**	$20,000	$0	$0	**$20,000**

TABLE 5-1 CLEAN WATER INFRASTRUCTURE REPLACEMENT PLAN - SOUTH KINGSTOWN WATER DIVISION										
	Fiscal Year 2023-2024	**Fiscal Year 2024-2025**	**Fiscal Year 2025-2026**	**Fiscal Year 2026-2027**	**Fiscal Year 2027-2028**	**5-Year Total**	**Fiscal Years 2028-2033**	**Fiscal Years 2033-2038**	**Fiscal Years 2038-2043**	**20-Year Total**
Rehabilitation										
Water Distribution										
Leak Detection Reserve	$0	$0	$25,000	$0	$25,000	**$50,000**	$0	$60,000	$70,000	**$180,000**
Water Main Replacement Reserve (includes hydrants, valves and curb stops)	$25,000	$25,000	$0	$25,000	$25,000	**$100,000**	$100,000	$100,000	$100,000	**$400,000**
Water Meter Replacement Program	$0	$0	$0	$0	$10,000	**$10,000**	$0	$0	$0	**$10,000**
Equipment & GIS										
DPS Office Building Contribution	$0	$15,000	$0	$15,000	$0	**$30,000**	$30,000	$30,000	$30,000	**$120,000**
Rolling Stock Equipment Replacement (includes vehicles)	$37,000	$35,000	$45,000	$0	$47,000	**$164,000**	$50,000	$60,000	$60,000	**$334,000**
GIS Upgrade	$20,000	$0	$20,000	$20,000	$0	**$60,000**	$25,000	$30,000	$35,000	**$150,000**
Future Bonding Program										
Walter Filtration Plant - Pilot Testing and Conceptual Design	$0	$0	$0	$0	$0	**$0**	$500,000	$0	$0	**$500,000**
Walter Filtration Plant - Design and Permitting	$0	$0	$0	$0	$0	**$0**	$500,000	$0	$0	**$500,000**
Water Fund Total	$120,000	$561,000	$100,000	$108,000	$212,000	**$1,101,000**	$1,460,000	$475,000	$580,000	**$3,616,000**

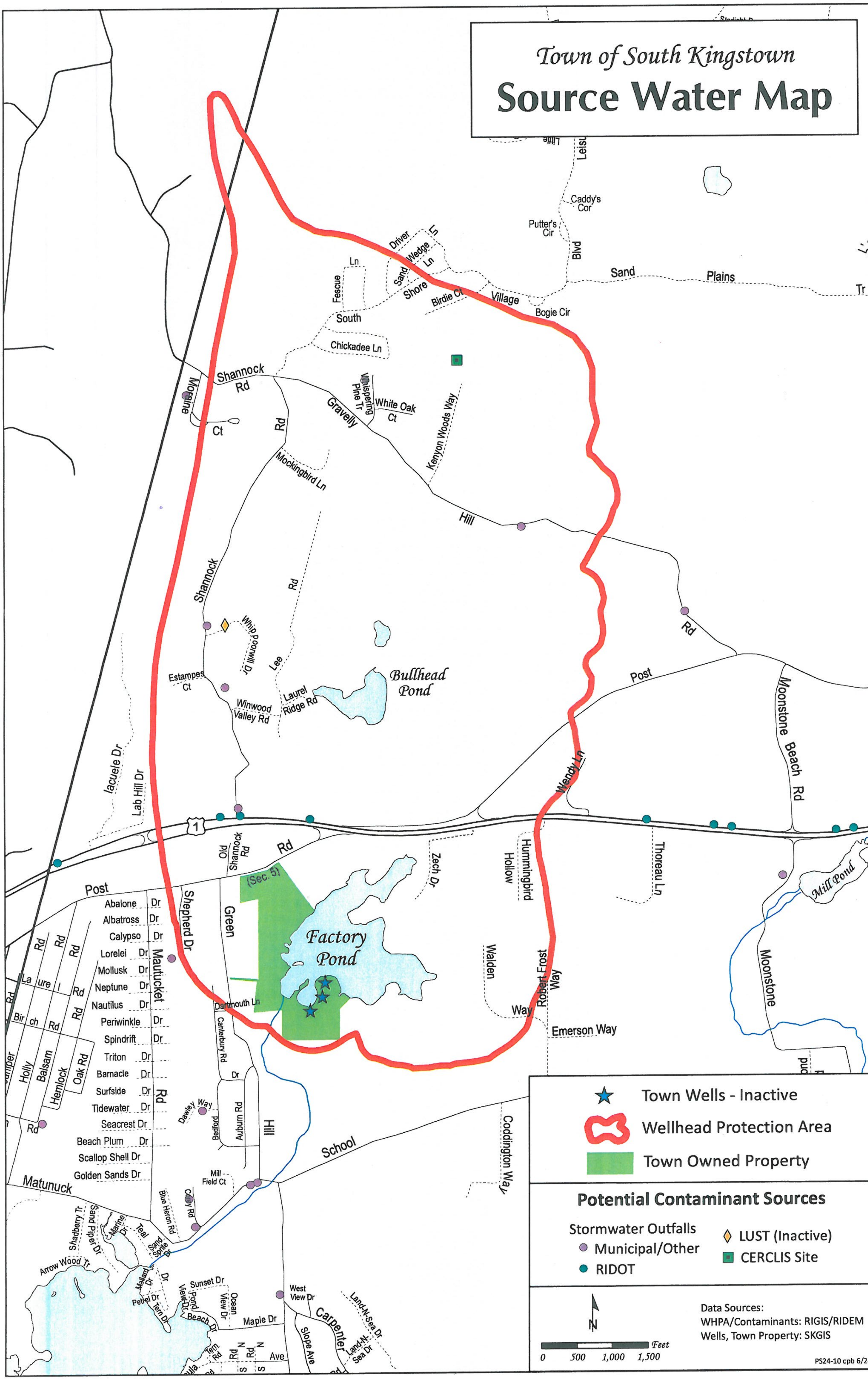
APPENDIX A

WATER SERVICE AREA MAP
AND
SOURCE WATER MAP

Town of South Kingstown

WATER SERVICE AREA

Department of Public Services


Town of South Kingstown
Source Water Map
Town Wells - Inactive
Wellhead Protection Area
Town Owned Property
Potential Contaminant Sources
Stormwater Outfalls
Municipal/Other
RIDOT
LUST (Inactive)
CERCLIS Site
0 500 1,000 1,500 Feet
Data Sources:
WHPA/Contaminants: RIGIS/RIDEM
Wells, Town Property: SKGIS
PS24-10 cpb 6/24
Factory Pond
Bullhead Pond
Mill Pond
Moonstone Beach Rd
Shannock Rd
Gravelly Hill Rd
Post Rd
Sand Plains Tr
Matunuck School Rd
Mautucket Rd
Green Hill
Wendy Ln
Kenyon Woods Way
Shepherd Dr
Old Shannock Rd
Thoreau Ln
Hummingbird Hollow
Walden Way
Robert Frost Way
Emerson Way
Coddington Way
Zech Dr
(Sec. 5)
Dartmouth Ln
Canterbury Rd
Auburn Rd
Bedford
Dawley Way
Mill Field Ct
Whip Poorwill Dr
Winwood Valley Rd
Laurel Ridge Rd
Lee Rd
Estampes Ct
Mockingbird Ln
Moraine Ct
Whispering Pine Tr
White Oak Ct
Chickadee Ln
South Fescue Ln
Sand Wedge Ln
Driver Ln
Shore
Birdie Ct
Village
Bogie Cir
Putter's Cir
Caddy's Cor
Blvd
Lab Hill Dr
Iacuele Dr
Abalone Dr
Albatross Dr
Calypso Dr
Lorelei Dr
Mollusk Dr
Neptune Dr
Nautilus Dr
Periwinkle Dr
Spindrift Dr
Triton Dr
Barnacle Dr
Surfside Dr
Tidewater Dr
Seacrest Dr
Beach Plum Dr
Scallop Shell Dr
Golden Sands Dr
Oak Rd
Hemlock Rd
Balsam Rd
Holly Rd
Blue Heron Rd
Sand Piper Dr
Shadberry Tr
Arrow Wood Tr
West View Dr
Carpenter
Slope Ave
Land-N-Sea Dr
Maple Dr
Ocean View Dr
Sunset Dr
Pond View Dr
Beach Dr
Petrel Dr
Tern Dr
Mallard Dr
Teal
Sand Sprite Dr
Marine Dr

APPENDIX B

TRANSMISSION AND DISTRIBUTION PIPELINE INVENTORY BY SYSTEM

Pipe Inventory sorted by System and Street Name

South Kingstown Water Main Inventory

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
Middlebridge	Ash St	368	6	193	Asbestos Cement	1970	75
Middlebridge	Ash St	416	6	180	Asbestos Cement	1970	75
Middlebridge	Berglund Ave	420	6	279	Asbestos Cement	1970	75
Middlebridge	Cook Ave	365	4	419	Asbestos Cement	1970	75
Middlebridge	Edwards Ave	361	4	505	Asbestos Cement	1970	75
Middlebridge	Grant Ave	369	6	295	Asbestos Cement	1970	75
Middlebridge	Hahn Ave	366	4	436	Asbestos Cement	1970	75
Middlebridge	Harcourt Ave	355	4	571	Asbestos Cement	1970	75
Middlebridge	John St	399	4	342	Asbestos Cement	1970	75
Middlebridge	Kingston Ave	360	4	596	Asbestos Cement	1970	75
Middlebridge	Lafayette Ave	424	6	370	Asbestos Cement	1970	75
Middlebridge	Lafayette Ave	425	6	221	Asbestos Cement	1970	75
Middlebridge	Maple St	411	6	234	Asbestos Cement	1970	75
Middlebridge	Maple St	412	6	216	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	354	12	190	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	356	12	216	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	357	4	625	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	358	12	149	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	359	12	218	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	362	12	150	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	363	12	352	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	394	12	51	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	396	12	296	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	397	12	822	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	398	12	948	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	400	12	1,008	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	401	12	272	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	404	12	133	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	406	12	91	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	407	12	49	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	413	12	166	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	414	12	159	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	415	12	25	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	417	12	148	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	418	12	178	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	419	12	1,544	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	421	12	149	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	422	12	13	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	423	12	9	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	426	12	112	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	427	12	201	Asbestos Cement	1970	75
Middlebridge	Middlebridge Rd	428	12	1,274	Asbestos Cement	1970	75
Middlebridge	Mitchell Ave	405	4	420	Asbestos Cement	1970	75
Middlebridge	Oak Ct	409	6	41	Asbestos Cement	1970	75
Middlebridge	Pine Ct	410	6	169	Asbestos Cement	1970	75
Middlebridge	Pollock Ave	364	4	436	Asbestos Cement	1970	75
Middlebridge	Radial Dr	393	6	189	Asbestos Cement	1970	75
Middlebridge	River Ave	353	4	515	Asbestos Cement	1970	75
Middlebridge	Riverside Dr	395	6	144	Asbestos Cement	1970	75
Middlebridge	Riverside Dr	402	6	1,112	Asbestos Cement	1970	75
Middlebridge	Riverside Dr	403	6	864	Asbestos Cement	1970	75
Middlebridge	Sherman Ct	408	6	306	Asbestos Cement	1970	75
Middlebridge	Torrey Rd	367	12	330	Asbestos Cement	1970	75
South Shore	Abalone Dr	11	6	174	Asbestos Cement	1975	75
South Shore	Abalone Dr	13	12	179	Asbestos Cement	1975	75
South Shore	Alder Rd	61	8	1,284	Asbestos Cement	1975	75

Pipe Inventory sorted by System and Street Name

South Kingstown Water Main Inventory

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Alder Rd	62	6	570	Asbestos Cement	1975	75
South Shore	Amancio St	534	8	487	Asbestos Cement	1975	75
South Shore	Amancio St	535	6	241	Asbestos Cement	1975	75
South Shore	Arrow Wood Tr	3	6	196	Asbestos Cement	1975	75
South Shore	Arrow Wood Tr	529	4	217	Asbestos Cement	1975	75
South Shore	Aspen Rd	4	8	178	Asbestos Cement	1975	75
South Shore	Aspen Rd	5	8	948	Asbestos Cement	1975	75
South Shore	Atlantic Ave	63	8	993	Asbestos Cement	1975	75
South Shore	Atlantic Ave	64	4	335	Asbestos Cement	1975	75
South Shore	Atlantic Ave	452	6	154	Asbestos Cement	1975	75
South Shore	Atlantic Ave	453	6	550	Asbestos Cement	1975	75
South Shore	Atlantic Ave	455	6	243	Asbestos Cement	1975	75
South Shore	Atlantic St	504	4	329	Asbestos Cement	1975	75
South Shore	Atlantic St	505	6	577	Asbestos Cement	1975	75
South Shore	Auburn Rd	123	6	280	Asbestos Cement	1975	75
South Shore	Auburn Rd	124	6	928	Asbestos Cement	1975	75
South Shore	Auburn Rd	506	6	796	Asbestos Cement	1975	75
South Shore	Balsam Rd	7	12	245	Asbestos Cement	1975	75
South Shore	Balsam Rd	65	6	1,075	Asbestos Cement	1975	75
South Shore	Balsam Rd	66	8	1,039	Asbestos Cement	1975	75
South Shore	Balsam Rd	67	8	554	Asbestos Cement	1975	75
South Shore	Barnacle Dr	15	4	187	Asbestos Cement	1975	75
South Shore	Barnacle Dr	125	4	217	Asbestos Cement	1975	75
South Shore	Barney Ave	33	4	168	Asbestos Cement	1975	75
South Shore	Bass Rd	68	6	675	Asbestos Cement	1975	75
South Shore	Bass Rd	126	6	249	Asbestos Cement	1975	75
South Shore	Bayberry Ave	127	4	52	Asbestos Cement	1975	75
South Shore	Bayberry Ave	500	6	301	Asbestos Cement	1975	75
South Shore	Bayberry Ave	501	4	514	Asbestos Cement	1975	75
South Shore	Beach Dr	17	4	486	Asbestos Cement	1975	75
South Shore	Bedford Dr	82	8	340	Asbestos Cement	1975	75
South Shore	Bedford Dr	83	8	189	Asbestos Cement	1975	75
South Shore	Bedford Dr	128	6	7	Asbestos Cement	1975	75
South Shore	Bedford Dr	129	6	108	Asbestos Cement	1975	75
South Shore	Bedford Dr	130	6	10	Asbestos Cement	1975	75
South Shore	Bedford Dr	131	8	435	Asbestos Cement	1975	75
South Shore	Bedford Dr	132	8	505	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	71	8	325	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	72	6	1,896	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	133	8	284	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	134	8	112	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	136	8	352	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	437	8	74	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	438	8	0	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	513	8	1	Asbestos Cement	1975	75
South Shore	Blackberry Hill Dr	514	8	446	Asbestos Cement	1975	75
South Shore	Bliss Rd	536	4	338	Asbestos Cement	1975	75
South Shore	Bliss Rd	537	6	582	Asbestos Cement	1975	75
South Shore	Blue Heron Rd	472	6	0	Asbestos Cement	1975	75
South Shore	Blue Heron Rd	473	4	295	Asbestos Cement	1975	75
South Shore	Blue Heron Rd	474	6	477	Asbestos Cement	1975	75
South Shore	Border Ave	73	8	435	Asbestos Cement	1975	75
South Shore	Border Ave	498	8	906	Asbestos Cement	1975	75
South Shore	Border Ave	499	6	347	Asbestos Cement	1975	75
South Shore	Bow St	46	4	506	Asbestos Cement	1975	75
South Shore	Brant Rd North	20	6	193	Asbestos Cement	1975	75

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Brant Rd North	538	4	240	Asbestos Cement	1975	75
South Shore	Brant Rd South	526	6	803	Asbestos Cement	1975	75
South Shore	Breakwater Rd	74	6	1,155	Asbestos Cement	1975	75
South Shore	Breakwater Rd	75	6	490	Asbestos Cement	1975	75
South Shore	Briggs Rd	76	6	435	Asbestos Cement	1975	75
South Shore	Briggs Rd	77	4	363	Asbestos Cement	1975	75
South Shore	Browning St	78	8	356	Asbestos Cement	1975	75
South Shore	Browning St	79	8	364	Asbestos Cement	1975	75
South Shore	Browning St	80	8	382	Asbestos Cement	1975	75
South Shore	Browning St	113	8	304	Asbestos Cement	1975	75
South Shore	Browning St	137	8	356	Asbestos Cement	1975	75
South Shore	Canterbury Rd	81	6	350	Asbestos Cement	1975	75
South Shore	Canterbury Rd	138	8	444	Asbestos Cement	1975	75
South Shore	Canterbury Rd	139	8	532	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	85	12	2,266	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	86	12	550	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	87	12	969	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	135	12	338	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	439	12	1,704	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	440	12	33	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	441	4	1,129	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	442	8	1	Asbestos Cement	1975	75
South Shore	Card's Pond Rd	443	12	317	Asbestos Cement	1975	75
South Shore	Carpenter Dr	88	8	193	Asbestos Cement	1975	75
South Shore	Carpenter Dr	89	8	224	Asbestos Cement	1975	75
South Shore	Carpenter Dr	90	6	886	Asbestos Cement	1975	75
South Shore	Carpenter Dr	91	6	88	Asbestos Cement	1975	75
South Shore	Carpenter Dr	92	6	571	Asbestos Cement	1975	75
South Shore	Carpenter Dr	93	6	371	Asbestos Cement	1975	75
South Shore	Carpenter Dr	94	8	697	Asbestos Cement	1975	75
South Shore	Carpenter Dr	95	8	213	Asbestos Cement	1975	75
South Shore	Carpenter Dr	140	6	181	Asbestos Cement	1975	75
South Shore	Carpenter Dr	141	6	328	Asbestos Cement	1975	75
South Shore	Carpenter Dr	142	6	62	Asbestos Cement	1975	75
South Shore	Carpenter Dr	143	8	810	Asbestos Cement	1975	75
South Shore	Chappell Rd	36	4	828	Asbestos Cement	1975	75
South Shore	Clipper Cir	376	6	302	Poly Vinyl Chloride	1990	100
South Shore	Coast Guard Ave	24	6	446	Asbestos Cement	1975	75
South Shore	Coddington Way	492	8	764	Asbestos Cement	1975	75
South Shore	Coddington Way	493	6	1,070	Asbestos Cement	1975	75
South Shore	Coddington Way	494	6	0	Asbestos Cement	1975	75
South Shore	Coddington Way	495	6	31	Asbestos Cement	1975	75
South Shore	Columbine Ct	465	8	225	Ductile Iron	1990	100
South Shore	Commodore Perry Hwy	542	12	6,156	Ductile Iron	1990	100
South Shore	Community Dr	454	6	1,197	Asbestos Cement	1975	75
South Shore	Community Dr	509	4	655	Asbestos Cement	1975	75
South Shore	Corey Rd	52	8	623	Poly Vinyl Chloride	1990	100
South Shore	Cormorant Rd	22	6	416	Asbestos Cement	1975	75
South Shore	Dartmouth Ln	345	8	241	Asbestos Cement	1975	75
South Shore	David's Way	43	6	562	Poly Vinyl Chloride	1990	100
South Shore	Davis St	96	6	153	Asbestos Cement	1975	75
South Shore	Davis St	97	6	55	Asbestos Cement	1975	75
South Shore	Davis St	98	4	280	Asbestos Cement	1975	75
South Shore	Day Lily Cir	462	8	178	Ductile Iron	1990	100
South Shore	Day Lily Cir	463	8	1,564	Ductile Iron	1990	100
South Shore	Day Lily Cir	464	8	692	Ductile Iron	1990	100

System	Streetname	Object GIS ID	Diameter (Inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Dory Ct	39	6	345	Asbestos Cement	1975	75
South Shore	E Mantunuck Farm Dr	539	8	1,918	Ductile Iron	1990	100
South Shore	Eastern View Ave	347	6	801	Asbestos Cement	1975	75
South Shore	Egret Ln	510	8	385	Ductile Iron	1990	100
South Shore	Elm Rd	99	12	253	Asbestos Cement	1975	75
South Shore	Elm Rd	100	12	248	Asbestos Cement	1975	75
South Shore	Elm Rd	101	12	269	Asbestos Cement	1975	75
South Shore	Elm Rd	102	12	22	Asbestos Cement	1975	75
South Shore	Gale Dr	103	6	942	Asbestos Cement	1975	75
South Shore	Gale Dr	104	6	203	Asbestos Cement	1975	75
South Shore	Galleon Ct	44	6	209	Poly Vinyl Chloride	1990	100
South Shore	Gooseberry Rd	105	10	273	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	106	10	223	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	107	10	59	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	108	8	150	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	109	8	190	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	110	8	275	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	111	8	57	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	112	8	189	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	144	10	229	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	145	10	342	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	146	10	416	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	147	6	120	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	148	6	310	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	149	10	911	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	466	6	317	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	467	6	63	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	468	6	399	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	469	8	429	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	502	10	191	Asbestos Cement	1975	75
South Shore	Gooseberry Rd	503	10	11	Asbestos Cement	1975	75
South Shore	Green Hill Ave	114	6	781	Asbestos Cement	1975	75
South Shore	Green Hill Ave	115	6	5	Asbestos Cement	1975	75
South Shore	Green Hill Ave	116	6	505	Asbestos Cement	1975	75
South Shore	Green Hill Ave	117	6	131	Asbestos Cement	1975	75
South Shore	Green Hill Ave	118	6	35	Asbestos Cement	1975	75
South Shore	Green Hill Ave	119	6	4	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	120	14	906	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	121	14	1,130	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	122	14	503	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	352	14	2,136	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	370	10	304	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	371	10	523	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	372	8	2,967	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	373	8	375	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	374	8	1,642	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	375	12	1,678	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	477	14	0	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	478	14	449	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	479	10	369	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	480	8	1,049	Asbestos Cement	1975	75
South Shore	Green Hill Beach Rd	531	6	293	Asbestos Cement	1975	75
South Shore	Hartford Ave	150	8	265	Asbestos Cement	1975	75
South Shore	Hartford Ave	151	8	444	Asbestos Cement	1975	75
South Shore	Hartford Ave	152	6	199	Asbestos Cement	1975	75
South Shore	Hartford Ave	153	6	471	Asbestos Cement	1975	75

System	Streetname	Object GIS ID	Diameter (Inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Hartford Ave	154	6	581	Asbestos Cement	1975	75
South Shore	Hemlock Rd	10	6	817	Asbestos Cement	1975	75
South Shore	Hemlock Rd	155	8	516	Asbestos Cement	1975	75
South Shore	Hemlock Rd	156	8	767	Asbestos Cement	1975	75
South Shore	High Tides Ln	540	4	176	Ductile Iron	1990	100
South Shore	Hill Rd	40	6	470	Asbestos Cement	1975	75
South Shore	Hilltop Ave	25	6	281	Asbestos Cement	1975	75
South Shore	Hilltop Ave	157	6	87	Asbestos Cement	1975	75
South Shore	Hilltop Ave	158	6	206	Asbestos Cement	1975	75
South Shore	Hilltop Ave	159	6	25	Asbestos Cement	1975	75
South Shore	Hilltop Ave	160	6	346	Asbestos Cement	1975	75
South Shore	Hilltop Ave	161	6	338	Asbestos Cement	1975	75
South Shore	Holden Rd	32	6	990	Asbestos Cement	1975	75
South Shore	Holly Rd	162	8	554	Asbestos Cement	1975	75
South Shore	Holly Rd	163	12	968	Asbestos Cement	1975	75
South Shore	Holly Rd	164	8	1,298	Asbestos Cement	1975	75
South Shore	Holly Rd	482	8	15	Asbestos Cement	1975	75
South Shore	Holly Rd	483	8	778	Asbestos Cement	1975	75
South Shore	Holly Rd	484	6	517	Asbestos Cement	1975	75
South Shore	Howard Cir	47	6	1,060	Asbestos Cement	1975	75
South Shore	Howard Cir	546	6	1,060	Asbestos Cement	1975	75
South Shore	Hull St	165	6	334	Asbestos Cement	1975	75
South Shore	Hull St	166	6	936	Asbestos Cement	1975	75
South Shore	Inglenook Ln	348	8	620	Poly Vinyl Chloride	1990	100
South Shore	Jerry Brown Farm Rd	167	8	277	Ductile Iron	1990	100
South Shore	Jerry Brown Farm Rd	168	8	290	Ductile Iron	1990	100
South Shore	Juniper Rd	169	8	1,286	Asbestos Cement	1975	75
South Shore	Juniper Rd	170	8	552	Asbestos Cement	1975	75
South Shore	Juniper Rd	487	6	18	Asbestos Cement	1975	75
South Shore	Juniper Rd	488	6	461	Asbestos Cement	1975	75
South Shore	Juniper Rd	489	4	339	Asbestos Cement	1975	75
South Shore	Kardway St	49	6	606	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	171	8	531	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	384	8	641	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	386	8	2	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	388	8	1,290	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	389	8	693	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	461	8	327	Ductile Iron	1990	100
South Shore	Kettle Pond Dr	382	8	240	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	383	12	1,409	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	385	8	432	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	390	12	347	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	391	12	1,024	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	458	8	4	Poly Vinyl Chloride	1990	100
South Shore	Kettle Pond Dr	460	8	0	Poly Vinyl Chloride	1990	100
South Shore	Kingfisher Rd	21	6	363	Asbestos Cement	1975	75
South Shore	Lake Ave	172	8	962	Asbestos Cement	1975	75
South Shore	Lake Ave	173	6	464	Asbestos Cement	1975	75
South Shore	Lake Ave	174	8	696	Asbestos Cement	1975	75
South Shore	Land-N-Sea Dr	27	8	613	Asbestos Cement	1975	75
South Shore	Land-N-Sea Dr	175	6	472	Asbestos Cement	1975	75
South Shore	Land-N-Sea Dr	176	6	420	Asbestos Cement	1975	75
South Shore	Laurel Rd	60	6	242	Asbestos Cement	1975	75
South Shore	Laurel Rd	481	6	5	Asbestos Cement	1975	75
South Shore	Laurel Rd	485	6	1	Asbestos Cement	1975	75
South Shore	Laurel Rd	486	6	269	Asbestos Cement	1975	75

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Leeward Ln	273	6	110	Asbestos Cement	1975	75
South Shore	Leeward Ln	274	6	259	Asbestos Cement	1975	75
South Shore	Leeward Ln	275	6	809	Asbestos Cement	1975	75
South Shore	Lower Farm Rd	177	6	605	Asbestos Cement	1975	75
South Shore	Lower Farm Rd	178	6	151	Asbestos Cement	1975	75
South Shore	Mallard Rd North	19	6	217	Asbestos Cement	1975	75
South Shore	Mallard Rd South	179	6	1,047	Asbestos Cement	1975	75
South Shore	Maple Dr	180	8	799	Asbestos Cement	1975	75
South Shore	Maple Dr	181	6	151	Asbestos Cement	1975	75
South Shore	Marine Rd	252	6	334	Asbestos Cement	1975	75
South Shore	Mast Ct	378	6	151	Poly Vinyl Chloride	1990	100
South Shore	Matunuck Beach Rd	184	12	108	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	185	12	78	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	186	12	303	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	187	12	261	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	188	12	266	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	189	12	142	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	190	12	118	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	191	12	1,367	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	192	12	416	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	193	12	595	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	194	12	248	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	195	12	1,088	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	196	12	68	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	197	12	139	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	198	12	279	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	199	12	349	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	349	6	1,099	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	350	6	298	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	351	10	1,866	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	429	12	3,257	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	430	12	1	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	446	12	183	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	447	12	9	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	515	12	269	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	516	12	3	Asbestos Cement	1975	75
South Shore	Matunuck Beach Rd	182	12	3,064	Ductile Iron	1990	100
South Shore	Matunuck Beach Rd	183	12	548	Ductile Iron	1990	100
South Shore	Matunuck School House Rd	200	12	19	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	201	12	150	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	202	12	477	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	203	12	673	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	204	12	187	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	205	12	425	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	206	12	339	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	207	12	334	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	208	12	374	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	209	12	444	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	210	12	266	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	211	12	3,373	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	212	12	4,574	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	213	12	752	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	214	12	1,285	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	470	12	228	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	471	12	1	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	490	12	28	Asbestos Cement	1975	75

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Matunuck School House Rd	491	12	657	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	496	12	635	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	497	12	3	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	507	12	232	Asbestos Cement	1975	75
South Shore	Matunuck School House Rd	508	12	942	Asbestos Cement	1975	75
South Shore	Mautucket Rd	215	12	243	Asbestos Cement	1975	75
South Shore	Mautucket Rd	216	12	244	Asbestos Cement	1975	75
South Shore	Mautucket Rd	217	12	237	Asbestos Cement	1975	75
South Shore	Mautucket Rd	218	12	237	Asbestos Cement	1975	75
South Shore	Mautucket Rd	219	12	241	Asbestos Cement	1975	75
South Shore	Mautucket Rd	220	12	9	Asbestos Cement	1975	75
South Shore	Mautucket Rd	221	12	234	Asbestos Cement	1975	75
South Shore	Mautucket Rd	222	12	245	Asbestos Cement	1975	75
South Shore	Mautucket Rd	223	12	237	Asbestos Cement	1975	75
South Shore	Mautucket Rd	224	12	236	Asbestos Cement	1975	75
South Shore	Mautucket Rd	225	12	245	Asbestos Cement	1975	75
South Shore	Mautucket Rd	226	12	242	Asbestos Cement	1975	75
South Shore	Mautucket Rd	227	12	239	Asbestos Cement	1975	75
South Shore	Mautucket Rd	228	12	241	Asbestos Cement	1975	75
South Shore	Mautucket Rd	229	12	240	Asbestos Cement	1975	75
South Shore	Mautucket Rd	230	12	592	Asbestos Cement	1975	75
South Shore	Mautucket Rd	231	12	242	Asbestos Cement	1975	75
South Shore	Mautucket Rd	518	12	12	Asbestos Cement	1975	75
South Shore	Mautucket Rd	519	12	228	Asbestos Cement	1975	75
South Shore	Mautucket Rd	522	12	241	Asbestos Cement	1975	75
South Shore	Mautucket Rd	523	12	4	Asbestos Cement	1975	75
South Shore	Mautucket Rd	524	12	3	Asbestos Cement	1975	75
South Shore	Meadow St	57	6	1,444	Asbestos Cement	1975	75
South Shore	Middle Rd	232	6	421	Asbestos Cement	1975	75
South Shore	Mill Pond Rd	233	6	325	Asbestos Cement	1975	75
South Shore	Mill Pond Rd	234	6	465	Asbestos Cement	1975	75
South Shore	Ministerial Rd (R I Route 110)	48	8	1,060	Ductile Iron	1990	100
South Shore	Mittendorf Rd	42	4	380	Asbestos Cement	1975	75
South Shore	Mollusk Dr	58	4	233	Asbestos Cement	1975	75
South Shore	Moonstone Beach Rd	28	8	41	Asbestos Cement	1975	75
South Shore	Moonstone Beach Rd	84	12	2,075	Asbestos Cement	1975	75
South Shore	Moonstone Beach Rd	235	10	1,950	Asbestos Cement	1975	75
South Shore	Moonstone Beach Rd	236	10	145	Asbestos Cement	1975	75
South Shore	Neptune Dr	525	4	234	Asbestos Cement	1975	75
South Shore	Ninigret Ave	34	4	794	Asbestos Cement	1975	75
South Shore	North Weeden Rd	69	6	2,005	Asbestos Cement	1975	75
South Shore	Oak Rd	54	6	1,226	Asbestos Cement	1975	75
South Shore	Ocean View Dr	18	6	500	Asbestos Cement	1975	75
South Shore	Ocean Village Ct	517	6	683	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	237	6	829	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	293	12	179	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	294	12	329	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	295	12	277	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	296	12	285	Asbestos Cement	1975	75
South Shore	Old Succotash Rd	297	12	481	Asbestos Cement	1975	75
South Shore	Oliver Dr	29	8	244	Asbestos Cement	1975	75
South Shore	Osprey Rd	238	6	326	Asbestos Cement	1975	75
South Shore	Osprey Rd	239	6	294	Asbestos Cement	1975	75
South Shore	Osprey Rd	240	6	398	Asbestos Cement	1975	75
South Shore	Osprey Rd	241	6	1,037	Asbestos Cement	1975	75
South Shore	Osprey Rd	242	6	1,026	Asbestos Cement	1975	75

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Park Ave	243	8	976	Asbestos Cement	1975	75
South Shore	Park Ave	244	8	702	Asbestos Cement	1975	75
South Shore	Park Ave	245	8	231	Asbestos Cement	1975	75
South Shore	Peninsula Rd	246	6	65	Asbestos Cement	1975	75
South Shore	Peninsula Rd	247	6	1,346	Asbestos Cement	1975	75
South Shore	Peninsula Rd	248	6	84	Asbestos Cement	1975	75
South Shore	Peninsula Rd	249	6	719	Asbestos Cement	1975	75
South Shore	Periwinkle Dr	56	4	228	Asbestos Cement	1975	75
South Shore	Perrywinkle Rd	45	6	531	Asbestos Cement	1975	75
South Shore	Petrel Dr	250	4	223	Asbestos Cement	1975	75
South Shore	Petrel Dr	251	4	9	Asbestos Cement	1975	75
South Shore	Point Ave	253	8	242	Asbestos Cement	1975	75
South Shore	Point Ave	254	8	237	Asbestos Cement	1975	75
South Shore	Point Ave	255	4	393	Asbestos Cement	1975	75
South Shore	Port Ave	256	6	67	Asbestos Cement	1975	75
South Shore	Port Ave	257	6	65	Asbestos Cement	1975	75
South Shore	Port Ave	258	6	252	Asbestos Cement	1975	75
South Shore	Port Ave	259	6	46	Asbestos Cement	1975	75
South Shore	Post Rd	12	10	208	Asbestos Cement	1975	75
South Shore	Post Rd	263	12	491	Asbestos Cement	1975	75
South Shore	Post Rd	264	12	78	Asbestos Cement	1975	75
South Shore	Post Rd	343	12	75	Asbestos Cement	1975	75
South Shore	Post Rd	344	10	54	Asbestos Cement	1975	75
South Shore	Post Rd	475	12	560	Asbestos Cement	1975	75
South Shore	Post Rd	476	12	2	Asbestos Cement	1975	75
South Shore	Post Rd	260	12	807	Ductile Iron	1990	100
South Shore	Post Rd	261	12	325	Ductile Iron	1990	100
South Shore	Post Rd	262	12	3,635	Ductile Iron	1990	100
South Shore	Potter Rd	456	6	488	Asbestos Cement	1975	75
South Shore	Potter Rd	457	4	279	Asbestos Cement	1975	75
South Shore	Private Drive off Cards Pond Rd	31	6	2,387	Asbestos Cement	1975	75
South Shore	Prospect Rd	265	4	488	Asbestos Cement	1975	75
South Shore	Prospect Rd	266	6	233	Asbestos Cement	1975	75
South Shore	Prospect Rd	267	6	49	Asbestos Cement	1975	75
South Shore	Prospect Rd	268	8	126	Asbestos Cement	1975	75
South Shore	Prospect Rd	444	6	196	Asbestos Cement	1975	75
South Shore	Prospect Rd	445	8	545	Asbestos Cement	1975	75
South Shore	Prospect Rd	448	8	1	Asbestos Cement	1975	75
South Shore	Prospect Rd	449	8	1,307	Asbestos Cement	1975	75
South Shore	Rockridge Rd	26	6	304	Asbestos Cement	1975	75
South Shore	Rosebriar Ave	269	4	403	Asbestos Cement	1975	75
South Shore	Rosebriar Ave	270	6	1,029	Asbestos Cement	1975	75
South Shore	Roy Carpenters Private Beach Assoc	335	6	540	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	336	6	27	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	337	6	207	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	338	6	128	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	339	6	56	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	340	6	39	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	341	6	90	Poly Vinyl Chloride	1990	100
South Shore	Roy Carpenters Private Beach Assoc	342	6	212	Poly Vinyl Chloride	1990	100
South Shore	Sand Piper Dr	6	6	1,128	Asbestos Cement	1975	75
South Shore	Sand Sprite Dr	51	6	320	Asbestos Cement	1975	75
South Shore	Schooner Dr	271	8	959	Poly Vinyl Chloride	1990	100
South Shore	Schooner Dr	392	8	666	Poly Vinyl Chloride	1990	100
South Shore	Seabreeze Terr	544	6	777	Asbestos Cement	1975	75
South Shore	Seabreeze Terr	53	6	1,053	Poly Vinyl Chloride	1990	100

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Seacrest Dr	8	8	590	Asbestos Cement	1975	75
South Shore	Shadberry Tr	527	6	829	Asbestos Cement	1975	75
South Shore	Shadberry Tr	528	6	1	Asbestos Cement	1975	75
South Shore	Shannon Rd	272	8	744	Asbestos Cement	1975	75
South Shore	Shannon Rd	276	8	402	Asbestos Cement	1975	75
South Shore	Shannon Rd	277	8	280	Asbestos Cement	1975	75
South Shore	Sheldon Point Rd	38	4	588	Asbestos Cement	1975	75
South Shore	Shelldrake Rd	278	6	228	Asbestos Cement	1975	75
South Shore	Shelldrake Rd	279	6	500	Asbestos Cement	1975	75
South Shore	Shepherd Dr	14	6	948	Asbestos Cement	1975	75
South Shore	Sherman Rd	280	8	544	Asbestos Cement	1975	75
South Shore	Sherman Rd	281	8	396	Asbestos Cement	1975	75
South Shore	Sherman Rd	282	6	121	Asbestos Cement	1975	75
South Shore	Sherman Rd	283	6	298	Asbestos Cement	1975	75
South Shore	Sherman Rd	543	8	456	Asbestos Cement	1975	75
South Shore	Sherman Rd	511	8	877	Poly Vinyl Chloride	1990	100
South Shore	Silva St	59	6	450	Asbestos Cement	1975	75
South Shore	Slope Ave	346	6	1,033	Asbestos Cement	1975	75
South Shore	Snug Harbor Ln	541	4	258	Ductile Iron	1990	100
South Shore	South Jerry Cove Rd	512	8	1,674	Ductile Iron	1990	100
South Shore	South Weeden Rd	70	8	746	Asbestos Cement	1975	75
South Shore	South Weeden Rd	284	8	307	Asbestos Cement	1975	75
South Shore	South Weeden Rd	285	8	1,037	Asbestos Cement	1975	75
South Shore	Spindrift Dr	55	4	198	Asbestos Cement	1975	75
South Shore	Spindrift Dr	520	4	277	Asbestos Cement	1975	75
South Shore	Spruce Rd	1	8	388	Asbestos Cement	1975	75
South Shore	Spruce Rd	2	8	143	Asbestos Cement	1975	75
South Shore	Starflower Ct	377	8	443	Ductile Iron	1990	100
South Shore	Stedman Rd	37	6	470	Asbestos Cement	1975	75
South Shore	Steeple Bush Dr	387	8	924	Ductile Iron	1990	100
South Shore	Succotash Rd	286	12	547	Asbestos Cement	1975	75
South Shore	Succotash Rd	287	12	451	Asbestos Cement	1975	75
South Shore	Succotash Rd	288	12	294	Asbestos Cement	1975	75
South Shore	Succotash Rd	289	12	76	Asbestos Cement	1975	75
South Shore	Succotash Rd	290	12	326	Asbestos Cement	1975	75
South Shore	Succotash Rd	291	12	570	Asbestos Cement	1975	75
South Shore	Succotash Rd	292	12	220	Asbestos Cement	1975	75
South Shore	Succotash Rd	298	8	1,519	Asbestos Cement	1975	75
South Shore	Succotash Rd	299	8	127	Asbestos Cement	1975	75
South Shore	Succotash Rd	300	8	48	Asbestos Cement	1975	75
South Shore	Succotash Rd	301	12	45	Asbestos Cement	1975	75
South Shore	Succotash Rd	302	12	43	Asbestos Cement	1975	75
South Shore	Succotash Rd	303	12	69	Asbestos Cement	1975	75
South Shore	Succotash Rd	304	8	66	Asbestos Cement	1975	75
South Shore	Succotash Rd	431	12	2	Asbestos Cement	1975	75
South Shore	Succotash Rd	432	12	66	Asbestos Cement	1975	75
South Shore	Succotash Rd	433	12	946	Asbestos Cement	1975	75
South Shore	Succotash Rd	434	12	1,533	Asbestos Cement	1975	75
South Shore	Succotash Rd	435	12	1,152	Asbestos Cement	1975	75
South Shore	Succotash Rd	436	12	46	Asbestos Cement	1975	75
South Shore	Succotash Rd	521	8	111	Asbestos Cement	1975	75
South Shore	Succotash Rd	545	12	6,156	Ductile Iron	1990	100
South Shore	Summer St	305	6	445	Asbestos Cement	1975	75
South Shore	Summer St	306	6	264	Asbestos Cement	1975	75
South Shore	Surfside Ave	23	4	424	Asbestos Cement	1975	75
South Shore	Teal Dr	308	6	279	Asbestos Cement	1975	75

Pipe Inventory sorted by System and Street Name

South Kingstown Water Main Inventory

System	Streetname	Object GIS ID	Diameter (inches)	Pipe Length (Feet)	Material	Installation Year	Anticipated Useful Life (Years)
South Shore	Teal Dr	309	6	297	Asbestos Cement	1975	75
South Shore	Teal Dr	310	6	248	Asbestos Cement	1975	75
South Shore	Teal Dr	311	6	155	Asbestos Cement	1975	75
South Shore	Teal Dr	312	6	565	Asbestos Cement	1975	75
South Shore	Teal Rd	313	8	215	Asbestos Cement	1975	75
South Shore	Teal Rd	314	8	332	Asbestos Cement	1975	75
South Shore	Teal Rd	315	8	114	Asbestos Cement	1975	75
South Shore	Tern Dr	307	6	65	Asbestos Cement	1975	75
South Shore	Tidewater Dr	9	4	493	Asbestos Cement	1975	75
South Shore	Tupelo Rd	50	6	1,312	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	316	6	500	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	317	6	254	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	318	6	394	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	319	8	239	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	320	8	607	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	321	8	142	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	322	8	240	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	323	8	475	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	324	8	244	Asbestos Cement	1975	75
South Shore	Twin Peninsula Ave	530	4	253	Asbestos Cement	1975	75
South Shore	Victoria Ln	381	12	2	Asbestos Cement	1975	75
South Shore	Victoria Ln	325	12	386	Poly Vinyl Chloride	1990	100
South Shore	Victoria Ln	326	12	582	Poly Vinyl Chloride	1990	100
South Shore	Victoria Ln	379	12	34	Poly Vinyl Chloride	1990	100
South Shore	Victoria Ln	380	12	576	Poly Vinyl Chloride	1990	100
South Shore	Wager Ln	30	6	231	Asbestos Cement	1975	75
South Shore	Washington St	327	8	950	Asbestos Cement	1975	75
South Shore	Washington St	328	4	469	Asbestos Cement	1975	75
South Shore	Washington St	329	8	694	Asbestos Cement	1975	75
South Shore	Water St	35	6	286	Asbestos Cement	1975	75
South Shore	West Side Rd	41	6	307	Asbestos Cement	1975	75
South Shore	West View Dr	16	6	336	Asbestos Cement	1975	75
South Shore	Westcote Close	532	4	405	Asbestos Cement	1975	75
South Shore	Westcote Close	533	6	144	Asbestos Cement	1975	75
South Shore	Westcote Dr	330	6	83	Asbestos Cement	1975	75
South Shore	Westcote Dr	331	6	1,797	Asbestos Cement	1975	75
South Shore	Westcote Dr	332	8	462	Asbestos Cement	1975	75
South Shore	Wild Goose Rd	333	6	230	Asbestos Cement	1975	75
South Shore	Wild Goose Rd	334	6	857	Asbestos Cement	1975	75
South Shore	Wildrose Ct	459	6	425	Ductile Iron	1990	100