WORKING DRAFT

Massachusetts Department of Environmental Protection Drinking Water Program

HINGHAM WATER SYSTEM

Water Supply Business Plan

New Community and Non-Transient Non-Community Public Water Systems

PWS NAME: ____Hingham Water System_____

CITY/TOWN: <u>Hingham MA</u>

PWS ID #: #4131000

Table of Contents

Section	Page
Background Information	3
1. Administration PWS Organization, Operator Staffing, Policy Activities	5
2. Basic Planning General Data, Water Demand, Municipalities Served, Permanent Interconnections	8
 Financial Financial Information, Source of Revenue, Estimated Income, Estimated Operation Expenses, Financial Tables A, B, and C. 	9
4. System Description General, Source Information, Treatment, Treated Water Storage, Distribution System	13
5. Operation Maintenance General, Distribution Protection Cross Connection Program, Water Quality Monitoring, Emergency Plans, Water Quantity / Conservation	26

Figures

Figure 1. Distribution System Map

Attachments

- A. Resumes of Water System Operators
- B. Capital Improvements Plan (by Aquarion, for 2017 2021)
- C. Rates and Fees for Weir River Water System
- D. FY 2021 Enterprise Fund Budget
- E. Water Management Act Registration Statement
- F. Coliform Sampling Plan
- G. Distribution System Flushing Plan
- H. Standard Operating Procedures
- I. Cross-Connection Control Plan
- J. Water Quality Results (2018 and 2019 Summary)
- K. Lead and Copper Sampling Plan
- L. Emergency Response Plan
- M. Water Conservation Plan



Send Correspondence To:

Name: Thomas Mayo Title: Town Administrator

Address: Town Hall, 210 Central Street, Hingham, MA 02043

Telephone: (781) 741-1400 e-mail: mayot@hingham-ma.gov

Water Commissioners/Selectmen/Governing Body Member:

Name: Karen Johnson Title: Board of Selectmen Chair Address: Town Hall, 210 Central Street, Hingham, MA 02043 Telephone: (781) 741-1400 e-mail: johnsonk@hingham-ma.gov

Note Key Official And Consultant To See Regarding Changes, Improvements, Etc.

Name: Ryan Trahan, PE Title: Principal Address: Environmental Partners Group, 1900 Crown Colony Drive, Suite 402, Quincy, Massachusetts 02169 Telephone: (62) 657-0253 e-mail: rjt@envpartners.com

1. Administration

A. PWS Organization

1. Ownership/Governing Body (check applicable category and complete names, addresses, telephone numbers, # of members)

🗹 Water Commissioner	# <u>3</u>	□ Board	of Public Works	#
□Selectmen	#		Operator	#
🗆 Trustees	#		Other responsible parties	#
🗆 Town Manager	#		Public (Town/City/District/Stat	te #

Name	Address	Phone Number	E - Mail	Term (Yrs)
Karen Johnson, Chair	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2020)
Mary Power	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2021)
Joe Fisher	210 Central Street, Hingham	(781) 741-1400		3 Yrs (2022)

2. Number of Governing Body meetings for the year & Dates: <u>Typically held once/month</u> (12/year) on <u>Tuesdays</u>.

3. If an organizational chart, is available, please provide OR (put on blank page) identifying the hierarchy of decision making for the PWS. <u>All policy decisions for the water system rules and</u> regulations and financing are made by the Board of Selectmen, acting as the Water Commissioners

B. Operator Staffing

1. Grade of system: <u>3D, 4T</u> (please see 310CMR22.11B(4) regarding system classification. DEP will verify system classification for official recording)

2. Provide staffing plan of all certified operators or complete information below. <u>The resumes of the Suez system operators are provided in Attachment A.</u>

Name/Title	F/P*	Duties	Certification/ Grade	Total Years Experience	DEP Comments
Water Treatment	F	Primary Chief Operator	4T		7:00 am – 3:00 pm
Water Treatment	F	WTP Operator			3:00 pm – 11:00 pm
Water Treatment	F	WTP Operator			11:00 pm – 7:00 am
Water Treatment	F	WTP Operator			Swing Shift
Water Treatment	F	WIP Operator			Fill/Maintenance
Distribution System F Primary Distribution Operator		3D			
Distribution System	F	Working Foreman			
Distribution System F Service Technician					
Distribution System	em F Service Technician				
Distribution System	F	Meter Reader/ Service Technician			

To be updated with Suez' Staffing Plan.

F/P = Full Time / Part Time (Use blank page for additional information)

1. Personnel Distribution Coverage: (Number of operators and grade certification)

Weekdays: Full-time, <u>24-hour/day coverage Monday-Friday;</u> Shifts: <u>three shifts: 7:00 am – 3:00 pm, 3:00 pm-11:00 pm, 11:00 pm-7:00 am</u> Weekends and Holidays: <u>Staff are onsite at treatment plant and supported by</u> <u>automated (SCADA) coverage; staff for distribution are on-call</u> (to be confirmed by Suez).

2. Who is directly responsible for the following? (from Suez)

Emergency operations	phone:	
Communications with state regulators	phone:	
Customer relations	phone:	
Media relations: Hingham Transition & Ev	aluation Committee	phone: (781) 741-1400

3. Operator Training Budget (Does Suez have a budget for Operator Training?)

C. Policy Related Activities

1	Who sate the system's operating policias?
1.	

□ Owner	Board of Selectmen/Water Commissioners

- General Manager
- □ Other

Operator

Do you have or are you developing policies or Standard Operating Procedures (SOP) 2. for the following situations:

				Description
Connections / New Hookups	\checkmark	YES	$\Box NO$	Water System Regulations
Water Main Extensions	\checkmark			Water System Regulations
General Purchases	\checkmark			Massachusetts procurement laws
Purchases over \$10,000	\checkmark			Massachusetts procurement laws
Metering & Unaccounted-for Water	\checkmark			Water System Regulations
Delinquent Bills	\checkmark			Water System Regulations

Do you have a written Capital Improvement Plan (CIP) and / or a written Infrastructure 3. Improvement Plan?

Capital Improvement Plans have been prepared by Aquarion that have been made available to the Town as part of the water system purchase. These include Aquarion's Capital Improvement Plans for 2017-2021 (provided in Attachment B), Capital Efficiency Plans prepared for Aquarion by Tata & Howard in 2007, 2011 and 2014, and filings by Aquarion with the Department of Public Utilities (2018).

Hingham will be performing a comprehensive evaluation of the water system during the first year of their ownership of the system (e.g., FY 2021) to identify those items necessary to remain in compliance with the DEP regulations, and to develop a CIP that reflects these needs. The Town's planning will be informed by those capital plans and reports provided by Aquarion.

Do you have insurance? 4. Insurance coverage by the System Operator (Suez): Liability: General: \$1 Million; In Aggregate Minimum \$2 Million Excess Umbrella Liability: not less than \$10 Million Automobile Liability: not less than \$1 Million Environmental/Pollution: not less than \$1 Million

The Town of Hingham is listed as an additional insured on these policies.

- 5. Do you have a contractual or as-needed arrangement with any of the following outside services?
- ☑ Accountant
- Certified Operator
- ☑ Attorney
- ☑ Technical Consultant
- ✓ Laboratory
- Other

2 Basic Planning, Data, and Demand

A. General Data

Total number connections: <u>12,715</u> Equivalent Residential Units: <u>12,039</u> % Metered: <u>100%</u> *Population:* <u>Approximately 54,612</u>

B. Water Demand

Estimated daily consumption: Maximum (mgd): <u>6.3 mgd</u> Average (mgd): <u>3.510 mgd</u> Projected population in 20 years: <u>61,326</u> Projected average daily demand(mgd): <u>4.17 mgd</u>

C. Municipalities/District Served by Water Supply

Municipality/District	Total Population	Population Served	Average Consumption
Hingham, Hull and	54,612 (35,803 Hingham,	30,523 winter; 41,082	63 rgpcd
Cohasset	10,293 Hull, 8,516 Cohasset)	summer (from 2018 ASR)	

D. Permanent Interconnections with Other Water Supplies

Water Survey Purveyor	Give location and arrangement for use. What is the maximum daily flow in mgd for this interconnection?
Cohasset Water Department	Interconnections at Whitney Crossing (pump station, Valve 4614), Forest Avenue (Valve 4592) and Jerusalem Road (Valve 2040). For service to Cohasset customers. Also to serve Hingham Campus (Linden Ponds) with up to 306,000 gpd of finished water in accordance with the Wheeling Agreement between Town of Cohasset and Hingham Campus.
Weymouth Water Department	Interconnections at High Street (Vault 4437) and Commercial Street (Valve 127-129) (for emergency use).
Norwell Water Department	Route 228 near Accord Pond (near Valve 4841) (for emergency use).



A. Financial Information - FY 2021 From: 7/1/2020 To: 6/30/2021

If you are not a rate-collecting system, please briefly describe the system's financial organization, including the billing and bookkeeping department.

B. Source Of Revenue (rate-collecting systems only)

- Explain the water rate structure of your system? For the first year of operation the Weir River Water System will utilize the Aquarion water rate structure currently in place. During that time Hingham will conduct a cost of service study that will inform future water rates (both amounts and rate structure). The rates are an increasing block rate structure for residential (R1), commercial (G1), public authorities (G2), industrial (G3) and non-residential (G4) customers. The rates include a base fee, rates for fire protection, miscellaneous fees, other services and surcharges. Billing is done quarterly at a minimum. Attachment C provides the rates and fees from the pending Weir River Water System Rules and Regulations.
- 2. Who approves expenditures? <u>Tom Mayo</u> Title: <u>Town Administrator</u> Who is the responsible financial officer (i.e. signs the checks, responsible for the books, etc.)

Mr. Mayo has authority to approve expenditures up \$50,000. Expenditures greater than \$50,000 are approved by the Water Commissioners. Susan M. Nickerson_, Town Accountant, is responsible for the books.

- 3. Will you employ enterprise accounting? ☑ YES □ NO
- 4. Will you have a reserve/ emergency account? ☑ YES □ NO If yes, how much? <u>The Enterprise Fund budget for FY 2021 has an unbudgeted revenue</u> <u>surplus of \$2,332,206</u>. This surplus serves as the emergency account, and which represents <u>22% of the FY 2021 projected revenues</u>. What percentage of your total estimated expenses is this? <u>28%</u>.

5. How did you (will you) finance your last (and next) major repair or improvement?

Prior to Hingham assuming ownership of the water system all repairs and improvements were made by Aquarion and there is no carryover of these projects costs from Aquarion to Hingham with their purchase of the water system. As owners of the system, Hingham will be allocating \$250,000 per year as part of the Enterprise Fund budget for capital improvements. In addition, Hingham intends to bond a minimum of \$2,700,000 each year for capital improvements. This annual investment is to be increased every three years by 5%. The Town's long-term financial proforma for the water system assumes this annual investment is made for at least the next 30 years.

	Last	Next	Amount
Bonds		<u>\$ 2,700,000/yr</u>	\$ <u>2,700,000/yr</u>
Personal Capital			\$
Reserve Fund	(\$
Annual Budget (Enterprise Fund)	N/A	<u>\$_250,000/yr</u>	\$ <u>250,000/yr</u>

6. If a budget is available, provide it and proceed to Table A. If not, please fill out Questions #8 through #10 below. <u>Attachment D provides the FY 2021 Enterprise Fund budget for the Weir</u><u>River Water System.</u>

C. Estimated Income/Revenue (rate-collecting systems only)

7. Please list all projected income and revenue for the first year.

A.	Taxes	\$
В.	Flat Fee	\$
С.	User Fee	\$
D.	Other:	\$
	E. TOTAL INCOME	\$

D. Estimated Operation Expenses (all systems)

- 8. Please list all projected operating expenses for the first year.
- A. Personnel / Overtime \$ B. Water Quality Testing \$ C. Supplies \$ D. Operating Expenses \$ E. Contract Services \$ F. Repairs \$ G. Reserve / Emergency Fund \$ H. Debt Service (Principal & Interest) \$ I. TOTAL EXPENSES \$ 9. Total Income (Section C) \$ minus 10. Total Expenses (Question D.1) \$ equals

\$0

Financial Table A - Estimated Needs (all systems)

List all projects that you may need to address in the next 10 years to remain in compliance with DEP regulations.

Capital Improvement Plans have been prepared by Aquarion, which Hingham is receiving as part of the water system purchase. These include Aquarion's Capital Improvement Plans for 2017-2021 (provided in Attachment B), Capital Efficiency Plans prepared for Aquarion by Tata & Howard in 2007, 2011 and 2014, and filings by Aquarion with the Department of Public Utilities (2018).

Hingham will be performing a comprehensive evaluation of the water system during the first year of their ownership of the system (FY 2021) to identify those items necessary to remain in compliance with the DEP regulations, and to develop a Capital Improvement Plan that reflects these needs. Aquarion's previous CIP planning efforts described above will be used to inform the Town's in their capital planning effort.

Financial Table B - Capital Debt (all systems)

Capital				
Improvement	Funder	Loan Amount	Annual Payment	Finish Date
System Acquisition	Not yet	\$114,000,000	\$1,539,000	FY 2022
Short-term Borrowing	determined			(One Year Borrowing
System Acquisition	Not yet	\$114,000,000	\$5,437,663/yr	2051
Long-term Borrowing	determined		(level payment)	(29 year borrowing)
Capital	Not yet	\$2,700,000	P = \$ 135,000/yr (level)	2040
Replenishment	determined		I = \$ 60,750 (declining)	(20 year borrowing)

Financial Table C - Capital Costs (all systems)

Use this table to estimate what your capital cost will be in each year by combining all the capital costs that occur in a particular year.

Hingham is committed to an ongoing annual investment of a minimum of \$2.7 Million into the water system for capital improvements and has incorporated this commitment in their financial proforma for the next 30 years. The operating assumption for this proforma is that this annual investment will begin in Fiscal Year 2021, increasing by 5% every third year, as shown in the table below (this table presents the Capital Improvement investment for the first 10 years of their ownership of the system through FY 2030).

The specific improvements to be made will be informed by the comprehensive capital study that the Town will be performing during the first year of ownership of the system.

Year	Cost	Year	Cost
FY 2021	2,700,000	FY 2027	2,977,000
FY 2022	2,700,000	FY 2028	2,977,000
FY 2023	2,700,000	FY 2029	2,977,000
FY 2024	2,835,000	FY 2030	3,126,000
FY 2025	2,835,000		
FY 2026	2,835,000		

4. System Description

A. General

Describe briefly but completely the water supply from each separate source to the distribution system, giving for each source the various treatment processes proposed in order of occurrence. This description should be complete but simple and clear so as to be understandable by one unfamiliar with the supply. Indicate the availability of emergency power necessary to operate all portions of the supply. (Draw flow diagram on reverse side show bypass arrangements.) Show the location of all sources of supply, treatment facilities and outline the area owned by the public water supply on a 7.5 minute, U.S.G.S. Topographic Map. In addition, list all current public water supply permits including permit number, date issued, short summary of permitted facilities and available plans.

The Hingham Water Company was incorporated in 1879. It was acquired by Aquarion in 2002. On April 22, 2019 the Town of Hingham Annual Town Meeting voted to acquire the Hingham Water Company pursuant to Chapter 139 of the Acts of 1879 (as amended). The water system is to be managed by a Water Superintendent under the direction of the Board of Water Commissioners and/or Town Administrator and is to be privately operated and maintained by Suez Water Environmental Services under a minimum 5-year operations contract with the Town.

System Overview

As of year-end 2018, the Hingham water system served 13,196 customers: 8,211 in the Town of Hingham, 4,647 in Hull, and 338 in North Cohasset.

A plan showing the water system sources, treatment plant, storage tanks and distribution system is provided in Figure 1. The sources serving the system consist of one reservoir (Accord Pond) and six groundwater sources (Downing Street, Free Street (two well fields), Prospect Street, Scotland Street, Fulling Mill Station). These are all registered sources and are located in the Weir River watershed. Withdrawals are authorized by the system's Water Management Act Registration Statement for 2008 – 2017 (WMA #41913101), a copy of which is provided in Attachment E. The Registration Statement allows withdrawals up to 1,281.15 Million Gallons per Year (MGY), which represents an average of 3.51 Million Gallons per Day (MGD). During 2018, the average daily production was approximately 3.35 million gallons.

The water from all of these sources is pumped to a water treatment plant located at 900 Main Street in south Hingham, with the exception of the Downing Street well that pumps directly into the water system. Storage is provided by two tanks: the Turkey Hill tank and the Accord Tank. The system also includes a pressure booster station in Hull (at Beacon Road/Nantasket Ave), a booster station in Hingham (Baker Hill at Squirrel

Avenue) and approximately 192 miles of water mains. The distribution system is divided into two zones: the Main Service Zone serving north Hingham, Hull, and Cohasset; and the High Service Zone serving south Hingham.

Water Supplies (Well Fields and Reservoir)

All of the supplies serving the water system were in operation prior to 1985 and are therefore Registered Sources. The location of the six wellfields and the Accord Pond reservoir serving the water system is shown on Figure 1.

The Scotland Street Well was constructed in 1956 and is a 45-foot deep, gravel packed well located off Scotland Street with an approved pumping rate of 1.55 MGD. The Scotland Street Replacement Well #1A was built in 2008 and is a 58-foot deep, gravel-packed well with a DEP approved pumping rate of 1.55 MGD.

The Downing Street Well was built in 1965 and is a 66-foot deep, gravel packed well located off Downing Street with a DEP approved pumping rate of 0.41 MGD. The Downing Street Well Station is the only supply in the water system that pumps directly into the distribution system, and is treated at the source with sodium hypochlorite, sodium fluoride, and a blended phosphate injection for disinfection and pH adjustment.

The Prospect Street Well was built in 1971 and is a 58-foot deep, gravel packed well located off Elaine Road with an approved pumping rate of 0.39 MGD.

There are two Free Street wellfields: a) Free Street Well #2, 2A and 4, and b) Free Street Well #3 and 5.

<u>Free Street Wells 2, 2A and 4</u>. These are all gravel packed wells. Well 2 was constructed in 1952 to a depth of approximately 73 feet. Well 2A is a replacement well installed in 2007 to a depth of approximately 79.5 feet. Well 4 was constructed in 1983 to a depth of approximately 86 feet. In November 2008, the DEP approved a status change of Wells 2 and 4. Well 2 was changed from an active source to an emergency source, and Well 4 was changed to an active source with a total maximum daily withdrawal of 0.81 MGD. The total combined volume to be withdrawn from Wells 2 and 4 cannot exceed 1.80 MGD.

<u>Free Street Wells 3 and 5.</u> These are also gravel packed wells. Well 3 was constructed in 1967 to a depth of 88.5 feet. Well 5 was constructed as a satellite well to supplement lost capacity of Well 3, and it pumps to Well 3 and subsequently to the water treatment facility. The MassDEP approved pumping rate for these wells is 351 gpm or 0.51 mgd.

The Fulling Mill Station is located at 93 South Street. It originally consisted of seven infiltration basins that fed a shallow 1,000 foot long horizontal well that was constructed in 1903 to a depth of approximately 21.5 feet. Two gravel-packed replacement wells were installed in 2008. Replacement Well #1 is a 48-foot deep well with a DEP-approved pumping rate of 0.62 MGD. Replacement Well #2 is a 42-foot deep well with a DEP-approved pumping rate of 0.38 MGD.

The Accord Pond reservoir is located off of Whiting Street. This is a 100-acre pond with a total storage capacity of approximately 523 million gallons and a drainage basin area of 1.01 square miles. The intake pipe is a gravity line to the treatment plant. Accord Pond has an estimated sustainable yield of 3.0 mgd for 80 days as reported in system's WMA Registration Application. The estimated safe yield of the pond is approximately 0.69 mgd.

Treatment

The treatment plant is a 7.7 mgd facility that has been in operation since 1996. It treats water from all of its supply sources except the Downing Street Well. Raw water is treated by rapid mix, Superpulsator clarifiers, deep-bed granular activated carbon filters and post-filtration disinfection, pH adjustment and fluoridation. The facility also includes a holding tank for treated water to improve water pressure in the system during high demand periods. Rated at level 4T, the plant utilizes Aveva Wonderware Supervisory Control and Data Acquisition (SCADA) software to support their operations. Sludge generated by the treatment process is dewatered by two centrifuges.

Storage Tanks

The location of the Accord Pond and Turkey Hill storage tanks is shown on Figure 1. The Accord Pond storage tank, installed in 1967, is located off Route 228 at the intersection of Whiting Street on Town-owned property. The tank is an elevated, welded steel-type with a 0.75 Million Gallon capacity. The elevated bowl has a diameter of 58 feet and the overall height of the storage tank is approximately 112 feet. It has an overflow elevation of 282 feet and is connected to the system through a 16-inch water main.

The Turkey Hill storage tank, installed in 1996, is located off of Turkey Hill Lane on Town-owned property. The tank is a ground level storage, welded steel-type standpipe with a 2 Million Gallon capacity. The standpipe has a diameter of 70 feet and an overall height of 70 feet. It has an overflow elevation of 240 feet and is connected to the system through a 20-inch water main.

Distribution System

The water distribution system, rated at level 3D, includes two booster stations, two pump stations, and approximately 192 miles of water mains. The average age of water mains is 64.4 years. The distribution system is divided into two zones: the Main Service Zone serving north Hingham, Hull, and Cohasset; and, the High Service Zone serving south Hingham.

The water system has emergency interconnections with Cohasset and Weymouth. Since 2004 a 20-year Wheeling Agreement has been in place between Aquarion (as the then operators of the water system), the Town of Cohasset, and Hingham Campus LLC, aka Linden Ponds, an age-restricted housing development in south Hingham. With the exception of the named parties (Aquarion becomes the Town of Hingham), this Wheeling Agreement will remain unchanged under the Town's ownership of the water system. Under the terms of the Wheeling Agreement, Cohasset delivers up to 306,000 gallons per day of purchased water to the distribution system through an interconnection on Route 3A near the Hingham-Cohasset border.

Unaccounted for Water (UAW) has been a persistent issue within the system for several years and the Town anticipates spending at least \$2.7 million annually on capital improvements to the system, with the goal of reducing UAW to 10% or less to meet the conditions of their Water Management Act Registration Statement. Over the last several years UAW has been reduced from 23% in 2013 to 12% in 2018, as reported in the DEP Annual Statistical Reports for those years.

Permits

The following permits have been received for the Hingham water system:

- Water Management Act Registration Statement (#41919101), July 3, 2008
- List others here.



Figure 1. Plan of Water System

B. Source Information – Pumping Stations

Pumping Fa	acility	Regular	Emergency
А	LOCATION: NANTASKET AVENUE/BEACON ROAD, HULL (BEACON ROAD BOOSTER STATION)	1	0
	FUNCTION: PROVIDES DOMESTIC PRESSURE WHEN THERE ARE HIGH DEMANDS IN HULL.		
В	LOCATION: SQUIRREL HILL LANE, HINGHAM (BAKER HILL BOOSTER STATION)	5	1
	Function: INCREASES PRESSURE FOR THE BAKER HILL DEVELOPMENT		
С	LOCATION: ACCORD POND, HINGHAM (ACCORD POND PUMPING STATION)	3	0
	Function: PUMP FOR THE RESERVOIR		
D	LOCATION: SOUTH PLEASANT STREET, HINGHAM (FULLING MILL PUMP STATION)	2	0
	FUNCTION: PUMP FROM WELL FIELD SUPPLY TO THE TREATMENT PLANT		

Pumping Facility	Туре	Date Installed	Standby/ Emergency Power	Capacity (GPM)	SUCTION		DISCHARGE		MOTOR				
					Size (in)	Combined or Separate	Head (ft)	Size (in)	Combined or Separate	Head (ft)	HP	Source of Power	Auto/Manual
A #1	Hor Cent	June 1999	N	700	6	Separate		4	Separate		20	460VAC/3 Phase	
B #1	Hor Cent	May 2006	Y	450	8	Combined		8			50	480VAC/3 Phase	Auto
C #1	Hor Cent	February 2016	Y	1,400	8	Combined	40	5			40	460VAC/3 Phase	Auto
D #1	Hor Cent	March 2015	Y	1,000	5	Combined		5	Combined		50	460VAC/3 Phase	

C. Treatment

Chemical Feed

- 1. Do chemical feed facilities provide adjustable feed ranges that are easily set for operation at all required dosages? ✓ Yes □ No
- 2. Who will maintain and/or operate chemical feed? Name and Grade. _To be completed by Suez.
- 3. Is 110% containment provided for all chemical tanks? ☑ Yes □ No
- 4. Is the chemical feed equipment in a separate room? \square Yes \square No
- 5. Is it properly ventilated? \square Yes \square No
- 6. Are the feed lines color coded? \square Yes \square No
- 7. Can chemical storage be measured? ☑ Yes □ No
- 8. Is there adequate chemical containment? \square Yes \square No
- 9. Is there an eye wash and/or shower? \square Yes \square No
- 10. If phosphates are used is a chorine residual maintained in the feed?
 Yes No Not Applicable
- 11. If fluoride is used is an upflow saturator used? N/A □ Yes □ No ☑ Not Applicable

CHEMICAL FEED EQUIPMENT

Plant Name: <u>Hingham/Hull District WTF</u>

Source: Free St Wells #5, #2A, #2, #3, #4; Scotland St Well #1, #1A; Fulling Mill Well #1, #2, Collection Basins; Accord Pond; Accord Brook; Prospect Well.

Chemical(s)	Point of Application of Unit	Che	mical Fe	ed Unit			Feed				Ope	ration		Sca	ales
		Reg	Emer	anti- Siphon Valve	Solution	Dry	Range mg/l	Average used Ibs/day	Supply (Days)	Auto- matic	Manual	X-Conn	Pacing	Yes	No
Potassium Permanganate	Prior to Oxidation Basins	Х	X	X	X		0.1 – 5.0	86.0	30	X			X		Х
Aluminum Sulfate	Rapid Mix	Х	Х	Х	Х		5.0 - 100	1,467.8	15	Х			Х		Х
Calcium	Prior to Oxidation Basins	Х	Х	X	X		1.0 – 35.0	358.7	60	Х			Х		X
Hydroxide (Lime)	Rapid Mix	Х	Х	Х	Х		1.0 - 35.0	358.7	60	Х			Х		Х
	Sludge Cake Pumps	X	Х	X		X	As	Needed)	Х			X		Х
	Rapid Mix Effluent Weir	Х	X	X			0.05 – 0.5	11.01	60	Х			Х		Х
	Filter Influent	Х	Х	Х	V		0.05 – 0.5	7.34	60	Х			Х		Х
Polymer	Prior to Centrifuge	X	X	X			2.0 – 50.0	-	60	Х					Х
	Spent Washwater	X	X	X			As	Needed		Х					X
	Prior to Oxidation Basins/Filters	X	X	X			0.3 – 5.0	83.4	30	X	<u> </u>				Х
Sodium	Primary Disinfection	Х	Х	X	x		0.3 – 5.0	91.7	30	Х					Х
Hypochlorite -	Final Disinfection	Х	Х	X			0.3 – 5.0	91.7	30	Х					Х
	Recycle Water	Х	Х	Х			1.0 – 5.0	6.7	30	Х					Х
Sodium	Prior to Static	Х	Х	Х	Х		1.0 – 25.0	184.0	30		Х				Х
Carbonate	Mixer														
Zinc	Prior to Static	Х	Х	Х	Х		0.36 - 3.6	55.0	30				Х		Х

Orthophosphate	Mixer										
Hydrofluosilicic	Prior to Static	Х	Х	Х	Х	1.0	33.4	180	Х	Х	Х
Acid	Mixer										

Plant Name: Downing Street GP Well WTP

Source: Downing Street GP Well

Chemical(s)	Point of Application of Unit	Che	mical Fe	ed Unit	Feed			Operation				Scales			
		Reg.	Emer.	anti- Siphon Valve	Solution	Dry	Range mg/l	Average used Ibs/day	Supp ly (Day s)	Auto- matic	Manual	X-Conn	Pacing	Yes	No
Blended Phosphate and Sodium Hypochlorite	Pump Discharge	Х	Х	X	X			As Needed		Х					Х
Sodium Fluoride	Pump Discharge	Х	Х	Х	Х		ŀ	As Needed		Х					Х

D. Treated Water Storage

Storage Unit		Туре	of Storage			Locatior	n of Storag	je	Frequency of Inspections	Date Last Cleaned	Material o Constructic	f Capacity n (m-gal)
	Under- ground	Ground Level	Elevated	Hydro- pneumatic Tank	Plant/ Pump house	Distribution System	C	Condition of Tank				
Accord Pond Tank			Х			X	Good sanitary and structural condition; Interior and exterior coating is poor (2015 Assessment)		Monthly	Unknown	Steel	0.75
Turkey Hill Tank		Х				X	Good structu Interio coatin As	d sanitary and ural condition; or and exterior g is poor (2015 ssessment)	tank inspections; Annual rooftop inspections	Unknown	Steel	2.00
Hingham/Hull District WTF Clearwell		Х			Х		Exteri (2015	or looks good 5 Assessment)		Unknown	Concrete	0.43
Storage Unit				Protecti	on and Sa	afety				Site Prot	ection	
	Pro Flow	per Over- v Structure	Covere Locke	d/ Vented/ d Screened	Samp Tap	ble High Con Ala	Level trol/ Irm	Low Level Control/ Alarm	Flood	Runoff	Fenced	Tank Overflow Elevation
Accord Pond Tank		<u>X</u>	<u>×</u>	X	X	×	<u><</u>	X	<u>X</u>	X	<u>×</u>	<u>282 ft</u>
Turkey Hill Tank		Х	X	Х	X	X	(X	Х	Х	Х	240 ft
Hingham/Hull District WTF Clearwell		Х	Х	X	X X X		X	X	X	X	119 ft	

1. Can each storage unit be bypassed for repair and cleaning without interrupting service? \square Yes \square No

2. Is there sufficient storage for fire protection? \square Yes \square No

E. Distribution System

1. Maps and Records

A. Attach a distribution system map, showing value and hydrant locations in addition to water main location and diameters.

B. Are there dead end areas in the distribution system? \square Yes \square No

If yes how many? <u>See plan of water distribution system (Figure 1).</u> Are terminal hydrants available on dead ends?

- C. Show the proposed coliform bacteria sampling locations on the Distribution Map. <u>See Attachment F. Coliform Sampling Plan.</u>
- D. Describe the proposed flushing program.

The System Operator is required to conduct a system-wide flushing program annually. A plan of action is to be reviewed and approved by the Water Superintendent. The program should address the dead end areas.

Attachment G. Distribution System Flushing Plan Attach from Aquarion if available.

E. Include the locations, type and size of master meters on the distribution system map. <u>See Figure 1</u>.

Distribution System Data

PIPE USED IN WATER SUPPLY

Portion of Transmission line and Distribution System	Source	Type of Pipe	Miles of Pipe	Pipe Diameter (inches)	Date Line Installed
27.6%		Ductile	53.38	4",6",8",12",14", 16",20",24"	1960-2018
1.4%		Lock Joint	2.66	16", 20"	1950-1969
28.4%		Cast Iron	54.97	3" ,4" ,6" ,8" ,10" , 12" ,14" ,16" ,20"	1890-1969
25.1%		Cast Iron Cement Lined	48.51	2 ¼", 4", 6", 8", 12", 16", 20"	1960-1989
14.0%		Transite	27.08	6", 8", 12"	1940-1969
1.0%		HDPE	1.22	6" , 8" , 12"	NA
2.4%		Galvanized Steel	4.68	³ ⁄4", 1", 11⁄4", 11⁄2", 2", 3", 4", 8"	1890-1979
0.3%		Plastic	0.66	1", 2", 3", 4"	1970-2018
0.0004%		Copper	0.07	3⁄4″, 1″	NA

PRESSURE

Location	Pressure in Distribution System (psig)	Minimum (must be >20 psig)	Maximum (psig)
Hingham/Hull District WTF	82	45	95
Accord Pond to WTF	10	5	10
Fulling Mill Wells #1 and #2 to WTF	40	35	45
Fulling Mill Cistern to WTF	40	35	45
Scotland Street Wells #1 and #1A to WTF	8	5	10
Downing Street Well	82	80	95
Prospect Street to WTF	10	5	10
Free Street Wells #2, #2A, #3, #4 and #5 to WTF	55	50	60



A. General

How will maintenance be scheduled? <u>The system operator will conduct routine maintenance on the water supplies, treatment tank and</u> <u>storage tank in accordance with the Standard Operating Procedures and Operations and</u> <u>Maintenance documents provided in Attachment H.</u> <u>The operator will also perform routine</u> <u>maintenance on the distribution system (exercise gates and valves, etc.)</u>

1. Spare Parts Inventory

What are the spare parts inventory? To be received from Aquarion

	Is it adequate to prevent long delays in equipment repairs? \square Yes \square No
2.	Pump Maintenance Is a maintenance schedule available for pump? I Yes I No
	valves? ☑ Yes □ No chemical feed pump? ☑ Yes □ No turbine pumps? □ Yes □ No Not Applicable high and low lift pumps? ☑ Yes □ No
	Have pump maintenance records been prepared (forms only)? \square Yes \square No
3.	Operation and Maintenance Manual Is an O & M Manual available and accessible to staff? ☑ Yes □ No (Provided in Attachment D)
	Does manual conform to DWS policy? ☑ Yes □ No
	Does manual provide guidance for operational decisions? 🗹 Yes 🛛 🗆 No
4.	Instrumentation/Process Automation Are there alarms or instrumentation for process automation? (Such as chlorine, turbidity, etc.) List. I Yes INO
	Do you have agreements in place for outside support/contractors for service/updating of instrumentation? I Yes INO
5.	Safety and Protective Equipment Are there adequate safety and personnel protective equipment provided? \square Yes \square No
	\square in the construction of the personnel protective equipment provided \square \square \square \square

Distribution Protection - Cross Connection Program Β.

1.	Complete the attached	cross connection control	l program plan.	See Attachment I
	1			

2. Will a third party be used to survey or test as part of your programs? If yes, Name & contact person. <u>To be confirmed by Suez</u>

3. Have all industrial, commercial, and institutional facilities been surveyed by the PWS? **M** Yes

If no, what is the estimated completion date for surveying all facilities?

4. Are backflow prevention devices installed at all PWS OWNED locations? ☑ Yes Not applicable 🗆 No

Water Quality Monitoring С.

1. Pumping Test Water Quality Results

Attach the water quality results from the prolonged pumping test. See Attachment J.

List any water quality parameters, which were found to be above the MCL (Maximum Contaminant Level).

Will the water receive treatment? 🛛 Yes □ No List the proposed water treatment processes. Oxidation basins, rapid mixers, Superpulsator clarifiers, and deep bed granular activated carbon filters. Post-filtration disinfection, pH adjustment, and fluoridation.

2. Lead and Copper Rule Compliance. See Attachment K - Lead and Copper Sampling Plan

3. Coliform Bacteria Sampling Locations Plan. See Attachment F - Coliform Sampling Plan

4. Water Quality Monitoring Waiver Program

If the water quality monitoring conducted during the pumping test did not detect any Synthetic Organic compounds (SOC's), the system may qualify for a waiver from further testing for SOC's. If you choose to do so, please complete the attached waiver application for SOC monitoring only. The other possible waivers require additional rounds of sampling with no detects before the system is eligible to apply. Not Applicable.

D. Emergency Plans

1. Complete the attached Emergency Response Plan Phone and Contact List. See Attachment L - Emergency Response Plan.

E. Water Quantity/Conservation

- 1. Does this system have adequate plans for meeting its water quantity for the next twenty years? ⊠ Yes □ No
- 2. Will the system need a Water Management Act (WMA) withdrawal permit? □ Yes ⊠ No

Describe threshold: (It is important to note that systems need a Water Management Act withdrawal permit if their cumulative system withdrawal volumes exceed 100,000 gpd on average for any period of three consecutive months, from a total withdrawal of not less than nine (9) million gallons, or an average daily volume of 100,000 gallons for periods which exceed three consecutive months, calculated by dividing the total withdrawal by the period of operation).

3. If a WMA withdrawal permit is required, attach a completed water conservation plan.

See Attachment M - Water Conservation Plan.

ATTACHMENT A RESUMES OF WATER SYSTEM OPERATORS

ATTACHMENT B CAPITAL IMPROVEMENTS PLAN (By Aquarion, for 2017 – 2021)

Item 1.C.3. Aquarion Capital Improvements Plan: 2017 - 2021. To be updated by Hingham during first year of system ownership and operation by Hingham.

Total Cape

					-			1	D.P.U. 17-90
								E	xhibit SCO-1
								_ A	pril 13, 2017
Aquarion Water Com	pany of Ma	ssachusetts	Inc Fiv	e-Year Ca	ipital Budg	et	H.O	0	Dogo 1 of 1
		1						5-Year	Page For F
			2017	2018	2019	2020	2021	Total	1
Maine			\$1347.705	\$1351.645	\$1 942 107	\$1.500.000	5000.000	\$7.753 747	
Dama			\$10,000	\$15,000	41,004,000	41,000,000		\$25,000	
Transmission & Distribution			\$1,067,059	\$380,000	\$275,000	\$535,000	\$1,260,000	\$3,517,059	
IT			\$20,000	\$5,000	\$5,000	\$5,000	\$5,000	\$40,000	
Source of Surply			\$25,000	\$250,000	\$195,000	\$170,000	\$920,000	\$1,830,000	
Treatment			\$755,000	\$620,000	\$325,000	\$215,000	\$215,000	\$2,130,000	
Pumping			\$206,000	\$255,000	\$110,000	\$85,000	\$85,000	\$741,000	
GENER PAR			\$120,000	\$33,000	\$00,000	\$10,000	\$00,000	\$108,000	
Total Capex			\$3,868,764	\$3,149,645	\$3,125,397	\$3,063,000	\$3,738,000	\$16,944,806	
									-
DESCRIPTION	CATEGORY	SYSTEM	2017	2018	2019	2020	2021	Total	1
									1
Tower Road, Hingham	Main	Hinghon Hull	\$375,705					\$375,705	
Deaders, Hull	Main	Hingham Hull	\$20,000	\$25,000	\$990,000			\$896,645	
Annual Water Main Replacement (Hing)	Main	Hingham Hull		and regards	\$0	\$550,000	\$550,000	\$1,100,000	
Capitalized Main Breaks/Peving	Main	Hinghon Hull	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$200,000	
Philips Dr. & Woodland St	Main	Milbury		\$12,000	\$502,332	P.400.000	PADD 000	\$514,332	4
Main Street - Phase 3, Orford	Main	Ocford			\$460,065	\$450,000	\$400,000	\$910,045	
Leicenter Street - Bridge Replacement	Main	Ocford				\$150,000		\$150,000	1
Revision Avenue, Oxford	Main	Ocford	\$12,000	\$403,000				\$415,000	
Charten Street	MAID	Utgoing	\$1,547,765	\$1351.645	\$1,952,197	\$1,590,000	5950.000	\$7,231,747	
Howe Pond Dam	Dam	Milbury	\$10,000	\$15,000				\$25,000	
			\$10,000	\$15,000				\$25,000	
Services Recurring (new & replacement)	TAD	MA	\$155,000	\$150,000	\$150,000	\$150,000	\$150,000	\$755,000	
TAD Recenting	TAD	MA	\$20,000	\$20,000	\$30,000	\$10,000	\$10,000	\$350,000	•
New Tank (Hull)	TAD	Hinghon/Hull				\$50,000	\$1,000,000	\$1,050,000	
New Pressure Zone (Ital)	TAD	Hinghon Hull			\$15,000	\$225,000		\$240,000	
Accord Tank (Hingham) Robab. Turkey Hill Tank Robab.	TAD	Hingham Hull	\$125,000	\$100.000				\$125,000	•
Burbank Avenue Tank Rehabilitation	TAD	Milbury	\$677,059	2100,000				\$677,059	
								100 000	
Distribution Analysis	TAD	Octord		\$20,000				320,000	
Distribution Analysis	TAD	Octord	\$1,067,859	\$390,000 \$390,000	\$275,000	\$535,000	\$1,260,000	\$3,517,009	
Distribution Analysis	TAD	Millow	\$1,067,859	\$20,000	\$275,000	\$535,000	\$1,260,000	\$3,517,89	
Distribution Analysis SCADA Workstations (Milbury) IT Misc	п	Milbury	\$1,067,899 \$15,000 \$5,000	\$20,000 \$390,000 \$5,000	\$275,000	\$535,000	\$1,260,000	\$1,517,089 \$15,000 \$25,000	
Statribution Analysis SCADA Workstations (Milbury) IT Misc	п	Milbury MA	\$1,067,899 \$15,000 \$5,000 \$20,000	\$20,000 \$390,000 \$3,000 \$5,000	\$275,000 \$5,000 \$5,000	\$535,000 \$3,000 \$5,000	\$1,260,000 \$5,000 \$5,000	\$3,517,859 \$15,000 \$25,000 \$40,000	
Distribution Analysis SCADA Workstations (Milibury) IT Misc	п п	Milbury MA	\$1,067,059 \$15,000 \$5,000 \$20,000	\$25,000 \$380,000 \$5,000 \$5,000	\$275,000 \$3,000 \$5,000	\$535,000 \$1,000 \$5,000	\$1,260,000 \$5,000 \$5,000	\$1,517,089 \$15,000 \$25,000 \$40,000	
Distribution Analysis SCADA Workstations (Millbury) IT Misc Meters (new and replacement)	Тар П П Meters	Milbury MA MA	\$1,967,859 \$15,000 \$3,000 \$20,000 \$240,000 \$240,000	\$23,000 \$380,000 \$5,000 \$2,000 \$240,000 \$240,000	\$275,000 \$5,000 \$5,000 \$250,000 \$250,000	\$535,000 \$1,000 \$5,000 \$250,000 \$250,000	\$1,268,000 \$5,000 \$5,000 \$236,000 \$236,000	\$15,000 \$15,000 \$25,000 \$40,000 \$1,170,000 \$1,170,000	
Statibution Analysis SCADA Workstations (Millbury) IT Misc Maters (new and replacement)	T&D Π Μeters	Milbury MA MA	\$1,067,859 \$15,000 \$3,000 \$20,000 \$240,000 \$240,000	\$20,000 \$380,000 \$5,000 \$25,000 \$240,000 \$240,000	\$275,000 \$5,000 \$250,000 \$220,000	\$5,000 \$5,000 \$230,000 \$230,000	\$1,268,000 \$5,000 \$5,000 \$236,000 \$236,000	\$15,000 \$1,517,000 \$15,000 \$40,000 \$1,170,000 \$1,170,000	
Statibution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Sounce Development	T&D IT IT SOS	Milbuy MA MA Hinghan/Hal	\$1,667,899 \$15,000 \$20,000 \$240,000 \$240,000 \$240,000 \$240,000	\$20,000 \$380,000 \$3,000 \$2,000 \$240,000 \$240,000	\$275,000 \$3,000 \$230,000 \$230,000 \$230,000	\$535,000 \$1,000 \$230,000 \$230,000 \$230,000 \$225,000	\$1,260,000 \$3,000 \$5,000 \$236,000 \$236,000 \$650,000	\$15,000 \$1,517,829 \$15,000 \$25,000 \$40,000 \$1,170,000 \$1,170,000 \$1,050,000	
Distribution Analysis SCADA Workstations (Millbury) (T Mise Meters (new and replacement) New Source Development Demand Management Demand Management	TAD IT IT SOS SOS	Milbuy MA MA Hinghan/Hal Hinghan/Hal	\$1,667,899 \$15,000 \$3,000 \$20,000 \$240,000 \$240,000 \$25,000 \$20,000	\$20,000 \$380,000 \$2,000 \$240,000 \$240,000 \$240,000 \$250,000 \$20,000	\$275,000 \$3,000 \$230,000 \$230,000 \$100,000 \$230,000	\$535,000 \$1,000 \$230,000 \$230,000 \$225,000 \$225,000 \$22,000 \$22,000	\$1,260,000 \$5,000 \$230,000 \$230,000 \$250,000 \$20,000	\$10,000 \$3,517,859 \$15,000 \$25,000 \$40,000 \$1,170,000 \$1,170,000 \$1,050,000 \$1,050,000	
Statibution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Source Development Demand Managament New Source Development	TAD IT IT SOS SOS SOS SOS	Milbuy MA MA Hinghan/Hal Hinghan/Hal	\$1,967,859 \$15,000 \$3,000 \$20,900 \$240,000 \$240,000 \$240,000 \$25,000 \$20,000 \$30,000 \$30,000	\$20,000 \$380,000 \$3,000 \$2,000 \$240,0000\$200,0000\$200,0000\$200,0000\$200,0000\$200,0000\$200,0000\$200,0000\$200,00000\$200,0000\$2000\$200,000\$200,0000\$200,0000\$20	\$275,000 \$3,000 \$230,000 \$230,000 \$100,000 \$125,000 \$125,000	\$535,000 \$5,000 \$230,000 \$230,000 \$225,000 \$225,000 \$125,000 \$170,000	\$1,260,000 \$5,000 \$230,000 \$234,000 \$450,000 \$250,000 \$220,000 \$220,000 \$220,000	\$10,000 \$3,517,859 \$15,000 \$25,000 \$40,000 \$1,170,000 \$1,170,000 \$1,050,000 \$100,000 \$100,000 \$100,000 \$100,000	
Distribution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Source Development Demand Management New Source Development	TAD IT IT SOS SOS SOS SOS	Milibury MA MA Hingham/Hul Hingham/Hul Milibury	\$1,967,859 \$15,000 \$3,000 \$240,000 \$240,000 \$240,000 \$240,000 \$25,000 \$30,000 \$35,000	\$20,000 \$380,000 \$5,000 \$240,000 \$240,000 \$240,000 \$20,000 \$20,000 \$20,000 \$20,000	\$275,000 \$5,000 \$230,000 \$230,000 \$230,000 \$230,000 \$20,000 \$73,000 \$195,000	\$535,000 \$51,000 \$250,000 \$250,000 \$250,000 \$225,000 \$2225,000 \$122,000 \$370,000	\$1,260,000 \$5,000 \$230,000 \$234,000 \$25,000 \$250,000 \$2250,000	510,000 51,517,829 515,000 540,000 51,178,000 51,178,000 51,058,000 51,058,000 51,838,000	
Distribution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Source Development New Source Development Treatment Recurring (Ning WTP)	TAD TT TT SOS SOS SOS SOS	Milibury MA MA Hingham Hull Milibury Hingham Hull	\$1,667,859 \$13,000 \$20,000 \$240,000 \$240,000 \$240,000 \$240,000 \$25,000 \$25,000 \$95,000 \$175,000	\$20,000 \$380,000 \$5,000 \$240,000 \$240,000 \$240,000 \$250,000 \$250,000 \$250,000 \$250,000 \$110,000 \$175,000	\$275,000 \$5,000 \$230,000 \$230,000 \$230,000 \$230,000 \$230,000 \$73,000 \$195,000 \$175,000	\$535,000 \$5,000 \$230,000 \$225,000 \$225,000 \$22,000 \$125,000 \$175,000	\$1,260,666 \$5,000 \$256,000 \$236,000 \$256,000 \$256,000 \$256,000 \$175,000	510,000 51,517,829 515,000 540,000 540,000 51,178,000 51,058,000 51,058,000 51,058,000 51,058,000 51,838,000 51,838,000 51,838,000	
Distribution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Source Development Demand Management New Source Development Treatment Recurring (Hing W1P) Filter Valve Replacements (HIS/WTP) Filter Valve Replacements (HIS/WTP)	TAD TAD IT Meters SOS SOS SOS SOS Treatment Treatment	Milbury MA MA Mingham/Ital Milbury Milbury Hingham/Ital Hingham/Ital	\$1,667,889 \$15,000 \$30,000 \$20,000 \$240,000 \$240,000 \$25,000 \$30,000 \$95,000 \$175,000 \$11,000	234,000 2380,000 23,000 23,000 2240,000 2240,000 230,000 230,000 210,000 2175	\$275,000 \$5,000 \$250,000 \$250,000 \$250,000 \$100,000 \$175,000 \$175,000 \$175,000	\$535,000 \$5,000 \$230,000 \$225,000 \$225,000 \$225,000 \$220,000 \$125,000 \$125,000 \$175,000	\$1,360,000 \$3,000 \$230,000 \$238,000 \$258,000 \$250,000 \$250,000 \$250,000 \$250,000	312,000 31,517,829 515,000 5225,000 540,000 511,178,900 51,178,900 51,058,900 51,0	
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Distribution Analysis SCADA Workstations (Millbury) IT Mise Meters (new and replacement) New Source Development Demand Managament New Source Development Treatment Recurring (Hing WIP) Preter Alse Replacement High Service - VPD Main Service - VPD Minghame Centrifuge Conveyor	TAD TAD T T Meters SOS SOS SOS SOS SOS SOS SOS Treatment Treatment Treatment Treatment Treatment	Milbury MA MA MA Hinghan Hall Hinghan Hall Hinghan Hall Hinghan Hall Hinghan Hall Hinghan Hall	31,867,859 513,000 53,000 524,000 524,000 524,000 524,000 525,000 535,000 515,000 515,000 515,000 525,000 535,0000 535,000 535,000 535,000 535,000	230,000 2380,060 35,000 35,000 5240,000 520,000 510,000 510,000 5175,000 575,000	\$275,000 \$3,000 \$230,000 \$230,000 \$230,000 \$20,000 \$10,000 \$10,000 \$10,000	\$235,000 \$5,000 \$220,000 \$230,000 \$225,000 \$225,000 \$222,000 \$222,000 \$222,000 \$222,000 \$222,000 \$222,000 \$222,000 \$222,000	31,320,000 53,000 5236,000 5236,000 5256,000 5256,000 5256,000 5256,000 5256,000 5256,000	31(5),000 S1(5),000 S1(5,000 S1(5,000 S1(5,000 S1(70,000 S1(
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Statibution Analysis SCADA Workstations (Milbury) IT Mise Meters (new and replacement) New Source Development Demand Management New Source Development Treatment Racarring (Hing WTP) Wiler Valve Replacement (HTWTP) Accord Inake Screen Replacement High Service - VTD Main Sarvice - VTD Main Sarvice - VTD Main Sarvice - VTD Main Sarvice - VTD ScADA Phase 4 (Actornate HI/WTP) Security Improvements SCADA Case Replacement Treatment Recarring Instrumentation SCADA Phase 1 (Oxford)	Teab	Millury MA MA MA Hingham Hall Hingham Hall Hingham Hall Hingham Hall Hingham Hall Hingham Hall Hingham Hall Hingham Hall MA MA MA MA Millury Millury Millury Millury Ordord Ordord	31,867,859 515,000 524,000 524,000 524,000 524,000 524,000 530,000 530,000 595,000 5175,000 5175,000 510,000 511,000	230,000 2380,000 25,000 25,000 25,000 25,000 25,000 250,000 250,000 250,000 250,000 250,000 251,000 25	\$275,000 \$5,000 \$230,000 \$230,000 \$230,000 \$195,000 \$195,000 \$115,000 \$15,000 \$15,000 \$15,000 \$15,000 \$15,000 \$15,000 \$15,000 \$15,000	\$235,000 \$1,000 \$2250,000 \$2250,000 \$2250,000 \$2250,000 \$2250,000 \$270,000 \$270,000 \$175,000 \$115,000 \$115,000 \$215,000	31,280,666 35,000 5236,000 5236,000 5236,000 5328,666 5338,666 5348,666 5348,6	31(5)/00 31(5)/00 51(5,000 540,000 540,000 540,000 540,000 51(50,000 51(50,000 515,0	
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Statibution Analysis SCADA Workstations (Millbury) IT Mise SCADA Workstations (Millbury) IT Mise Meters (new and replacement) Mere Source Development Demand Managament New Source Development Treatment Recurring (Hing WTP) Filter Valve Replacement (HIWTP) Filter Valve Replacement (HIWTP) Treatment Recurring (Ring WTP) Treatment Recurring (Norther P) Scalab Phase 4 (Antonate HIWTP) Scalab Phase 1 (Onclusion) New Phase 1	Techneet Tractment Treatment	Milbury MA MA MA Ingham Hall Ringham Hall Codod Ordod Ordod Ordod Ordod Ordod Ordod	31,867,859 515,000 524,000 524,000 524,000 524,000 524,000 525,000 5175,000 515,000 515,000 515,000 515,000 515,000 515,000 515,000 515,000 515,000 520,000 515,000 520,000 515,000 520,000 535,000	230,000 2380,000 25,0000 25,0000 25,0000 25,0000 25,0000 25,0000000000	\$275,000 \$2,000 \$2,000 \$2,000 \$2,000 \$2,000 \$100,000 \$100,000 \$175,000 \$175,000 \$175,000 \$175,000 \$175,000 \$10,000 \$10,000 \$10,000 \$10,000	\$235,000 \$1,000 \$220,000 \$220,000 \$220,000 \$220,000 \$225,000 \$225,000 \$225,000 \$125,000 \$135,000 \$15,000 \$215,000	31,320,666 31,320,666 5236,000 5236,000 5236,000 5236,000 5356,000 53	31(5)/00 31(5)/00 515(00) 540,000 540,000 540,000 540,000 51,050,000 51,050,000 51,050,000 51,050,000 515,000	
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Aquarion Water Company of Massachusetts, Inc.

ATTACHMENT C RATES AND FEES FOR WEIR RIVER WATER SYSTEM FROM RULES AND REGULATIONS (PENDING)

Item 3.B.1. Rate Sheet for Water Usage and Fees (from the pending Rules and Regulations for the Wier River Water System.

WATER CHARGE

A water charge will be made for all water used as registered by the meter, as set forth below:

		Rate Per Hundred Cubic Feet (CCI	7)
RATE R1 - Applies to all metered residential u	usage by customers classified as such on the		
Town's records.			
	First 12 CCF per Quarter/ 4 CCF per Month	h \$3.613	
	Over 12 CCF per Quarter/ 4 CCF per Mont	th \$4.588	
<u>RATE G1</u> - Applies to all metered commercial	usage by customers classified as such on		
the Town's records, which do not qualify for R	ate G4.		
	First 12 CCF per Quarter/ 4 CCF per Month	h \$2.668	
	Over 12 CCF per Quarter/ 4 CCF per Mont	th \$3.230	
<u>RATE G2</u> - Applies to all metered public authors	ority usage by customers classified as such		
on the Town's records, which do not qualify for	r Rate G4.		
	First 12 CCF per Quarter / 4 CCF per Mont	th \$2.653	
	Over 12 CCF per Quarter/ 4 CCF per Mont	th \$2.959	
<u>RATE G3</u> - Applies to all metered industrial us	sage by customers classified as such on the		
Town's records, which do not qualify for Rate	G4.		
	All U	Jsage \$2.953	
RATE G4 - Applies to the total monthly usage	by qualifying non-residential customers,		
classified as such on the Town's records, as per	r the following criteria:		
Monthly billed amounts no less than 10,000,00	0 gallons and no more than 40,000,000		
gallons. Past 12 months total billed amount no	b less than 120,000,000 gallons.		
-	All U	Jsage \$2.009	

SERVICE CHARGE

In addition, all metered general water service customers shall pay a service charge on the size of each meter installed. Customers with multiple meters shall be charged for each meter at the indicated rate.

Size of Meter	Per	Per Month		Per Quarter	
5/8"	\$	16.08	\$	48.24	
3/4"	\$	24.05	\$	72.15	
1"	\$	40.12	\$	120.36	
1 1/2"	\$	80.32	\$	240.96	
2"	\$	128.55	\$	385.65	
3"	\$	241.10	\$	723.30	
4"	\$	401.88	\$	1,205.64	
6"	\$	803.82	\$	2,411.46	
8"	\$	1,286.16	\$	3,858.48	

RATES FOR PRIVATE FIRE PROTECTION

AVAILABILITY

This rate is available to customers located on the mains of the water system within the Towns of Hingham, Hull and Cohasset for Private Fire Protection, subject to the Rules and Regulations of the Town.

	Per Year
For each service connection 1"	\$ 122.17
For each service connection 1.25"	\$ 137.54
For each service connection 1.5"	\$ 154.84
For each service connection 2"	\$ 206.69
For each service connection 2.5"	\$ 272.00
For each service connection 3"	\$ 352.67
For each service connection 4" or smaller	\$ 552.44
For each service connection 6"	\$ 1,105.64
For each service connection 8"	\$ 1,873.97
For each service connection 10"	\$ 2,949.64
For each service connection 12"	\$ 4,178.96
For each privately owned fire hydrant serving Cohasset, Hingham, and Hull	\$ 913.37
For each privately owned fire hydrant outside Cohasset, Hingham, and Hull	\$ 1,150.13

RATE FOR PUBLIC FIRE PROTECTION

For each Town owned public fire hydrant In addition, annual charges as follows:

\$ 193.51

Town of Hingham	\$:	395,054.00
Town of Hull	\$	227,331.00
Town of Cohasset	\$	18,712.00

MISCELLANEOUS CHARGES

Drought Conditions

Termination and Restoration Fee – Business Hours*

\$ 65.00 Termination \$ 92.00

*Normal business hours are Monday through Friday, 8 am to 4 pm.

System Development Charge ("SDC")

and Restoration Fee - After Hours

Meter	Capacity	Ratio to 5/8"	
Size**	GPM	Meter	Fee
5/8"	20	1.00	\$640
3/4"	30	1.50	\$960
1"	50	2.50	\$1,600
1 1⁄2"	100	5.00	\$3,200
2"	160	8.00	\$5,120
3"	320	16.00	\$10,240
4"	500	25.00	\$16,000

**SDC is determined on a case by case basis for meter sizes greater than 4".

OTHER SERVICES

AVAILABILITY

This rate is available to all classes of customers located on the mains of the water system. Subject to the Rules and Regulations of the Town Water System.

Frozen Meters	Actual C	Cost of Meter
Meter Test Fees 1" and less	\$	50.00
Larger than 1"	\$	75.00
Return Check Fee	\$	20.00
Seasonal Meter Set & Turn On Fee	\$	65.00
Seasonal Meter Removal Fee & Turn Off Fee	\$	65.00
Turn On Fee – Business Hours	\$	65.00
After Hours Callout	\$	392.00
Water Conservation Fines	\$	XXX.XX
Abatement Fee	\$	XXX.XX
Non-Payment Reconnect – Business hours	\$	65.00
Non-Payment Reconnect – After Hours	\$	392.00
Theft of Service	\$	1,000.00
(or triple the amount of damages, whichever is greater)		
Cross Connection – One Device Testing	\$	75.00
Each Additional Device	\$	35.00

TERMS OF PAYMENT

The Town Water System may render bills on either a quarterly or monthly basis. The above rates are payable within thirty (30) days of the date on the bill.

SURCHARGES

The following surcharges are applicable to all metered customers located on the mains of the Town's water system in Hingham, Hull and Cohasset.

SURCHARGE

	Serv	ice Charge
Size of Meter	Per Month	Per Quarter
5/8"	\$10.32	\$30.96
3/4"	\$15.70	\$47.10
1"	\$25.20	\$75.60
1 1/2"	\$49.20	\$147.60
2"	\$78.00	\$234.00
3"	\$145.00	\$435.00
4"	\$240.30	\$720.90
6"	\$479.60	\$1,438.80
8"	\$766.90	\$2,300.70

Consumption Charge per 100 cubic feet for Water Treatment Facility Lease:	\$0.9524
Consumption Charge per 100 cubic feet for Water Treatment Operation and Maintenance	\$1.0639

ATTACHMENT D FY 2021 ENTERPRISE FUND BUDGET

FY21 Weir River Water System Budget

	<u>2019 Town</u>		FY21 vs. 2019
	Meeting	<u>FY21</u>	Town Meeting
Revenue	\$13,047,168	\$10,597,979	-\$2,449,189
Salaries	\$240,120	\$246,725	-\$6,605
Operating Expenses	\$4,420,000	\$5,638,990	-\$1,218,990
PILOT	\$830,503	\$840,959	-\$10,456
Debt Service	\$2,688,662	\$1,539,000	\$1,149,662
Subtotal Expenses	\$8,179,285	\$8,265,673	-\$86,388
Revenue/Budgeted Surplus	\$4,867,883	\$2,332,306	-\$2,535,577
Grand Total	\$13,047,168	\$10,597,979	-\$2,449,189

Assumptions:

- No change in water rates (BOS voted to maintain rates on 2/27)
- Consumption based on data provided by Aquarion (10/18 9/19)
- Town assumes operational responsibility 7/1/20
- Quarterly billing
- Revenue estimate lower than 2019 due to timing of billing and collections
 - Quarterly Billing on last day of month for services through the end of that month
 - Collection rate: 80% within 30 days, 10% within 60 days, 10% within 90 days

FY21 Weir River Water System Detailed Budget

Revenue	<u>2019 Town</u> <u>Meeting</u> \$13,047,168	<u>FY21</u> \$10,597,979	<u>FY21 B/(W)</u> 2019 Town <u>Meeting</u> -\$2,449,189
Salaries			
Water Superintendent	\$200,100	\$136,705	
Administrative support	\$40,020	\$40,020	
GIS	\$0	\$20,000	
Seasonal construction inspector(s) FY21	\$0	\$50,000	
Subtotal Salaries	\$240,120	\$246,725	-\$6,605
Operating Expenses			
Operator contract including billing	\$3,780,000	\$4,741,066	-\$961,066
Operator transition costs	\$165,000	\$334,906	-\$169,906
Benefits (30% per Town Accountant)	\$0	\$53,018	-\$53,018
Cash capital and emergency repairs	\$0	\$250,000	-\$250,000
Property Insurance	\$0	\$75,000	-\$75,000
Engineering fees, Cost of Service study,	\$0	\$150,000	-\$150,000
Misc - DEP fee, outreach, office equipment, professional development, supplies	\$325,000	\$35,000	\$290,000
Subtotal Additional Muni Costs	\$4,270,000	 \$5,638,990	-\$1,368,990
Other Transaction costs	\$150,000	\$0	\$150,000
Subtotal Operating Expenses	\$4,420,000	\$5,638,990	-\$1,218,990
Property Taxes to Town of Hingham	\$692,273	\$699,273	
Property Taxes to Cohasset and Hull	\$138,230	\$141,686	
Payment in Lieu of Taxes	\$830,503	\$840,959	-\$10,456
Debt Service			
Water system acquisition	\$2,688,662	\$1,539,000	\$1,149,662
Capital improvements	\$0	\$0	\$0
Subtotal Debt Service	\$2,688,662	\$1,539,000	\$1,149,662
Subtotal Expenses	\$8,179,285	\$8,265,673	-\$86,388
Revenue/Budgeted Surplus	\$4,867,883	\$2,332,306	-\$2,535,577
Grand Total	\$13,047,168	\$10,597,979	-\$2,449,189

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ATTACHMENT E

Water Management Act Registration Statement

ATTACHMENT F

Coliform Sampling Plan

MASSACHUSETTS DEP – DRINKING WATER PROGRAM Coliform Sampling Locations

PWS ID#		PWS Name:	Τ	own:
Community	PWS	Non-Community PWS	Non-Transi	ent Non-Community PWS
Groundwate Population: Explain:	er Winter	Surface Water Summer	Both Ground and	d Surface Water
Number of s	amples required	i by 310 CIVIR 22.05, 18DIE 1:		
Are you real	lesting to sampl	e each location more than	once? Yes	No
Sample				
Number	Sampling Doint	Name and/or address	Sampling Froqu	oncy (# of times/month)
001	Sampling Point		sampling riequ	
12				
1a. 1h				
002				
2a				
2b				
003				
3a				
3b				
004				
4a				
4b				
005				
5a				
5b				
006				
6a				
79				
7a 7h				
008				
8a				
8b				
009				
9a				
9b				
Public Wate	r Supplier Signat	ure:		Date:
Please subm Use addition	it this form to yc al sheets if nece	ur Regional DEP Office. essary.		

For DEP/DWP use:

Action:_____

ATTACHMENT G

Distribution System Flushing Plan

ATTACHMENT H

Standard Operating Procedures

ATTACHMENT I

Cross-Connection Control Plan

ATTACHMENT J

Water Quality Results (2018 and 2019 Summary)

ATTACHMENT K

Lead and Copper Sampling Plan

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION LCR –A DRINKING WATER PROGRAM LEAD AND COPPER SAMPLING PLAN

PWS ID #: 4131000 PWS Name: Hingham Water System _____City/Town: _____Hingham _____ Telephone #: (781) 741-1400 Population: 35,803 winter # Samples required: _____60 ____ Standard Plan ______Reduced Plan

#	Sample	SAMPLE		How will the sample be collected? Check one $(\sqrt{)}$				
	Category	PRIMARY ¹	Locati	on	PWS	Homeowner/	Lab	Other
	(Tier)	Site Address	Check or	ne		Resident		
	× ,		(√)					
			\mathbf{K}^2	\mathbf{B}^3				
1	1	20 Clifton Avenue, Hull	TBD			Х		
2	1	1 Button Cove Rd, Hingham	TBD			Х		
3	1	1 Mountford Rd, Hull	TBD			Х		
4	1	80 Pleasant St, Hingham	TBD			Х		
5	1	63 Free St, Hingham	TBD			Х		
6	1	15 Myers Farm Rd, Hingham	TBD			Х		
7	1	8 Myers Farm Rd, Hingham	TBD			Х		
8	1	1 Saw Mill Pond Rd, Hingham	TBD			Х		
9	1	515 Main St, Hingham	TBD			Х		
10	1	3 Fulling Mill Lane, Hingham	TBD			Х		
11	1	23 Halvorsen Ave, Hull	TBD			Х		
12	1	14 Camelot Dr, Hingham	TBD			Х		
13	1	183 Prospect St, Hingham	TBD			Х		
14	1	22 Andrew Ave, Hull	TBD			Х		
15	1	77 Summer St, Hingham	TBD			Х		
16	1	5 Winfield Rd, Hingham	TBD			Х		
17	1	12 New Towne Dr., Hingham	TBD			Х		
18	1	5 Harborview Drive, Hingham	TBD			Х		
19	1	155 Prospect St, Hingham	TBD			Х		
20	1	18 Saw Mill Pond Rd, Hingham	TBD			Х		
21	1	31 Myers Farm Rd, Hingham	TBD			Х		
22	1	10 Myers Farm Rd, Hingham	TBD			Х		
23	1	79 Summer St, Hingham	TBD			Х		
24	1	12 Deerfield Rd, Hingham	TBD			Х		
25	1	4 Huckleberry Hill Lane, Hingham	TBD			Х		
26	1	40 George Washington Blvd, Hingham	TBD			Х		
27	1	19 Fulling Mill Lane, Hingham	TBD			Х		
28	1	15 Saw Mill Pond Rd, Hingham	TBD			Х		
29	1	28 Floret Circle, Hingham	TBD			Х		
30	1	40 Floret Circle, Hingham	TBD			Х		
31	1	22 Floret Circle, Hingham	TBD			Х		
32	1	62 Thistle Patch Way, Hingham	TBD			Х		
33	1	44 Floret Circle, Hingham	TBD			Х		
34	1	81 Summer St, Hingham	TBD			Х		
35	1	80 Thistle Patch Way, Hingham	TBD		1	Х		
36	1	60 Thistle Patch Way, Hingham	TBD		1	Х		
37	1	110 Thistle Patch Way, Hingham	TBD			Х		1
38	1	72 Thistle Patch Way, Hingham	TBD			Х		
39	1	1 Clifton Ave, Hull	TBD			Х		
40	1	16 Milford St Unit 1, Hull	TBD		1	Х		1
41	1	16 Milford St Unit 5 Hull	TBD			X		

42	1	16 Milford St Unit 8, Hull	TBD	Х	
43	1	12 Floret Circle, Hingham	TBD	Х	
44	1	153 Whiting Street, Hingham	TBD	Χ	

Page 1 of 3

LCR -A

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION DRINKING WATER PROGRAM

LEAD AND COPPER SAMPLING PLAN

 Please type or print clearly using black ink and attach a sample location site plan

 PWS ID #: 4131000 PWS Name: Hingham Water System
 City/Town: Hingham

 Telephone #: (781) 741-1400 Population: 35,803 winter # Samples required: 60 Standard Plan

Reduced Plan

#	Sample	SAMPLE		How will the sample be collected? Check one $(\sqrt{)}$				
	Category	PRIMARY ¹	Locati	on	PWS	Homeowner/	Lab	Other
	(Tier)	Site Addresses	Check one	e(√)		Resident		
		(continued)	K^2	B ³				
45	1	6 Mallard Run, Hingham	TBD			Х		
46	1	103 High Street, Hingham	TBD			Х		
47	1	14 Liberty Pole Road, Hingham	TBD			Х		
48	1	9 Liberty Pole Road, Hingham	TBD			Х		
49	1	18 Park View Drive, Hingham	TBD			Х		
50	1	28 Wanders Drive, Hingham	TBD			Х		
51	1	18 Fulling Mill Lane, Hingham	TBD			Х		
52	1	2 Button Cove Rd, Hingham	TBD			Х		
53	1	7 Saw Mill Pond Road, Hingham	TBD			Х		
54	1	151 Whiting Street, Hingham	TBD			Х		
55	1	26 Myers Farm Rd, Hingham	TBD			Х		
56	1	93 Tower Road, Hingham	TBD			Х		
57	1	10 Cliff Rd, Hingham	TBD			Х		
58	1	5 Pheasant Run, Hingham	TBD			Х		
59	1	1 Elm Street, Hull	TBD			Х		
60	1	19 Liberty Road, Hingham	TBD			Х		
61	1	12 Boulder Glen Road, Hingham	TBD			Х		
		ALTERNATIVE ¹ *						
		Site Addresses						
1	1	90 Thistle Patch Way, Hingham	TBD			Х		
2	1	72 Thistle Patch Way, Hingham	TBD			Х		
3	1	5 Harbor View Drive, Hingham	TBD			Х		
4	1	265 High Street, Hingham	TBD			Х		
5	1	17 Halvorsen Ave, Hull	TBD			Х		
6	1	7 Saw Mill Pond Road, Hingham	TBD			Х		
7	1	63 New Bridge Street, Hingham	TBD			Х		
8	1	151 Whiting Street, Hingham	TBD			Х		
9	1	1 Clifton Ave, Hull	TBD			Х		
10	1	93 Tower Road, Hingham	TBD			Х		
11	1	21 Saw Mill Pond Road, Hingham	TBD			Х		
12	1	5B Fulling Mill Lane, Hingham	TBD		1	Х	1	
13	1	36 Vautrinot Ave, Hull	TBD			Х		
14	1	6 Mallard Run, Hingham	TBD		1	Х	1	
15	1	14 Bradley Park Drive. Hingham	TBD		1	Х	1	
	-	······································				-		
		SCHOOLS ⁴	1		1		1	
		DUHUULD			1			I

1	N/A	See LCR-B			

If any of the above sites are not Tier 1 sites in accordance with Massachusetts Drinking Water Regulations 310 CMR 22.06B my signature below indicates that Tier 1 sites were not available and that I have provided MassDEP with a "materials survey" and have complied with 310 CMR 22.06B(7). I certify under penalty of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

Signature of authorized public water syst	tem party:			Date:	_//
Name of authorized party (PRINT): Ka	aren Johnson Title	: Board of Selec	ctmen Chair		
Telephone #: <u>781-741-1400</u> Mobile	e/cell #:	Fax #:	Email Address:		

¹During any monitoring period no MassDEP approved sample site shall be sampled more than once without prior written approval from MassDEP."

² *Kitchen*; ³*Bathroom*; ⁴*The attached list of schools and daycare centers will be used to provide four samples per monitoring period until all facilities are sampled or as otherwise determined by MassDEP.* * Alternative Sites (These sites are not included in the samples period and must be samples to use in any sample

* Alternative Sites (These sites are not included in the samples required and must be approved by MassDEP prior to use in any sample round.)

For MassDEP use: Approved Deficient/Disapproved

Comments: ____

MassDEP staff Name: _____

Date: _____

ATTACHMENT L

Emergency Response Plan

ATTACHMENT M

Water Conservation Plan