

**TOWN OF JAMESTOWN
TOWN COUNCIL MEETING
for
TOWN, WATER AND SEWER MATTERS**

A regular meeting of the Jamestown Town Council sitting as the Board of Water and Sewer Commissioners was held on May 17, 2021. This meeting was held pursuant to Executive Order No. 20-05, executed by Governor Gina Raimondo and was teleconferenced via Zoom.

The meeting was called to order via Zoom at 6:32 PM by Commission President Nancy A. Beye. The following members were present:

Mary E. Meagher, Vice President
Erik G. Brine
Michael G. White
Randall White

Also, present were:

Jamie A. Hainsworth, Town Administrator
Denise Gamon, Town Clerk's Assistant
Christina D. Collins, Finance Director
Michael Gray PE, Public Works Director
Lisa Bryer, Town Planner
Peter D. Ruggiero Esq., Town Solicitor
Denise Jennings, Water and Sewer Clerk

AWARDS, PRESENTATIONS AND ACKNOWLEDGMENTS

(None)

READING AND APPROVAL OF MINUTES

1) April 19, 2021 (regular meeting)

Motion was made by Commissioner Meagher, seconded by Commissioner Randall White to accept the April 19, 2021 regular meeting minutes. Vote: President Beye, Aye; Vice President Meagher, Aye; Commissioner Brine, Aye; Commissioner Michael White, Aye; Commissioner Randall White, Aye

OPEN FORUM

Commission President Beye noted that this open forum would be for water and sewer matters only.

1) Scheduled requests to address:

(None)

2) Non-scheduled request to address:

(None)

REPORT OF TOWN OFFICIALS

1) **Pumping Report:**

The Public Works Director reported the following:

- Pumping was up slightly for the month of April, compared to March 2021 and was down slightly compared to April of 2020. Fort Getty Campground is now online. Demand (water usage) will increase through July.
- Rainfall is below average for the month of April. Annual water restrictions begin June 1st. Staff will continue to monitor reservoir level.
- North Reservoir is @ 60MG, usable storage-60MG.
- South Pond is @ 6MG, usable storage- 6MG

2) **Town project reports:** *(See attached Project Update Report dated May 2021)*

Treatment Plant-

Emergency Interconnection with the Town of North Kingstown-

The Public Works Director reported the following:

- Jamestown Water Department staff continues to work with Weston and Sampson Engineers and has done three rounds of sampling from North Kingstown Water at their Saunderstown water storage tank and analytical testing. Some of the data has been sent to the RIDOH. Hoping to have preliminary meeting with RIDOH within the next month.

Following clarification on a few items, it was the consensus of the Commission to accept the Public Works Director's report.

3) **Finance Director's Report: Comparison of Budget to Actuals as of April 30, 2021**

The Finance Director stated that she did not have anything additional to report.

LETTERS AND COMMUNICATIONS

1) **Copy of letter received May 10, 2021 from Ethel Belle Evans of 70 Walcott Avenue re: request for sewer charge relief from her 04/21 Water and Sewer bill**

The Public Works Director reported that in the past the Commission has granted relief on the sewer usage side only and he stated that the Commission has not granted relief on the water side, as money was used to treat the excess water usage. The Public Works further reported that the leak was investigated by staff and it was determined that the leak was outside into the yard.

The Finance Director reported that historically staff would review the average water usage to make sure that the sewer relief requested takes this average usage into consideration, before granting a sewer adjustment/relief to Ms. Evans and Ms. DeVeau.

Motion was made by Commissioner Randall White, seconded by Commissioner Michael White to grant sewer relief to Ethel Belle Evans of 70 Walcott Avenue, as reported by the Public Works Director and recommended by the Finance Director.

Vote: President Beye, Aye; Vice President Meagher, Aye; Commissioner Brine, Aye; Commissioner Michael White, Aye; Commissioner Randall White, Aye

UNFINISHED BUSINESS

- 1) Copy of letter received April 7, 2021 from **Loren DeVeau of 10 Avenue B requesting relief** from her 04/21 Water and Sewer bill.

The Public Works Director reported that the customer discovered a hose bib that had been turned on/or accidentally left on and that the excess water usage did not go into the sewer system, as money was used to treat the excess water usage.

Motion was made by Commissioner Randall White, seconded by Commission Michael White to grant sewer relief to Loren DeVeau of 10 Avenue B, as reported by the Public Works Director and as previously recommended by the Finance Director.

Vote: President Beye, Aye; Vice President Meagher, Aye; Commissioner Brine, Aye; Commissioner Michael White, Aye; Commissioner Randall White, Aye

NEW BUSINESS

- 1) Review, Discussion and/or Action and/or Vote on the application of **Christina Paolino (applicant) and Joseph Paolino (owner) (Plat 7 Lot 86, 68 East Shore Road) for water line extension**

Christina Paolino of 68 East Shore Road stated that she is asking for a water line extension to her house at 68 East Shore Road. She has supplied supporting documentation to the Commission and Town Staff. Ms. Paolino further stated the following:

- She purchased the property in 2016. She lives there with her son and fiancé.
- Her well is failing and she has exhausted all options.
- She had a baby in 2019 and she has had many health scares with him and does not want to have more. She can only bath her son in an inch of water. If he bathes, then they do not have enough water to bath.
- The water makes them sick to ingest. She does not want to put all lives in danger. She can't go on like this.
- She wants to stay here and raise her son and hopes to have more family.

She stated that she has two expert witnesses, Joseph Duhamel, Project Engineer of DiPrete Engineering and Robert Ferrari, PE of Northeast Water Solutions.

Commission President Beye stated that she had read/reviewed the supporting documents and that Ms. Paolino has done a lot of research/work on this matter and that she understands her situation.

Joseph Duhamel, Project Engineer of DiPrete Engineering stated the following:

- His firm has been involved with matter for several years and began analysis in 2017.
- Ms. Paolino has a 400 foot well that yields a tenth of a gallon per a minute.

- The water is very brackish. His firm has looked into other alternatives, such as desalinization and drilling another well, although yield would be the inadequate. If another well was drilled, he is not sure what would be done with the rejected water and would have to install a dry well.
- His firm recommended that Ms. Paolino request hooking into the municipal water system, which is the best long-term solution.

Robert Ferrari, PE of Northeast Water Solutions Ferrari a PE at Northeast Water Solutions his firm has 40 years of experience and has been assisting Ms. Paolino with this matter.

Mr. Duhemel stated that Ms. Paolino contacted his firm to do the engineering for the requested/proposed water line extension on East Shore Road extending to her property at 68 East Shore Road. His firm will work with the Public Works Director on this project and that they concur that a water line extension is the best option for Ms. Paolino. Mr. Duhemel briefly outlined his engineering plan for the proposed water line extension.

Commission President Beye thanked Ms. Paolino, Mr. Duhemel and Mr. Ferrari for their input. Commissioner Michael White stated that he would like to hear from the other two applicants with requests for water line extension, specifically Glen and Marjorie Andreoni (owners) (Plat 7 Lot 34, 10 Seaview Avenue) and John and Julie Shekarchi (owners) (Plat 7 Lot 88, 20 Seaview Avenue).

The Public Works Director stated that he received a request for continuance from the applicant John and Julie Shekarchi (owners) (Plat 7 Lot 88, 20 Seaview Avenue) to the next Water and Sewer meeting in June and that there are two additional applicants that did not meet the meeting deadline and that they will also be placed on the June Water and Sewer meeting agenda.

2) Review, Discussion and/or Action and/or Vote on the application of **Glen and Marjorie Andreoni (owners) (Plat 7 Lot 34, 10 Seaview Avenue) for water line extension**

Glen Andreoni of 10 Seaview Avenue stated the following:

- His property is about 100 feet from Ms. Paolino's property and that he has the same problems with his well.
- He stated that he lives in Smithfield year-round and summers in Jamestown, although he would like to live in Jamestown year-round, but he can't due to his well issue.
- His well fails every year and he can't sell the property, due to the well issues.

Mr. Andreoni made reference to the Public Works Director's memorandum dated 05-12-21, specifically Section 14B Rural Water Districts of the Rules and Regulations of the Board of Water and Sewer Commissioners and the criteria pertaining to service connections in the Rural Water District and the conditions that they are subject to. Mr. Andreoni thanked the Commission and requested that they approve his application.

The Public Works Director briefly outlined his memorandum dated 05-12-21 (*see attached*) and stated that those in the Urban District are allowed to connect by right and those who are in the Rural District do not have the right to connect and may apply by application to the Commission. The Paolino's and the Andreoni's have proven their need and he noted that the Town has not seen many requests for water extensions in the Rural District. The Public Works Director stated that in the past, the Board has approved *service connections* in the Rural District, where the *line already exists* and also two extensions, specifically one on Hull Cove Farm Road and one on Racquet Road and that both extensions were installed under Public Works Department supervision and were paid for by the applicants.

The Public Works Director briefly outlined the Safe Yield Study, usage of wells and blending of South Pond with North Reservoir to help increase supply. The Public Works Director noted that average daily demand is approximately 150,000 gallons and that we need to make sure that we have enough supply for our existing rate payers and the Urban District.

Commissioner Randall White stated that he has many questions and hopes that the Public Works Director, Town Planner and the Town Administrator can provide clarification to help the Commission to understand more clearly. Specifically, the Town Planners comments regarding the Comprehensive Plan and also the Public Works Directors comments regarding Section 14B-Rural Water Districts of the Rules and Regulations of the Board of Water and Sewer Commissioners and the criteria pertaining to service connections in the Rural Water District, the conditions they are subject to and the reference pertaining to Section 14B and the impairment of our current/existing users. Discussion ensued regarding the 2000 Build Out Analysis and the available service connections and improvements made to assist with increasing the water supply.

Mr. Duhemel stated that Ms. Paolino's house is only 5 houses past the last water service connection and that her expected usage is only 115 gallons per a day. He understands the whole Urban and Rural District rule, but her family is in dire need of water. Mr. Duhemel suggested that the Commission approve an emergency temporary connection this evening.

It was the consensus of the Commission, that they need to look at the bigger picture and get clarification on this matter from the Public Works Director, Town Planner and the Town Administrator prior to taking any action on the water extension applications.

The Town Planner suggested not moving on the water extension applications this evening and that she and the Public Works Director should meet to discuss and report back at the next Water and Sewer meeting in June.

Commissioner Brine stated that he agreed with Commission Randal White. Commission President Beye stated that she understands their need, although the Commission needs additional information prior to taking any action on the water extension applications.

Joseph Paolino, Owner of 68 East Shore Road expressed his concerns regarding his family's dire need for water and asked the Commission not to put this matter off another month.

Commissioner Meagher stated that she understands their need, although the Commission needs additional information, specifically how many houses are going to be served in this area, how many people will be affected and we need to know the build out numbers.

Motion was made by Commissioner White, seconded by Commissioner Meagher to continue the water extension application requests to the next Water and Sewer meeting in June and to ask Town staff to gather information and answers to the questions as discussed and report back to the Commission at the next Water and Sewer meeting in June.

Vote: President Beye, Aye; Vice President Meagher, Aye; Commissioner Brine, Aye; Commissioner Michael White, Aye; Commissioner Randall White, Aye

3) Review, Discussion and/or Action and/or Vote on the application of John and Julie Shekarchi (owners)

(Plat 7 Lot 88, 20 Seaview Avenue) for water line extension
It was the consensus of the Commission to continue the application of John and Julie Shekarchi (owners) (Plat 7 Lot 88, 20 Seaview Avenue) for water line extension, as requested by Mr. Shekarchi to the next Water and Sewer meeting in June.

ADJOURNMENT

Motion was made by Commissioner Randall White, seconded by Commissioner Michael White to adjourn the meeting of the Jamestown Town Council sitting as the Board of Water and Sewer Commissioners at 7:43 PM. Vote: President Beye, Aye; Vice President Meagher, Aye; Commissioner Brine, Aye; Commissioner Michael White, Aye; Commissioner Randall White, Aye

Attest:

Denise Jennings
Water and Sewer Clerk

Project Update May 2021

WELLS

JR-1, JR-3

- JR-1 is currently in service. The well pumps water at a rate of 50 gpm directly into the transmission main feeding the water plant from the reservoir.

TREATMENT PLANT

- Water department staff completed equipment maintenance at the South Pond pretreatment building.
- The water department staff has collected three rounds of samples from North Kingstown Water at their Saunderstown Water storage tank for analytical testing. The results will be used to evaluate whether introduction of water from the NK system could affect corrosion control in the Jamestown distribution system as required by the RIDOH.

TRANSFER PUMPING/RESERVOIR

- The region continues to experience “dry” conditions due to lower than average rainfall. We are 3 inches below our average through April. Both of the reservoirs are full and spilling over. If conditions continue to be “dry” and it begins to affect our North Reservoir supply, we will transfer water from south pond to maintain our storage capacity heading into late spring and summer.
- This past month there was damage to equipment attached to the intake pipe at the North Reservoir. Police were notified and we will be monitoring the Bike Path use and people on the dam.

DISTRIBUTION SYSTEM

South Pond @ 6 MG

Usable Storage, 6 Million Gallons

North Pond @ 60 MG

Usable Storage 60 Million Gallons

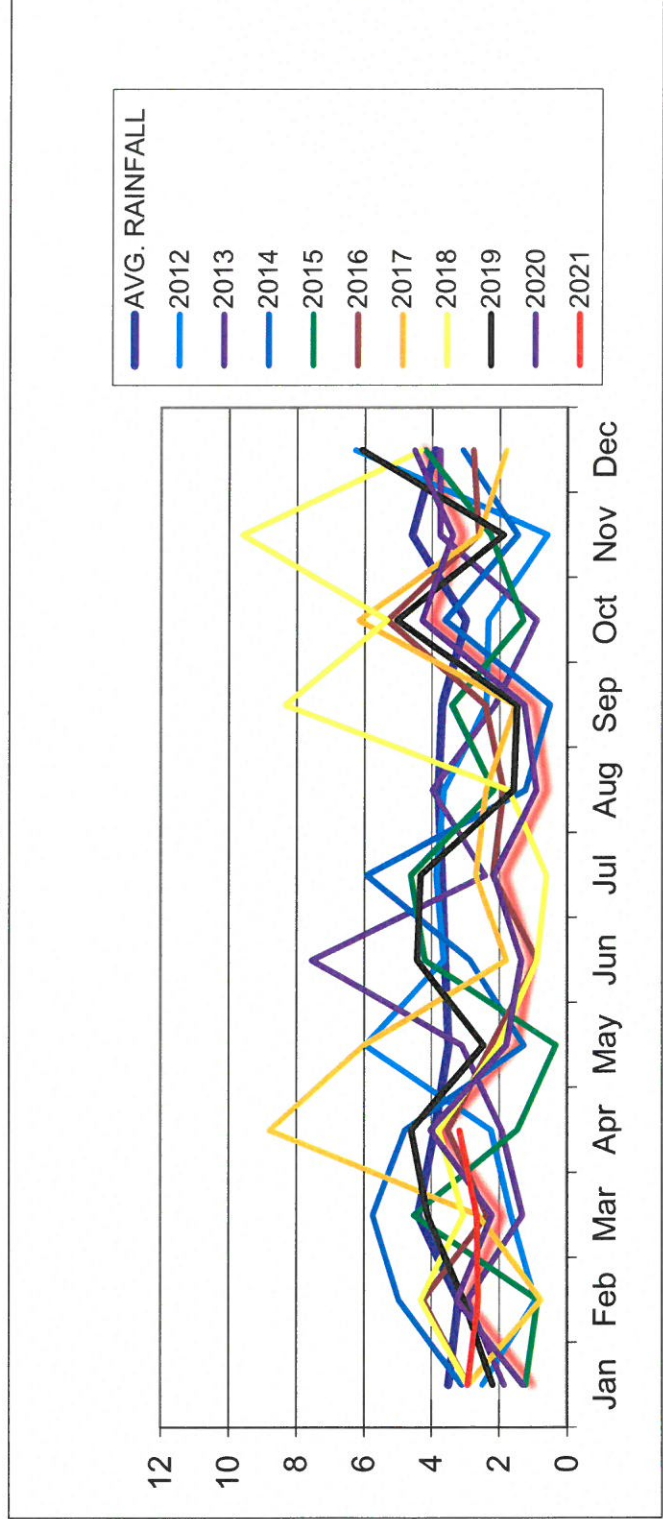
- Staff has completed our annual hydrant flushing within the distribution system.
- I have received a draft submittal of our bid documents for painting the water tower from Pare Corporation.
- Staff has completed flushing the distribution system in Fort Getty to prepare for the opening of the campground next week.
- Over the next several weeks water department staff will be replacing 5 hydrants in the distribution system.

WASTEWATER TREATMENT PLANT

- The monthly average daily flow at the treatment plant for April was 0.38 million gallons per day. The monthly average allowed by our discharge permit is 0.73 million gallons per day. The peak daily flow was 0.56 million gallons. There were no sanitary sewer overflows for the month of April.

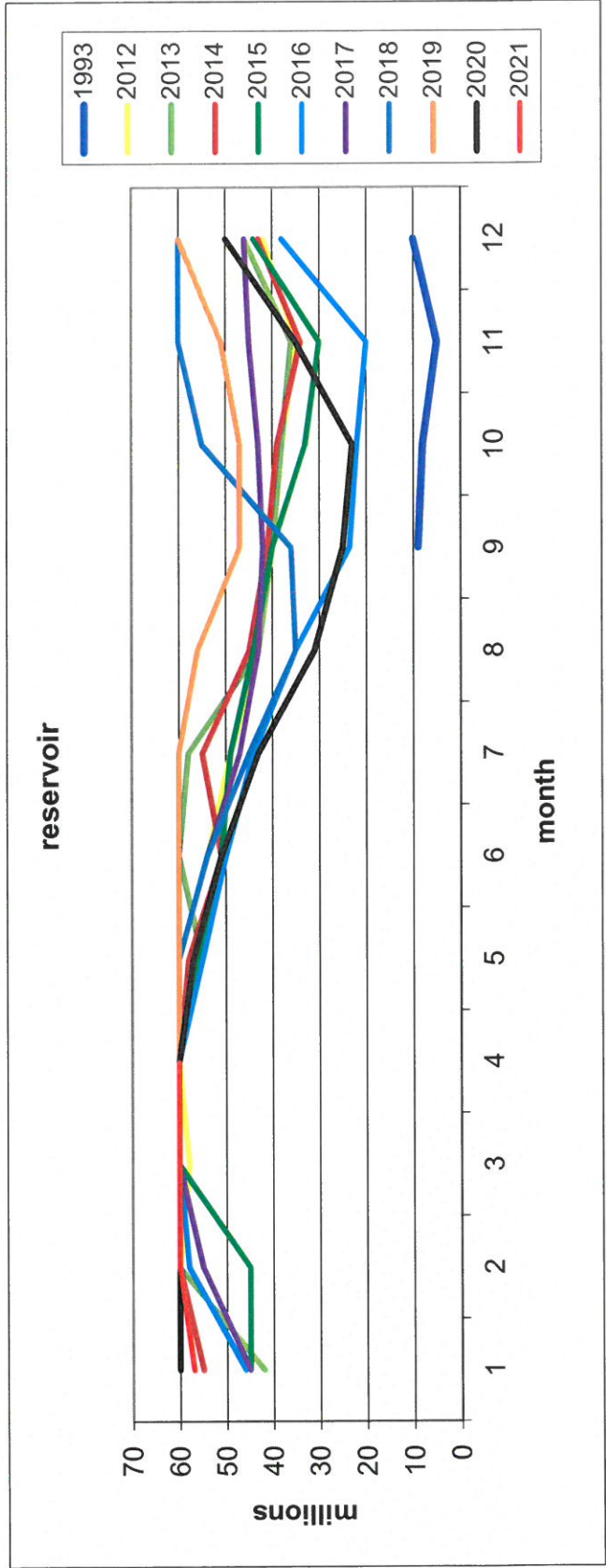
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan	3.5	1.85	3.1	1.22	2.94	2.94	2.94	2.19	1.3	2.94
Feb	3.2	2.94	4.98	0.86	4.25	0.76	4.33	3.06	3.26	2.62
Mar	4.4	1.32	5.74	4.53	2.36	2.62	3.07	4.11	2.21	2.66
Apr	3.9	1.92	4.8	1.47	3.53	8.8	3.79	4.61	4.03	3.18 15 avg
May	3.5	3.11	1.27	0.32	2.24	6.03	2.03	2.46	1.79	
Jun	3.6	7.55	2.86	4.2	0.89	1.79	0.89	4.44	1.36	
Jul	3.7	2.42	5.93	4.63	2.19	2.7	0.61	4.33	2.16	
Aug	3.8	3.98	1.23	2.17	1.88	2.4	1.73	1.58	0.91	
Sep	3.7	2.13	0.5	3.41	2.42	1.54	8.35	1.49	1.27	
Oct	3	0.9	3.61	1.31	5.33	6.18	5.34	5.04	4.29	
Nov	4.6	3.76	1.47	2.27	2.63	2.61	9.61	1.89	3.39	
Dec	3.9	3.76	3.1	4.2	2.79	1.81	4.33	6.09	4.53	
Total	44.8	35.64	38.59	30.59	33.45	40.18	47.02	41.29	30.5	11.4

RAINFALL



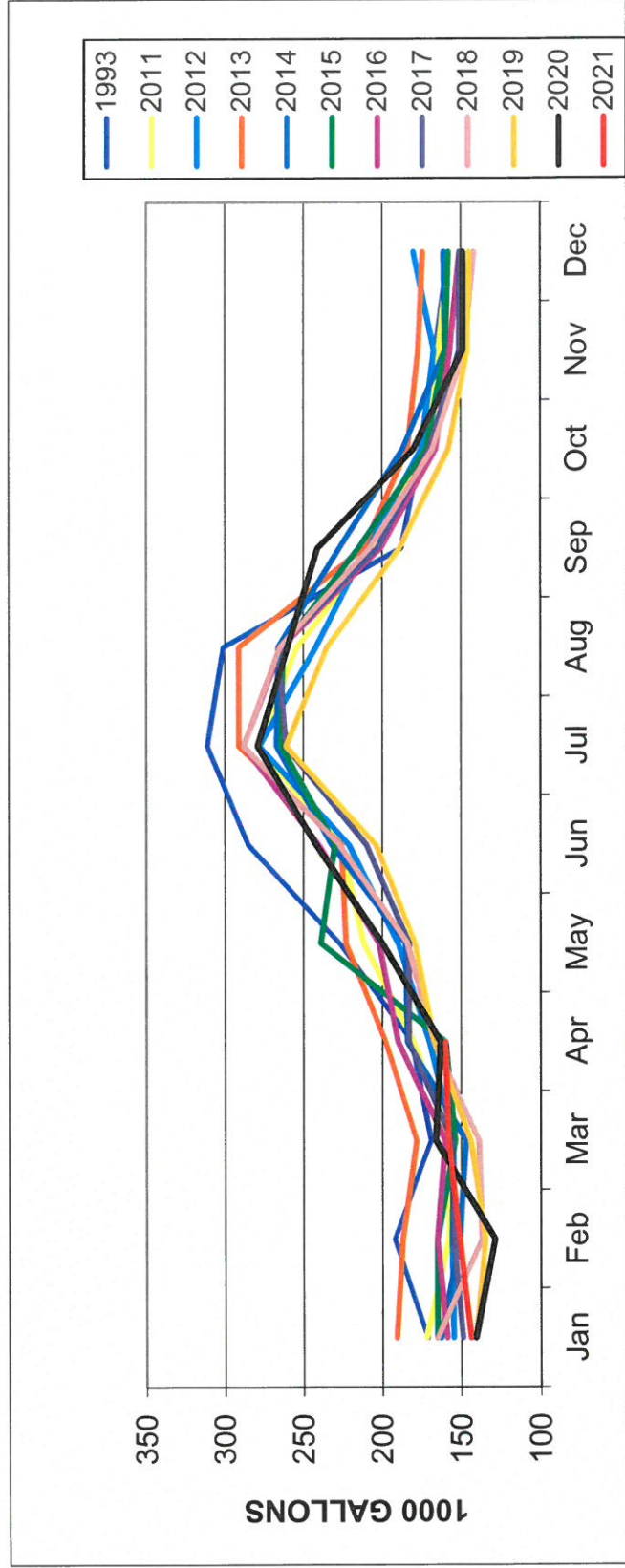
RESERVOIR LEVEL

	1993	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan		30	60	42	55	45	46	45	60	60	60	57
Feb		52	60	60	60	45	58	55	60	60	60	60
Mar		58	58	60	60	60	60	60	60	60	60	60
Apr		60	60	60	60	60	60	60	60	60	60	60
May		57	60	55	58	56	55	60	60	60	57	60
Jun		51	54	60	51	50	50	54	54	60	51	60
Jul		43	49	58	55	49	44	47	45	60	43	60
Aug	9	47	43	43	45	44	35	43	35	56	31	60
Sep	8	45	40	40	41	40	23.5	42	36	47	25	60
Oct	5	58	38	38	39	33	22	43	55	47	23	60
Nov	10	60	35	36	34	30	20	45	60	51	35	60
Dec		60	42	46	43	44	38	46	60	60	50	60



	1993	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan	171	172	173	239	172	155	191	163	165	159	149	165	141	141	144
Feb	192	154	173	210	158	156	187	151	165	165	155	137	135	129	151
Mar	169	155	165	198	157	155	178	147	154	160	156	139	144	166	158
Apr	181	174	196	210	180	170	198	184	160	190	183	167	167	163	160
May	227	202	195	180	212	190	223	185	239	202	183	184	179	200	
Jun	285	246	215	218	226	221	226	232	230	240	210	227	204	242	
Jul	311	296	277	274	279	278	291	267	264	288	261	288	261	279	
Aug	301	256	290	251	254	242	291	266	263	264	266	265	235	260	
Sep	188	210	245	193	205	210	212	227	215	201	203	208	189	241	
Oct	175	187	259	182	175	175	184	187	172	166	170	168	158	180	
Nov	166	175	226	160	164	167	177	160	160	157	151	148	146	149	
Dec	158	192	230	167	158	180	174	161	158	151	151	142	145	149	

PUMPING REPORT





TOWN OF JAMESTOWN WWTF
MONTHLY REPORT
APRIL 2021

Douglas Ouellette, Superintendent

Parameters

	<u>Monthly Avg.</u>	<u>Permit Limit</u>	<u>Notes</u>
Flow	.3822 MGD	.73 MGD	
Daily Max	.5570 MGD		
BOD Removal	100%	85%	% Removed
TSS Removal	98.3%	85%	% Removed
Fecal Coliform	1.0	No limit, report only	
Enterococci	1.4	(<35 cfu/100ml Monthly) (<276 cfu/100ml Daily)	

Environmental Compliance (Violations)

There were no violations for this month.

Complaints

No complaints to report for April

Alarms

There were 2 low CL2 alarms to report alarms for April.

Septage

The facility received 1250 gallons for April.

Sludge Production 25500 gals

Maintenance Management

Took delivery of new Honda gen set for station #4. New batteries for portable trailer gen set at station #3. Degreased station #4 and hosed down.

Chemical Use

The facility used 329.4 gallons of Sodium hypochlorite and 300 pounds of lime for process control.

Collection System

30 pump station inspections were completed. The #2 wet well valve at pump station #2 is stuck shut and replacement is needed.

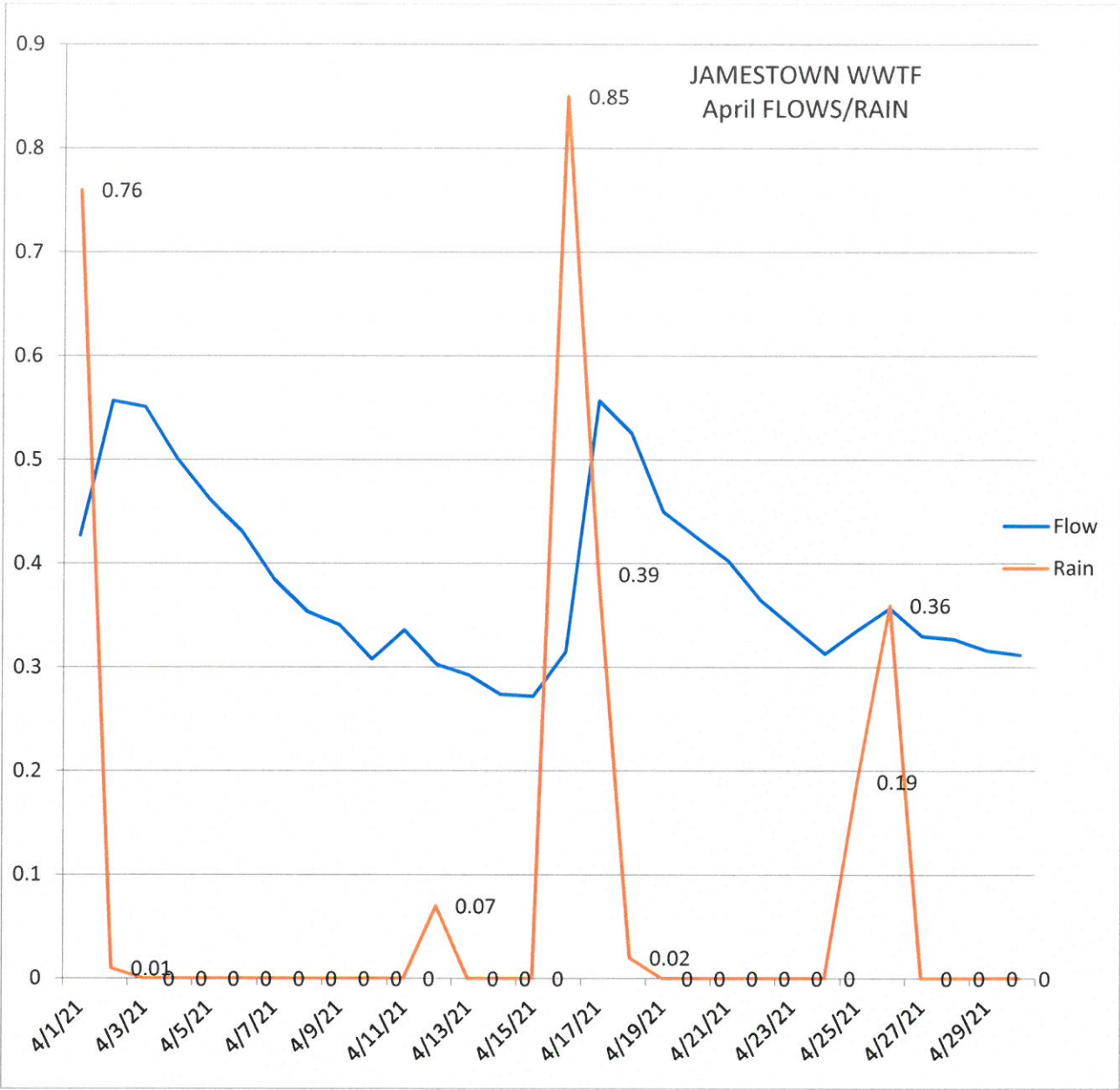
Energy Use

Energy use for April was: 219 Kwh

Precipitation

Precipitation for April was 2.65"

Graphs



**Town of
Jamestown, Rhode Island**

PO Box 377
Jamestown, RI 02835- 1509
Phone: (401) 423-7220
Fax: (401) 423-7229



Date: May 12, 2021

To: Board of Water and Sewer Commissioners

From: Michael Gray
Public Works Director

RE: Water Extension Application
East Shore Road

We have received three applications for water services that will require an extension of the 8" watermain within East Shore Road in the Rural Water District. The following applications have been received:

1. Christina Paolino, 68 East Shore Road
2. Glenn and Marjorie Andreoni, 10 Seaview Avenue
3. John and Julie Shekarchi, 20 Seasview Avenue

Two additional applications were received after the deadline for this meeting from residents in the same neighborhood.

The Rules and Regulations for the Board of Water and Sewer Commissioners, May 2009

Section 14 B Rural Water Districts. All service connections in the Rural Water District shall be subject to the following conditions:

- a. Shall be subject to the requirements described for connections in the urban district
- b. The applicants shall show to the satisfaction of the Commission that the proposed service connection requested:
 1. Is Consistent with the Comprehensive Community Plan
 2. Will not impair the available resources of the Urban Water District;
 3. Will not reduce the level of fire protection of the community; the property shall not be part of a major subdivision.
 4. Extensions to and within the rural district shall be prohibited.

The regulations allow the Board of Water and Sewer Commissioners from making such improvements, including extensions, which shall, in the opinion of the Board, improve the quality or quantity of water furnished to existing water uses.

I have attached a figure indicating where the existing 8" water line terminates in East Shore Road. The three properties requesting water service are outlined in red. An extension of approximately 1400 LF would be required for the three properties that are requesting service. If the water distribution pipe was looped around Seaview Avenue and back to East Shore Road this extension would increase to a total of 2500 LF.

In the past the Board has approved service connections in the Rural Water District where an existing watermain was located along the frontage of the property. Owners have requested the service connection due to poor water quality and/or if the well on the property cannot yield enough water to support the existing use. There have been two watermain extensions approved by the board in my tenure; one extension on Hull Farm Road and the second in Racquet Road. Hull Cover Farm included the replacement of approximately 1000 feet of 4" watermain with 6" pipe and an extension of approximately 500 linear feet to service 3 new homes. Racquet Road included the replacement of approximately 700 linear feet of 2" watermain with 6" pipe and an extension of approximately 300 linear feet to two homes. Both applications involved the replacement of undersized piping along the entire length of road to improve pressure and flow to existing users and improve fire protection in the neighborhood. All costs were paid for by the applicants.

To assist in your review, I have attached Section 4.0 Anticipated Future Demands and Section 5.0 Available Water from the Water Supply Management Plan for Jamestown Water. In Section 4.0 you will find a summary of projected population growth in the system and future water demand. Section 5.0 provides information on the available water supply in the system.

Section 4.0

In 2016 there were 3,184 residential customers projected on the water system. The buildout analysis completed by the Town of Jamestown in 2000 projected that an additional 223 dwelling units could be connected to the Town water system within the existing district at full-buildout. Using an average of 2.38 persons/household the number of customers is 3,589 at full build-out. Table 4.2 contains the 5-year and 20-year water use projections in the water system. By 2036 residential water use is expected to increase from 152,000 gallons per day to 169,000 based upon population projection within the district for 3,456 residential customers.

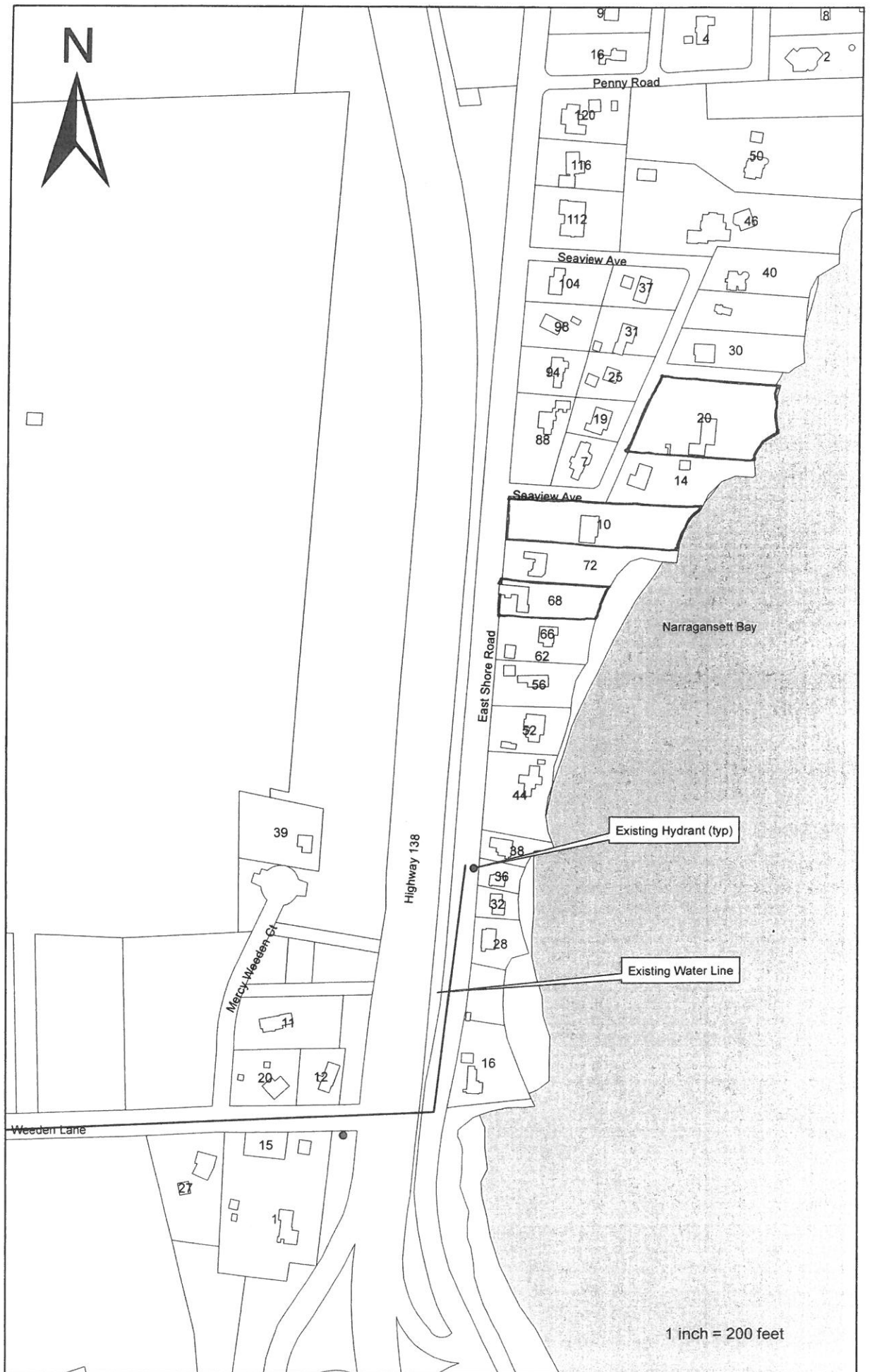
Section 5.0

A Safe Yield study was performed by our consultant in 2000. Table 5.3 shows the Safe Yield for North Pond is 185,000 gallons per day based upon the study. Well JR-1 can

provide an additional 50,000 gallons per day when in use. South Pond can provide 100,000 gallons per day but unfortunately transferring water to North Pond can only be used when South Pond is spilling over. During the peak summer season and into the fall South Pond is not spilling over and water cannot be transferred so this additional source is not reliable for estimating our capacity.

The three applications before the board and the two that will be on the agenda next month are requesting water connections due to poor water quality and insufficient yield from their wells. A great deal of background information and analytical reporting was provided by Christina Paolino regarding her property at 68 East Shore Road. It is evident that there is a problem for the existing homes in the area.

I would recommend that for this month we hear from the residents that have made the meeting agenda. The two additional applications for next month are in the same neighborhood. Each property owner has their individual need and will provide testimony to the conditions that they experience. I don't know how we can look at each in a vacuum unfortunately. We must determine the limits of the proposed extension to project the demand and impact to the water system. It is important that we meet the standard within the regulations to *"improve the quality or quantity of water furnished to existing water uses."*



1 inch = 200 feet

REDUCED SCALE

Pare Project No. 15050.00

**TOWN OF JAMESTOWN
DEPARTMENT OF PUBLIC WORKS
WATER DEPARTMENT**

**WATER SUPPLY SYSTEM MANAGEMENT PLAN
5-YEAR UPDATE**

PREPARED FOR:

RHODE ISLAND
WATER RESOURCES BOARD
1 CAPITOL HILL, 3RD FLOOR
PROVIDENCE, RI 02908

PREPARED BY:

PARE CORPORATION
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865

ORIGINAL SUBMISSION MAY 2017

REVISED MARCH 2018



SECTION 4.0 ANTICIPATED FUTURE DEMANDS

The intent of this section is to project the future water demands expected of the JWD system for the 5-year and 20-year planning periods. To best project future water use several factors must be considered, including changes in population density, commercial water use and development, economic development, changes in service area, land use, water quality, and conservation measures.

4.1 Population and Economic Development

The RI Department of Administration, Division of Planning publishes population projections for each Rhode Island municipality at five-year intervals. These projections were made using 2010 US Census data, which estimated the population in Jamestown in 2010 to be 5,405. The projected population in Jamestown for the period of 2015 to 2040 is summarized in Table 4.1 below.

**Table 4.1
POPULATION PROJECTIONS (2015 – 2040)**

YEAR	POPULATION	ANNUAL % CHANGE
2015	5,451	--
2020	5,487	0.13%
2025	5,573	0.31%
2030	5,640	0.24%
2035	5,675	0.12%
2040	5,674	--

These projections show only modest population growth and are dramatically different than those previously developed by the RI Division of Planning based on past population trends and US Census data. The population trends projected for Jamestown are similar to population trends for many other communities in Rhode Island.

In 2000, the Town of Jamestown conducted a buildout analysis. The buildout analysis was used to determine maximum potential future population that the Town can accommodate under existing local regulations. At that time, it was estimated that the largest potential population for Jamestown is 8,318 persons, an increase of 2,696 (48%) over the 2000 population. This buildout analysis estimated that an additional 223 dwelling units could potentially be connected to the Town water system.

There were approximately 1,285 residential service connections in 2000 serving approximately 3,058 people, compared to 1,365 services in 2016 serving an estimated 3,184 residents. Based on the buildout analysis, 150 additional dwelling units could potentially be connected to the water system. At an average of 2.38 persons/household, as suggested by US Census data, the number of potential water service customers is 3,589 at full buildout. This is not expected to occur during the 5-year and 20-year planning periods and only modest population growth is anticipated in the water service area and the Town as a whole. It is important to note that no water main extensions or system expansion has been proposed in over 20 years, and none is anticipated at this time.



4.2 Projected Future Demands

Future demand projections were made using the RI Statewide Planning population projections and the methodology described above. Previous versions of this WSSMP also projected demand for a full buildout scenario; however, current population projections represent only modest growth in Jamestown's population over time as compared to past projections that anticipated growth at a much faster rate. The population projected in Jamestown in 20 years (i.e., 2036) is far less than the population at full buildout, and current projections predict that population will plateau in 2035. As such, future demand for a full buildout scenario has not been presented at this time.

Table 4.2 contains the 5-year (2021) and 20-year (2036) water use projections in the JWD water system. It is assumed that all of the anticipated population growth in the Town of Jamestown will be within the water district, which is conservative. This information is also presented on Worksheet No. 27.

**Table 4.2
CURRENT AND PROJECTED WATER CONSUMPTION RATES**

Year	Total Population in Jamestown	Population Projected in Service Area	Metered/Projected Water Usage			Average Day Demand*
			Residential	Commercial	Government	
2016	5,451	3,184	48.13 MG	5.45 MG	1.84 MG	0.152 MGD
2021	5,487	3,268	49.22 MG	5.90 MG	2.0 MG	0.156 MGD
2036	5,675	3,456	52.10 MG	7.26 MG	2.3 MG	0.169 MGD

* Based on consumption alone (i.e. non-account water not included)

Residential water use for the 5-year period was projected based on a service area population of 3,268 people and an average per capita residential water use of 41.3 gallons per capita per day (gpcd), equivalent to the average per capita residential water use for 2016. Only modest population growth is expected over this timeframe and residential water use is anticipated to remain relatively consistent. Similarly, residential water use for the 20-year planning period was projected based on a service area population of 3,456 and 41.3 gpcd. This assumes that efficient residential water use continues to be a priority in Jamestown.

Commercial and governmental water usage for the 20-year planning period was projected to be equivalent to the highest use rates over the previous 10 years, as shown on Worksheet No. 21. Commercial water use was 7.26 MG in 2005 and governmental water use was 2.30 MG in 2009. Estimates for the 5-year planning period were made assuming a steady, constant increase from 2016 to 2036. Water use by the commercial and government sector in Jamestown has declined over time, and relatively little commercial and governmental development is expected in the JWD service area or in Jamestown as a whole.

The JWD has traditionally used a maximum day to average day peaking factor of 2.0 to estimate maximum day demand (MDD) in the system. Table 4.3 shows the current ADD and MDD as well as projections for the 5-year and 20-year planning periods, based on consumption.



Table 4.3
CURRENT AND PROJECTED AVERAGE DAY & MAXIMUM DAILY DEMANDS

YEAR	AVERAGE DAY DEMAND*	MAXIMUM DAY DEMAND**
2016	0.152 MGD	0.304 MGD
2021	0.156 MGD	0.312 MGD
2036	0.169 MGD	0.338 MGD

* Based on consumption alone (i.e. non-account water excluded)

** Estimated using MDD to ADD ration of 2.0

Projected estimates for water produced have been made assuming 15% non-account water, consistent with State goals. Therefore, the ADD and MDD based on water production are estimated to be 0.18 MGD and 0.36 MGD, respectively, for the 5-year planning period. Similarly, the ADD and MDD are estimated to be 0.19 MGD and 0.39 MGD for the 20-year planning period.

It is noted that non-account water currently exceeds 15% but it has met the State's goal of 15% in the past. These estimates are presented on Worksheet No. 29A along with the estimated available supply capacity. Worksheet No. 29A underscores the importance of JWD obtaining a better understanding of, and altogether lowering, non-account water in the system. One significant step toward this goal is reclaiming the majority of backwash water that currently is discharged to Great Creek, as discussed in Section 2.10 of this WSSMP.

4.3 Category & Subcategory and Major Users Future Demand

Future residential and commercial water demands are summarized on Worksheet No. 27 and in Table 4.2. There are no major users in the system, nor are any current users expected to increase demand to rates that would qualify them as a major user (i.e., demands in excess of 3 million gallons annually). The JWD is not aware of any potential major user currently in planning.

4.4 Legal Obligations to Provide Water

The JWD does not have any wholesale customers, major users, or any other legal obligations to provide water.

4.5 Service Area Extension

4.5.1 Urban Water District

Under the Urban and Rural Water District Regulations adopted in 1986, the Town has specific guidelines for new connections to the water system. Service connections for use other than one or two-family homes require approval of the Board of Water and Sewer Commissioners. Applicants must show to the satisfaction of the Board that the request for service:

- 1) is consistent with the Comprehensive Community Plan;
- 2) will not impair available resources of the urban water district;
- 3) will not reduce the level of fire protection; and
- 4) will not reduce the quality or quantity of water provided to existing users.



Property owners whose land is within the district or which has frontage on a district boundary road may request a water service connection. Because of the relatively small supply capacity of the system, no expansion of the urban water district is planned or anticipated at this time.

4.5.2 Jamestown Shores Neighborhood

From time to time, the issue of water service to the Jamestown Shores area is raised. This area in the northern half of the island houses 40% of the Town's overall population. There is currently no public water service available in the area.

The Shores area was subdivided in the 1940s into very small lots. Most lots are less than a quarter acre. Each home must have a well and onsite sewage disposal system on the property. This factor, coupled with poor soil conditions, creates the potential for groundwater contamination.

If water quality problems become evident in Jamestown Shores, measures may be needed to provide potable water to the area. This scenario would exact a severe financial and service burden on the Water Department. New transmission lines, pump stations, and possibly other system improvements would be required. There are no plans for serving this area now or in the immediate future, but it is doubtful whether sufficient raw water could be found on the island to meet this demand should it become necessary.

It is therefore imperative that the Town of Jamestown makes every reasonable effort to ensure that water quality in the Jamestown Shores area is maintained. Steps that the Town has taken and should continue in an effort to minimize health risks associated with this area include:

- Monitoring RIDEM's granting of OWTS permits in the area;
- Require maintenance of existing septic systems;
- Create a soils overlay district and prohibit OWTS where severe limitations exist;
- Strictly enforce local regulations on OWTS setbacks from wetlands;
- Encourage RIDEM to consider alternative OWTS technology where appropriate.



SECTION 5.0 AVAILABLE WATER

5.1 General

North Pond is the primary water supply for the Jamestown system. The JWD supplements the reservoir with water withdrawn from their supply well, JR-1, during peak demand times of year. Well withdrawals typically make up a very small amount of the water withdrawn from the JWD's sources.

Analysis of the safe yield of the North Pond Reservoir system was conducted previously by staff of the Rhode Island Department of Environmental Management, Division of Water Supply Management. The purpose of the study was to determine the ability of the existing system to meet the water supply needs of the existing customer base. The full report was provided in the last WSSMP, while this chapter presents the major findings of the study. Also presented are the findings of a more recent study, completed in 2000 by Fay, Spofford and Thorndike, Inc. (FS&T).

In times of drought, the JWD has also utilized South Pond for its water supply. A study of the safe yield of the watershed was conducted by Richard Hazen in 1983. This report will be referred to for supporting data on the probable safe yield of South Pond, though the reservoir has not been used for some time.

5.2 Physical Characteristics of the Reservoirs

Jamestown's reservoirs were constructed in the 19th century by the creation of earth dams in two natural drainage swales. The spillways have been modernized to concrete structures permitting outflow above a certain water level. There is no provision for flashboards at either spillway. Elevation of North Pond, when full is 37 feet above mean sea level, 27 feet above South Pond.

Both reservoirs are shallow, and as such are subject to high rates of evaporation during the hottest months. South Pond, being of small capacity with a fairly large drainage area, is very responsive to rainfall, especially when the ground is saturated. Public Works officials have observed the water level in South Pond rise a foot overnight. Because of the physical and water quality limitations of South Pond, it is not considered a reliable source of supply but remains an active source that can potentially be used in the future should some of its water quality limitations be suitably addressed.

5.3 Safe Yield of Surface Waters

5.3.1 *FS&T Safe Yield Analysis, October 2000*

FS&T completed a safe yield study of North and South Ponds in October 2000 on behalf of the JWD. The Safe Yield Analysis Report (text only) is included in Appendix D. This represents the most recent safe yield analysis performed on the JWD's supply sources.

FS&T created a computer model to simulate the Town's water supply system and compute the safe yield. The model incorporated historic hydrologic and hydraulic factors (i.e. precipitation, direct runoff, evaporation, demand withdrawal rates) as well as current operational factors in its mass balance approach. The results of this analysis are presented in Table 5.1. A second safe yield analysis was then conducted whereby the transfer of water from South Pond to North Pond was simulated. These results are presented in Table 5.2.



Table 5.1
SAFE YIELD (gpd)

Average Surface Water Inflow Factor	North Pond	South Pond	Total
0.40	175,000	86,000	261,000
0.45	194,000	89,000	283,000
0.50	213,000	92,000	305,000

Table 5.2
SAFE YIELD WITH TRANSFER PUMPING (gpd)

Average Surface Water Inflow Factor	North Pond	South Pond	Total
0.40	304,000	80,000	384,000
0.45	321,000	83,000	404,000
0.50	333,000	55,000	421,000

A transfer pumping between South Pond and North Pond is in place but is not typically used due to the water quality issues in South Pond.

5.3.2 Previous Analyses

RIDEM chose a method of computer mass balance of reservoir inflows and outflows using the U.S. Army Corps of Engineers Hydrologic Engineering Center program HEC-5: Simulation of Flood Control and Conservation Systems.

The Hazen study used stream flow records of mainland rivers. Additionally, the study used storage yield curves recorded in NEWWA reports from 1969. Studies of the 27 square mile Abbott Run watershed and the 93 square mile Scituate watershed during the record-breaking drought of the mid 1960s were used to determine the expected yield of a reservoir in the region. The NEWWA procedure takes into account the drainage area; the percentage of drainage area covered by the reservoir; the rainfall and probable loss by evaporation; the stream flow; and the storage required to assure the desired supply. Data are computed on the basis of drainage areas, with safe yield and storage required stated per square mile.



North Pond

Applying the HEC-5 methodology, the following are the results of the safe yield analysis for different drought scenarios:

**Table 5.3
NORTH POND SAFE YIELD**

Drought Analysis	Safe Yield (GPD)
1% change of occurrence (100% reliability)	175,000
5% change of occurrence (95% reliability)	210,000
Drought of Record (99% reliability)	185,000

South Pond

Although South Pond is a small reservoir, it receives runoff from 70 percent of the watershed, or 0.7 square miles. Total runoff is 700,000 gpd, but the characteristics of the drainage area are significantly different from the North Pond drainage area. A vast wetland encompasses much of the watershed above South Pond. This increases evaporation and transpiration and reduces the quantity of runoff, especially during dry weather.

South Pond was drawn daily for five months in early 1981. Pumping averaged 180,000 gpd, with a maximum one-day yield of 364,000 gallons. Hazen's estimate of the safe yield of the reservoir is as follows:

**Table 5.4
SOUTH POND SAFE YIELD**

Drought Analysis	Safe Yield (GPD)
2% change of occurrence (98% reliability)	100,000

Like the FS&T Evaluation, the results of this study suggest that partial use of South Pond would substantially increase available water to the system.

Because South Pond is served by more than two thirds of the drainage area of the watershed, its storage capacity is the primary limiting factor in its utility to the water supply. The other deficiency of South Pond is water quality. Below North Pond, runoff passes slowly through a large wetland on the way to South Pond. This "percolating" process causes the water in South Pond to have high quantities of organic matter, iron, acid, and other contaminants. This results in discoloration and unpleasant tastes and odors.

Drought Duration

The drought of the 1960s is generally considered the drought of record in this region. However, at the time of the drought, the population of Jamestown was around 2,500, half of the current population. No records exist as to the extent of the drought in Jamestown, but anecdotal information suggests that the Town's water system did not experience an inability to provide sufficient water to customers.

During the summer of 1993, a short-term drought occurred. From late-July through September, Jamestown received very little rainfall. As the summer season progressed, evaporation combined with diminished inflow and high demand to create a crisis situation for the water supply system.



South Pond, normally reserved for supplemental supply, was already at the bottom of the reserve storage zone though no water had been drawn from it. The Town instituted an outdoor watering ban in August, and conservation was greatly encouraged.

Efforts to reduce water consumption were not sufficient to stabilize the level of the reservoirs. By late summer North Pond held only a 20-day supply of water. The National Guard was notified and began delivering water by truck from North Kingstown. This practice continued until November 15 of that year.

When winter rains began to recharge South Pond, it was used to supply the water system, allowing North Pond to recharge without use. It was found that when water is drawn from South Pond, the rate of flow through the upstream wetland increases. This unfortunately does not result in improved water quality.

In the final analysis, the National Guard delivered 7.5 million gallons to the Jamestown water supply. It was estimated at the end of the deliveries that the North Pond volume was 6.7 million gallons. Jamestown would almost certainly have run out of water had not the National Guard helped supplement the supply.

The Town has prepared a plan to avoid having a situation like the 1993 water deficiency in the future. The plan is described in the augmentation study section as well as in Section 10 – Drought Management of this WSSMP.

Water Withdrawals

There are no withdrawals from Jamestown Brook.

5.4 Limitations to Water Use

The new water treatment plant has a design capacity of 0.5 MGD, more than the safe yield of the supply sources and above current and future estimates of the MDD. The only limitation to drawing water is the water quality of South Pond. Even when the reservoir is full, water quality at South Pond is much lower than North Pond. While the new treatment plant was designed to treat water from South Pond, sludge generation when using raw water from South Pond makes the treatment plant inefficient. Therefore, supply from South Pond is not typically used.

5.5 Available Water/Demand Comparisons

Although the two reservoirs appear to have a combined safe daily yield of 283,000 gallons, the actual available water is less due to the poor water quality of South Pond, as noted above. In the past, North Pond has been used almost exclusively for supply, providing the Town with a safe daily yield of 185,000 gallons (based on the RIDEM analysis and the Drought of Record). Also, it is doubtful whether South Pond could truly provide 100,000 gpd, due to the water quality problems described above. The ADD exceeds the safe yield of North Pond during the warmer months each year, and the JWD supplements supply with withdrawals from Well JR-1 in periods of higher water use. The JWD has implemented a number of water conservation strategies and continues to impose outdoor water use restrictions in an attempt to control water use peaks during the summer months.

5.6 Alternative Supply

The JWD maintains alternative supply sources in addition to North Pond and the two active supply wells, JR-1 and JR-3. While South Pond is considered an active supply source and is



maintained as such, it effectively acts as an alternate surface water supply as withdrawals are infrequent due to raw water quality.

It was the JWD's intent with construction of the new treatment plant in 2011 to increase treatment capacity to 500,000 gpd while also having the capability to treat water from South Pond. In practice; however, the treatment process is inefficient and a high volume of sludge is generated when raw water from South Pond is used, making withdrawals from South Pond impractical.

Over the years, the JWD explored development of additional supply wells around wells JR-1 and JR-3. However, these other wells are currently not being used as supply due to concerns over groundwater depletion.

The JWD has an emergency interconnection with North Kingstown, consisting of truck-mounted flexible piping that can be connected to hydrants on either side of the Jamestown Verrazano Bridge. This interconnection is not intended for permanent use, and development of a permanent interconnection is not immediately feasible and would be extremely costly due to Jamestown's isolated nature as an island in Narragansett Bay, over a mile from the nearest mainland.

5.7 Supply Augmentation Study

Since 1993 the Town has investigated various alternatives to source augmentation to meet the ever-increasing demand requirement of drinking water. The following summarizes the actions taken to augment supply.

5.7.1 Water Supply Committee Report (1995)

In response to the drought of 1993, the Town established a Water Supply Committee. The committee was comprised of a variety of professionals with expertise in drinking water issues. Over a two-year period, the committee developed and evaluated a number of alternatives to increase the supply of public water. The committee completed its report in 1995.

A copy of the Water Supply Committee report was provided in the previous WSSMP. Below is a brief description of the primary alternatives considered by the committee, as presented in this report. The committee was only charged with evaluating supply augmentation. Water conservation has been considered separately by the Conservation Commission and JWD staff.

1. *Expand North Reservoir* – This alternative included diversion of Carr Creek and improvements to the impoundment dam. Carr Creek watershed has an area of 0.11 square miles, which could yield over 100,000 gpd. Also, it was estimated that raising the spillway and dam at North Pond by 12 inches would result in an increase in storage capacity of 8 MG. This volume represented a 35-day supply of water, based on 1992 consumption. It would represent a 40-day supply based on current ADD.

Both the Carr Creek diversion and dam improvements involve significant permitting and engineering studies. The committee recommended no action on this alternative at that time, and this alternative has not been revisited since.

2. *Development of South Pond* – South Pond could be utilized if water quality were improved sufficiently to make the water treatable. Methods of reducing the effects of organic material in the watershed were discussed, but this possibility was dismissed as impractical and requiring extensive further study.



Initial results indicate the same portion of South Pond water may be returned to North Pond through transfer pumping or mixed at the treatment plant, but this alternative required further evaluation. Since then, the new treatment plant was designed to treat water from South Pond, but the increased sludge generation would make treatment too inefficient for long term use.

3. *Bedrock Drilling* – This approach involves drilling a series of wells to tap water trapped in bedrock fissures. Significant background study has been done to determine the most effective well locations. The water would be pumped directly into the distribution system if quality is high enough, or it could be pumped to the treatment plant.

The JWD has done extensive well exploration over the years. Well JR-3 is a result of these efforts and has been in service since 2000.

4. *Water Conservation* – Developing methods of reducing per capita consumption were recommended as part of the report. The Conservation Commission has recommended specific steps for water conservation. These affect residential and commercial consumers, as well as treatment plant operations.

Among the most significant recommendations in the report are: (1) an education program to raise public awareness on methods of water conservation, and (2) “change-out” and retrofit programs to encourage/require users to utilize water conserving fixtures, toilets, and washing machines. The results of these programs are discussed elsewhere in this WSSMP.

Results

The Town opted to pursue Alternatives #3 and #4, which were met with success. Well JR-3 has been in service since 2000. Estimated yields from the wells JR-1 and JR-3 are 50,000 gpd, each. They are only used at times of year with high demand. Water conservation measures have also been proven successful and the JWD will continue to pursue water conservation in the system. For instance, the ADD presented in the 1993 report was 248,000 gpd and was a similar rate in the 2000 Safe Yield Analysis performed by FS&T, referenced earlier. Future ADD estimates were projected to increase, but they have decreased and the ADD currently averages 200,000 gpd for a typical year. The JWD has realized a lot of success through water conservation practices.

5.7.2 Water Treatment Feasibility Study – 1999

In September 1998, the Town of Jamestown contracted Fay, Spofford & Thorndike, Inc. to evaluate alternative sources of water supply and the feasibility of associated water treatment requirements. A Water Treatment Feasibility Study was prepared in April 1999. The Executive Summary from the Report was provided in the previous WSSMP. Below is a brief description of the alternatives that were considered in the report.

The report concluded that North Pond is not able to meet the ADD based on its estimated safe yield and recommended that the Town explore one of two tracks for increasing supply. One of the options presented in this report was to

“establish a permanent connection with North Kingstown at an estimated life cycle cost of about \$3.2 million pending discussions with North Kingstown officials and a more detailed cost evaluation. This has the advantages of providing adequate water supply and being more reliable in terms of water quality. The major disadvantages are cost and the Town becomes dependent upon an outside community for its water supply.”



The Town has since developed an emergency interconnection (6-inch flexible water line) between hydrants with the Town of North Kingstown and the Town of Jamestown, but a permanent connection has not been implemented.

The second recommended track was to develop additional supply in Jamestown. Since 1995 the Town had done extensive well exploration and development. These efforts resulted in installation of Well JR-3 with an estimated safe yield of 50,000 gpd, like that of Well JR-1 though both wells are never used at the same time.

Utilizing Narragansett Bay as a water supply source had also been reviewed. High-pressure reverse Osmosis (RO) is the membrane-separation technique typically utilized to reduce the total dissolved solids (TDS) in the seawater from 34,000 mg/l to less than 500 mg/l for drinking water. This was a very costly option, estimated at close to \$6 million for construction of a desalination plant. Costs associated with desalination have increased since completion of this report and this alternative has not been seriously explored in recent years.

5.7.3 *Limnological Baseline Study*

In 1999, the Town retained Ecosystem Consulting Service, Inc. to conduct a limnological baseline study of the surface water sources based on recommendations from FS&T's 1998 report summarized above. The intent of this study was to quantify the quality of water from the two reservoirs, identify reservoir management techniques, and investigate ways to increase available water supply for the Town. The end result was to assist in identifying cost effective, reasonable approaches to increasing water availability for the Town.

On December 16, 1999, FS&T issued a final/supplemental limnological baseline study for the North and South Ponds in addition to the above. This report identified specific alternatives which could be implemented to increase the overall yield from the surface water supplies while maintaining a reasonable water quality, given the raw water quality limitations of South Pond.

Both reports were provided in the previous WSSMP. Several recommendations for increasing the available water supply were presented, which are summarized as follows:

- Increase Safe Yield from North Pond
 - Intercepting and treating water from the South Pond watershed adjacent to the North Pond watershed north of Route 138 and east of wells JR1 and JR3, and diverting this water to North Pond.
 - Increasing the North Pond Reservoir level by 10-14 inches by the addition of flashboards during early summer.
- Improve Water Quality from North Pond
 - By the addition of stormwater detention basins to treat water entering North Pond from the watershed area west of North Main Street. The DPQ was already developed design plans for the installation of these basins to address this issue.
 - The addition of a hypolimnetic aeration and depth selective supply withdrawal system.
- Improve South Pond Water Quality
 - Correcting the "leakage-overflow" to the west from South Pond.



-
- Increasing the storage volume in South Pond through a shallow reservoir expansion to the west from the dam.
 - Installing a hydrologic discharge control assembly at the South Pond spillway.
 - Installing a depth-selective supply withdrawal structure at South Pond.

The total cost of these recommendations was estimated at \$95,000. It was also recommended that a safe yield study of North and South Ponds be conducted to verify the proper transfer rate between the two ponds and to determine the impact of increasing the North Pond reservoir level. This was conducted in 2000 and was discussed earlier in this section.

