



Water Commissioners for this report period were Michael Caron, Paul W. Poulin, Lucien F. Langlois, and Paul Ingersoll; Ex-officio member was Mayor Paul R. Grenier.

The Berlin Water Works (BWW) has not increased water rates in twenty-one years. The NHDES 2015 Water Rate Survey was published and Berlin Water Works ranks 17th highest in the State for an average of \$615.84/per year per four person household. BWW has been able to maintain water rates because of cross-training employees and elimination of work through planned improvements and the implementation of BWW “force account” construction to offset operating cost by performing capital improvement projects with BWW resources. Energy improvements including the Solar System at the BWW office and the Hydro at the Ammonoosuc Treatment Facility have also helped keep energy costs manageable. BWW received a check dated June 22, 2018 in the amount of \$758.10 from Revolution Energy for carbon credits. BWW signed a contract with First Point Power for eighteen months with a savings of approximately \$6,150 contract to expire in October 2018. We have generated extra power with the Hydro at the Ammonoosuc Treatment Plant and will be installing electric heaters at the treatment facility to save on propane cost.

An article was published in the NH Water Works Association Newsletter “Green Energy & the City of Berlin Water Works. It discussed our use of the 2010 State

Revolving Loan Fund (SRL #09) for our green energy solar and hydro projects. The article was researched and written by Andrew J. Sharpe, PE, LLC, BWW's consulting engineer.

We have seven New Hampshire State Revolving Loans remaining and one Rural Development Loan. The availability of new low interest system improvement loans and grants has enabled the BWW to perform "Force account" construction work to improve our systems and balance the operation and debt budgets.

BWW sold the 1970 Green Mack Truck and the 2004 and 2001 Chevrolet pick-up trucks no longer passed inspection and were sold for parts. All sales income is applied to BWW debt. Two new Ford pickups were purchased to replace the Chevrolet pick-up trucks.

BWW continues to offer on line bill paying for customers. Customers can pay their bills by going to the City of Berlin Website berlinnh.gov. Invoice Cloud and Northern Data Systems are providing electronic bill presentment and online payment service. The system allows the office clerks to enter credit card payments for customers here at the office or over the phone. The system also allows customers to choose paperless billing. Approximately 250 or 7.34% of our customers are registered to use the online billing service and a total of 390 or 11.45% are paperless. Also, the BWW has an auto-pay option for which 150 or 4% customers currently participate.

There are 3405 BWW accounts requiring metering and protective devices. BWW has installed 2178 backflow devices to-date at customer's homes. BWW has installed 1675 radio read units to-date. BWW is currently upgrading old brass meters by replacing them with poly Sensus iperl meters. FY 2018 BWW replaced 196 meters of the total replaced all were Sensus iperl meters.

BWW celebrated Drinking Water Week from May 6, 2018 to May 12, 2018 with open house at the Ammonoosuc Treatment Plant Monday through Friday. National Water Week tours included three elementary classes and a resident who visited the plant. Also earlier in the month the staff conducted a tour for the Environmental Program at the Berlin Community College. The tour lasted about 2 ½ hours with many questions from the students on the process and on the Hydro.

During the mild winter of 2017/2018, we had 64 people running water to prevent service line freeze-up. Efforts continue to reduce the number of running water customers, of which there were 1003 of 3500 customers in the winter of 2000-2001.

The School Department requested BWW to help them with the Lead and Copper Sampling at the schools. Fifty seven sites were tested with the help of School Department staff and the samples were delivered to the State Lab by Granite State Shuttle Services. The School has also contacted BWW about a road they want to build around the High School and a new parking area. BWW said they would be willing to help with the project, if selected we will be working with the engineers on the project.

		FISCAL 2017	FISCAL 2018
Total Flow		624,724,307	638,623,718
Difference from previous year		Less than 1% decrease	2.2% increase
Gallons per Day		1.71 Million Gallons	1.75 Million Gallons
Running Water Customers		0	64
Running Water Start - early		-	January 8, 2018
Running Water Start - regular		-	-
Running Water Finish		-	April 9, 2018
Frozen Water Calls - outside		1	6
Frozen Water Calls - inside		0	29
Hydrant Flushing		8/23/16 to 10/3/16	8/1/17 to 9/8/17
Number of main line breaks		1	1
Number of service line breaks		7	2

Our lead and copper water sampling program passed the last seven rounds of testing in June of 2006, December of 2006, September 2007, September 2008, September 2009, September 2012 and September 2015. The testing results from September 2015 showed all passed for copper and one failed for lead. The State of NH Department of Environmental Services dropped the number of test sites required from 60 sample sites to thirty sample sites. The overall average lead and copper sample levels have dropped to new low levels. Please note that the water leaving the Water Treatment Plant is free of lead and copper and that the resulting lead and copper are attributed old portions of the distribution system, customer pipe systems, and/or dead end lines. Water sampling will continue to monitor lead and copper levels. The next round of testing is scheduled for September 2018. Water Quality Report for calendar year 2017 was distributed to all water customers as a bill stuffer in the May 2018 Billing. Paperless customers received an internet address to view the Water Quality Report.

BWW continues to update the office and garage buildings at the 55 Willow Street. We have had favorable comments by the customers on the buildings at 55 Willow Street. The hydrant water fountain in front of the office building was reinstalled after the winter months and the area cleaned and mulched. Ossipee Mountain Electronics will be reprogramming our 24 radios and we will share the travel cost with several other City Departments that will be using their service. We will then be in FCC compliance. The office staff replaced the copy machine that was ten years old; the copies were beginning to be distorted.

Improvements to the Distribution System facilities included BWW staff hiring Charlie Fritz of Electrical Instrumentation to calibrate the venturi meter at Brown Farm Well and the two venturi meters at the Ammonoosuc Treatment Plant for the Clarifiers, the calibrations are required under the BWW water conservation plan. The staff rented a concrete grinder to clean all the floors at the treatment facility and then they applied high epoxy paint. The venturi meters used to pace the chemicals at the treatment facility were

removed and cleaned by staff with Blue Earth, removal of the venturi meters was aided with a flange splitter tool, purchased by staff. Fire hydrants were repainted this summer by summer employees; the last time they were painted was in 2007. All mowing by summer employees has been streamlined with the purchase of a zero turn mower and trailer and brush clearing has been improved with a wood chipper purchased by BWW. KRA construction was awarded the bid to cover all wooden trim with aluminum facing at the Pump stations for ease of maintenance and aesthetics.

Vachon Clukay & Company PC was accepted by the Board to perform the Water Works financial report for period ending June 30, 2018 thru (FY2020). Our FY 2019 budget of \$3,037,270 was presented by the Board on May 23, 2018 at the budget hearing providing \$2,201,665 for operations and \$ 835,604 for loan debt payments. The proposed budget was approved June 20, 2018. This budget represents the twenty-first consecutive year with no water rate increase for its customers.

IMPROVEMENT PROJECTS:

BWW 18-1 NHSRL #12 – Board of Water Commissioners signed a resolution to proceed with a NH State Revolving Loan in the amount of \$1,500,000 approved staff to proceed with an application for same on September 20, 2017. BWW was notified by NH Department of Environmental Services (NHDES) on November 30, 2017 that the Governor and Executive Council authorized the approval of a low interest loan agreement between NHDES and BWW in the amount of \$1,500,000 to finance water system improvements for water line replacement throughout the City. December 11, 2017 Allyson Gourley of NHDES notified BWW that the Environmental Review requires BWW to public a public notice for the project funds. It was posted and we received a letter dated January 24, 2018 that we completed the requirement for Environmental Review. This funding will continue improvements started through previous State Revolving Loans. FY 18 work included Twelfth Street from Woodward St to 206 Howard Street a continuation of the project started last Fiscal Year.

BWW 15-1 NHSRL #11 – In FY 2015 Berlin Water Works applied and was approved for a \$2,000,000 State Revolving Loan. Work has been completed on Main Street from Peavey Lane to Eighth Street, Berlin Water Works relocated services, hydrants and valves at intersections from the discontinued 1892 vintage 10” CI water main to the new 16” HDPE water main. This work was a prerequisite for the City of Berlin Road Rebuild and Paving Project from St. Anne’s Church to the Community College. Approximately 2900 feet of old 10” cast iron main was eliminated on Main Street from Peavey Lane to Eighth Street. The six inch cast iron main on Birch Street was slip lined with a 4” hdpe water main. We also eliminated the old cross lot line near Cambridge from School Street to Main Street. FY 17 Work on Cedar Street between Prospect Street and Hillside Avenue has been completed; Hillside Avenue from Spruce Street to Portland Street has been completed. BWW ran a new 1” copper service line from the high pressure line on Grafton Street to 601 Lancaster Street, it was not completed as part of the Grafton Street Project, and the homeowner sent a thank you card to the BWW. FY 18 Work included paving Western Avenue from Mink Street to approximately 678 Western Avenue and Hillside Avenue from Winter Street to Portland Street where water main installation and services were completed. In October

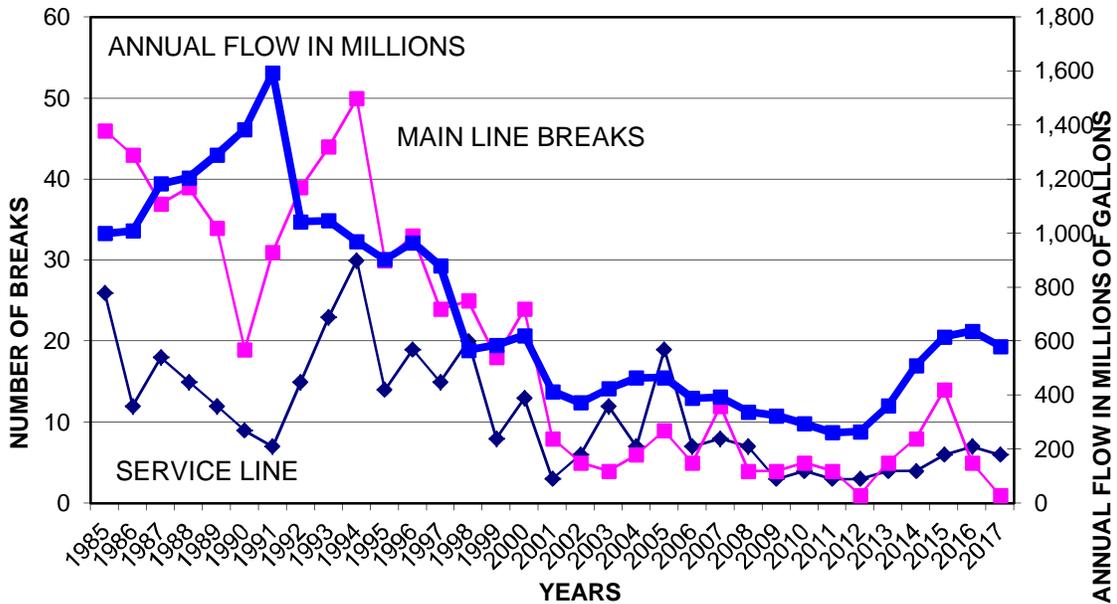
Chairperson Michael Caron signed an amendment to NHSRL #11 to extend the date for expending funds from December 1, 2017 to December 1, 2018. BWW has been continuing to eliminate Running Water customers and between water main projects we have completed running water service lowering and insulating from main to curb to prevent future freeze ups, the customers are then removed from the running water program. Final Pay Request for this project was submitted in June 2018.

BWW Brown Farm Well #2 the well was completed by Layne Christensen Company, the 10 day pump test was completed and the VFD is installed and the instrumentation is complete. The Water Conservation Plan was approved by the State, BWW received notification on March 13, 2018. The Water Works offered an alternate method for testing the venturi meter. Instead of removing the meter, which would be time consuming & expensive, BWW suggested to view the inside with a camera and the State is fine with this option and if it found to have built up sediment on the walls then it will be removed and cleaned. BWW was notified May 3, 2018 by Andrew Koff that NHDES approved the Large Groundwater Withdrawal Permit; the well connection was approved June 26, 2018 by Randall Suozzo of NHDES when he attended the BWW construction meeting.

	Total as of FY2018	FY 2017	FY 2018
Curb-to-curb street paving (includes overlay)	12.46 miles	.26 miles	.22 miles
Number of New Meters	3405 total in system	183	196
Number of New hydrants	422 total in system	0	1
Number of Replaced services	3405 total in system	38	30
New water main installed – since 1990	29.90 Miles	.53 miles	.40 miles

The BWW installed 2097 feet of water main. Improvements to the water distribution in the City of Berlin continue with planned replacement of small diameter galvanized mains (250 feet remaining as of June 2018) and 1890 thru 1920's vintage unlined cast iron mains (25,220 feet remaining as of June 2018) with the highest frequency problems corrected first. As the streets for replacement of water mains are selected for design, improved fire protection flow capabilities are considered. The results of these increased efforts will be a much improved distribution system.

WATER LINE BREAK HISTORY CALENDAR YEAR



BWW continues to work with the Asset Management Grant, we have continued to record GIS location information for all new construction as well as completing the city a zone at a time. We sent out the Asset Management Brochure in the August 2017 Quarterly Billing, we had a few customers thank us for the information. BWW sent in a request for disbursement in the amount of \$20,000 on December 7, 2017 for approval and processing. \$42,402.50 was expended to meet the match requirement for the Asset Management Grant pay request. BWW received payment on January 30, 2018 in the amount of \$20,000. BWW also applied for the 2018 Asset Management Grant on December 5, 2017.

BWW was notified by Andrew Madison of NHDES on June 15, 2018 that 2019 Local Source Water Protection Grant applications are available; BWW is considering applying for protection of the well sites on East Milan Road.

Thanks to all BWW employees, Water Works Commissioners, the Honorable Mayor Paul Grenier, the City of Berlin and the NHDES Drinking Water staff for their continued support. The BWW has completed and is continuing work on significant improvements that will improve our water system and reduce our operating cost for many years into the future.

Craig P. Carrigan
Superintendent