CARROLL COUNTY WATER SYTEM IMPROVEMENT STUDY

PRESENTED TO

COUNTY OF CARROLL
OFFICE OF COMMISSIONERS
95 WATER VILLAGE ROAD
OSSIPEE, NEW HAMPSHIRE

FINAL

FEBRUARY 2022

Concord, New Hampshire
UE Job # 2718

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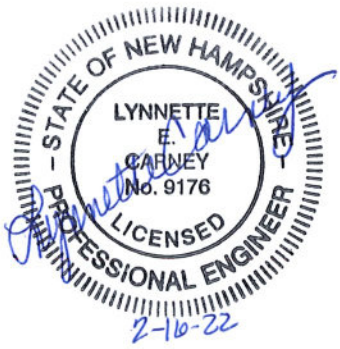

UNDERWOOD engineers

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1. Executive Summary

1.1 Summary of Evaluations

The Carroll County Water System serves the Carrol County Complex as well as parts of Ossipee Village. The system consists of the following components:

- Two bedrock wells (BW-1, BW-2)
- A system of three dug wells, (W-1, W-2 & W-3) which flow by gravity to W-1, where the flow is pumped to the system
- Meter/control building with chemical feed
- 200,000 gallon concrete storage reservoir
- Approximately 16,000 ft of distribution pipe, which is primarily 10-inch ductile iron.

BW-2 supplies nearly all water to the system and was installed in 2001. A significant portion of the system was upgraded at this time, including the the meter building and most of the system water mains.

An engineering evaluation was conducted by Underwood Engineers to review the current system conditions and develop a plan for system upgrades. The general scope of the evaluation is summarized below:

- Visual inspection of existing water supply and storage infrastructure to evaluate the general condition and required upgrades
- Review existing reports, studies, plans, and available information for the Carroll County water system
- Estimate the capacity of existing sources of supply using currently available information
- Evaluate source water quality from existing records
- Project future 20-year water demands for the system
- Perform flow testing to evaluate fire flow capabilities

1.2 Summary of Deficiencies

The following system deficiencies were identified by Underwood Engineer's evaluations:

Source

- Poor/limited access to wells
- Lack of well level transducers
- Reported possible air discharge from BW-1 (may signify low water level)
- Actual long term sustainable capacity of the sources is unknown

Meter/Chlorination Building

- Moisture damage/ corrosion to electrical panels, heater, piping and some area of walls; peeling paint.

- Finished water flow meter is not transmitting to SCADA
- Overgrowth of trees around electrical service
- Limited SCADA access for the operator, with access via third party vendor remote access, and daily reporting via text message.
- Cellular modem for the SCADA system is outdated and in need of replacement

Storage

- Cracks and deteriaoration at corners of potable water storage tank and exterior walls
- Gaps between the wall/roof joint of the tank.
- Minor corrosion on exposed pipes in the tank
- Small tear in membrane roof on the roof top and loose mounting strip
- The existing fire pond is inoperable except during the summer, and needs to be dug out and the riser replaced/repaired

Distribution

- Hydrants are all over 20 years old and parts are reportedly difficult to find
- 4-inch PVC pipe on Old Route 28 is undersized and does not provide for adequate fire flows
- Lack of meters on County Complex buildings
- Residential meters are over 20 years old and are read manually

1.3 Summary of Recommendations

A comprehensive discussion of recommendations is included in Section 5 of this report. Recommendations for improvements are summarized, and prioritized below.

1. Source Water

    a. Perform a hydrogeologic assessment of the wells to evaluate their actual long-term sustainable yield. BW-2 currently supplies nearly all of the water for the system, with BW-1 and W-1 operating only when the storage tank is drawn down to a low level. This typically occurs twice per year when the system is flushed. This assessment will help verify the capability and limitations of the existing sources and determine if a new source is required for the system for current of future demands. This assessment will include pump testing the wells to estimate safe yields, evaluate the reported air issues at BW-1, verify the depth of wells and and assess the condition of the pumps and existing equipment in the wells.

    b. Install conduit and wire to each well, a stilling tube in each well and a level transducer at each well for well level monitoring. These well level transducers will be connect to SCADA. Perform minor repairs as needed at wells.

    c. Upgrade the access roads to wells.

d. Perform a hydrogeologic study and install a new well, if deemed necessary after testing/evaluation of the existing source capacity.

e. Meter building repairs and upgrades:
    i. Replace source and distribution meters
    ii. Upgrade SCADA system to include new cellular modem, additional software to access data from the office
    iii. Repair damaged walls and ceiling and repaint
    iv. Replace propane heater and panels
    v. Paint existing piping
    vi. Add chlorine residual monitor and connect to SCADA
    vii. Clear trees from electrical service to building

2. Storage
    a. Repair exterior concrete
    b. Repair roof and attachments
    c. Seal an existing gap between the walls and roof
    d. Clean and coat the inlet, outlet and overflow piping
    e. Excavate the fire pond and repair/replace piping

3. Transmission and Distribution
    a. Replace system hydrants
    b. Replace village meters, install a radio read system, install meters at the County Complex buildings, repair the existing meter in the vault near the maintenance building
    c. Replace the water main on Old Route 28 with new 6-inch or 8-inch DI and replace services to the curb stops
    d. Clear brush/trees from the water main between storage tank and Courthouse

4. Management & Maintenance
    a. Maintain cleared access to wells and water mains (in cross country areas)
    b. Routine tank inspection and cleaning, hydrant flushing
    c. Maintain records of daily source meter readings, chlorine dosage & use, residual testing results, record meter readings from vault meter monthly and compare to village billed/metered usage.
    d. Exercise valves
    e. Complete an asset management plan

2. Introduction/Purpose of Evaluation

The Carroll County Water System serves the Carroll County Complex, which consists of a courthouse, administration building, nursing home, jail, and several out buildings. The system also serves approximately 40 homes in Ossipee Village. According to the New Hampshire Department of Environmental Services (NHDES) One-Stop website, the system has a total of 53 connections and services a population of 258.

The sources of supply include two deep bedrock wells and three dug wells, which are also referred to as springs. The artesian output of two of the dug wells/springs flows by gravity to the third dug well, where water is pumped to a metering and treatment building. The water from this dug well (W-1) is metered and then chlorine is added before the water flows into an in-ground 200,000-gallon concrete reservoir. The discharge from each bedrock well also flows through the metering and treatment building, is chlorinated, and flows to the reservoir. Water flows by gravity from the reservoir through a 10-inch ductile iron (DI) main to the County Complex, and then onto Ossipee Village via County Farm Road, Route 28 and Route 171, where the size is reduced to 8-inch in the village center. 8-inch and 4-inch diameter branch mains serve other streets in the village.

Water supply capacity has been an issue in the past, and bedrock well #2 (BW-2) was installed in about 2000 to address the issue. However, there have been no other supply improvements for over 20 years. The current condition, supply capacity and water levels of the bedrock wells are unknown. Demands have likely increased slightly over time due to the upgrade or addition of new facilities at the County Complex and the addition of residential connections. There is also potential for increased future water demand in the Village. During recent water quality sampling, there was reportedly air in the discharge from bedrock Well #1 (BW-1), indicating a possible low water level. Nearly all of the water for the system is currently provided by BW-2.

The 10-inch and 8-inch D.I. water mains noted above were installed in 2001/2002. However, a smaller diameter main remains on Old Route 28, which is believed to be 4-inch PVC. In this location, the fire hydrant is connected to the 4-inch main which does not meet current design standards.

Underwood Engineers (UE) was hired to perform an engineering evaluation and study to determine the following:

1. Capacity of existing sources of supply, based on existing information
2. Projected demands and ability of existing supplies to meet those demands
3. Fire flow capability throughout water system
4. Recommendations on
    a. Rehabilitating or improving existing supply sources
    b. Adding a new supply source or sources to meet demands
    c. Distribution system improvements to ensure adequate fire flow
    d. Rate adjustments to help support recommended improvements

History

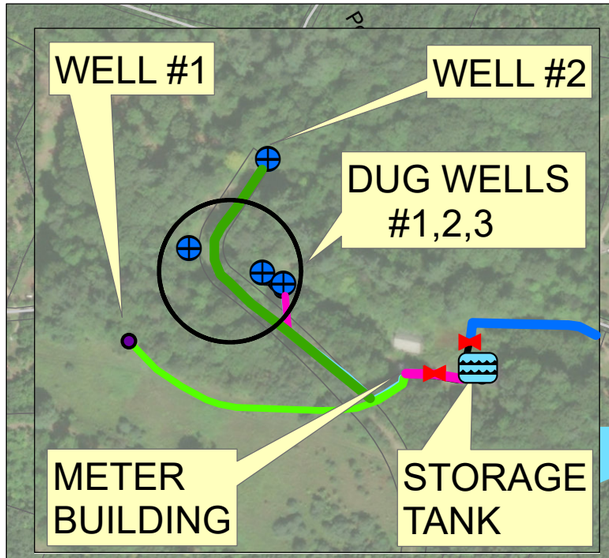
Prior to the 2001 upgrade, the system was reportedly approximately 100 years old and had frequent main breaks, insufficient supply, lacked meters and telemetries, and had antiquated distribution piping and storage facilities. There were reportedly chronic water shortages in the summer months when the wells could not refill the reservoirs.

The existing dug wells/springs (W-1, W-2 & W-3) were installed in 1979 to replace a prior spring system. It is unknown when BW-1 was installed. BW-2 was installed about 2000, and connected to the system during the 2001 upgrade.

The current storge tank was constructed in 1987. An older storage tank with a volume of 90,000 gallons, which was constructed around 1900 and had significant deficiencies, was removed from service sometime after 2000.

Several improvements and additions have been constructed at the County Complex. A new courthouse was added in 2001. A new jail was constructed in 2003 (to replace the old jail), and a new nursing home was constructed in 2010 (to replace the old nursing home). The old nursing home building still exists, but is currently unoccupied. These improvements may have increased usage of the water system slightly, but most improvements were replacements, rather than additions.

A map of the distribution system, as provided by RCAP Solutions, is shown in ***Figure 2-1***.



Emerson Rd
Old Route 28
Woodcrest Dr
Woodcrest Dr
Courthouse Sq Cir
NH Route 28S
Courthouse Sq
Old Rte 28
Old Granite Rd
Browns Ridge Rd
NH Route 28
No Name
No Name
No Name
Water Village Rd
Dunfield Rd
No Name
No Name
County Farm Rd
FIRE POND

Legend

	Water Main	Service Line
Hydrant	10" DIP	0.75" HDPE
Pumper Connection	2" HDPE	1" COP
Gate Valve	2" PVC	4" DIP
Field Hydrant	4" DIP	6" DIP
Curb Stop	4" HDPE	UNK
Corporation Stop	6" DIP	
Enclosed Storage Facility	8" DIP	
Meter Station	UNK	
Production Well		
Fittings		

CARROLL COUNTY
WATER DISTRIBTION SYSTEM
GIS Data collected by Granite State Rural Water Association (GSRWA)

0 200 400 800 1,200 1,600 Feet

1 inch = 333 feet

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CARROLL COUNTY
WATER DISTRIBUTION SYSTEM
WATER SYSTEM
IMPROVEMENT STUDY

Date: September 2021

Project No. 2718

3. Existing System and Evaluation

3.1 Wells

The Carroll County Water System has 3 water sources; two bedrock wells (BW-1 and BW-2) and a series of 3 dug wells (which are operated as a single source, with W-2 and W-3 flowing by gravity into W-1 where it is pumped to the tank).

It is unknown when BW-1 was installed. A 2018 Sanitary Survey by NHDES indicated Bedrock Well #1 (BRW1-005) was 315 ft deep with an unknown yield. A 1999 Provan & Lorber report indicated that the well was 1,100 ft deep, and estimated the approximate flow from the well at 12 gpm (based on a bucket-test). During the 2001 water system upgrade, an old pump-house was removed, a new pitless adapter was installed, and the pump was reportedly lowered from a depth of 300 ft to 500 ft.. The 2001 plans show that the well has a 10-inch diameter well casing, and a 2-inch galvanized drop pipe and has a 5 hp motor. The well is reportedly currently blowing a lot of air when flushing was conducted for sampling, and therefore likely needs further evaluation to identify the cause of this issue.

BW-2 was installed around 2000, prior to the 2001 construction project. There is conflicting historic information regarding the yield of the well. The 2018 NHDES Sanitary Survey indicates that Bedrock Well #2 (BRW 2-009) has a depth of 1,006 ft and a yield of 29.3 gpm. At the time of our site visit the pump was operating and pumping at about 24 gpm. The NHDES One Stop site indicates that the well was drilled in 2001, has a total depth of 1,006 ft, a depth to bedrock of 150 ft with 172 ft of casing, a static water level of 100 ft and a test yield of 16 gpm (Well ID#187.0489)

Three dug wells make up the third source for the system. According to the 1999 Provan & Lorber report, the wells were considered shallow springs, W-1, W-2 and W-3. W-2 and W-3 originally flowed directly to the tank by gravity, and W-1 was pumped by a 2 Hp submersible pump. During the 2001 upgrade, they were reconfigured, so that W-2 and W-3 flow by gravity into W-1, where it is pumped to the storage tank by a ½ Hp submersible pump. Provan & Lorber indicated that flow measurements from the combined outflow of the wells had a flow rate of about 15 gpm (after a period of moderate to significant precipitation in the fall/early winter of 1998). DES refers to this source as DUG-010 with an unknown yield.

These dug wells were reportedly installed in 1979 to replace an older spring system which had become unproductive. According to DES, the dug wells/springs are reportedly four foot diameter concrete tile construction, and approximately 20 ft deep. The 2001 Provan & Lorber plans show W-1 as 4 ft diameter with 16.5 ft deep concrete well tiles. During the 2001 construction project, a 0.5 Hp pump was reportedly re-set in W-1.

Access to the wells is difficult, via a narrow unmaintained gravel road, with the wells off to the side. The roads to the wells should be improved to allow easier monitoring and maintenance of the wells.

Although shown on the 2001 Provan & Lorber plans, level transducers are not present in the wells. There do not appear to be conduits to the wells either. This makes monitoring of the wells difficult, and provides no data for evaluation of the well operation.

3.2 Pump Station

Building

The 14 ft by 14 ft pump station building was constructed in 2001/2002 in conjunction with distribution improvements. The building houses chorine injection, flow meters for the three source wells, and control equipment. A 1,000 gal propane tank supplies a propane heater and 45 KW emergency generator.

The exterior of the wood-frame building is in good condition with no significant damage to the vinyl siding or metal roofing observed. The interior, however, shows significant evidence of moisture damage. Wall and ceiling panels are peeling in multiple places with the worst damage around the chlorine injection pump where a wall patch was added. The system operator indicated that the injection pump had leaked for a prolonged period of time causing chemical to spray onto the wall there. There is also evidence of corrosion damage to the propane heater, electrical wireway and on some panels.

Chlorination System

The chlorination system consists of a 35 gallon storage tank and a wall mounted LMI positive displacement pump. Chlorine is transferred to the storage tank from drums via a drum pump. The system is interlocked to the well pumps to only operate when the wells are operational. Chlorine is injected into the pipeline leaving the meter building and going to the storage tank. A recessed floor area is present for secondary containment of the chemical area.

The chemical feed does not appear to be flow-paced, since the distribution flowmeter is currently inoperable. The operator reports that they manually adjust the pump stroke/speed based on sampling results. They report using 8-10 drums of 12.5% sodium hypochlorite per year. Chlorine residuals are monitored 2-3 times per week at a sample tap at the maintenance building.

Flow meters

The pump station houses three Sensus SRII positive displacement source meters (one for each source), which are manually read quarterly and reported to NHDES on a monthly (calculated) basis. A fourth Sensus SR ECR positive displacement meter measures the combined flow to the storage tank and is equipped with an electronic reading device, which is connected to the Programmable Logic Controller/Supervisory Control and Data Acquisition PLC/SCADA system. Unfortunately, the flow meter that is attached to the SCADA system does not appear to be functional right now, so there are no flow readings available at SCADA. The SCADA consultant indicated that the Invensys Act Pact box between the flowmeter and PLC does not appear to be lit, so this may be the device that needs to be replaced.

Electrical

The building has an overhead electrical service, and is equipped with an emergency generator and an ASCO Series 165 Automatic Transfer Switch mounted on the exterior of the building. There is significant tree/branch growth around the overhead electrical service, which should be cleared to preserve the reliability of the system.

Control System

The PLC/SCADA system in use is called ProControl, by EOS Research LTD. According to the County's SCADA consultant, the system retains the latest 2,000 data points per input channel, and the logging interval is currently set at 10 minutes. The system does not have an Operator Interface Terminal (OIT), so data may only be reviewed by having EOS Research log into the system remotely, by plugging a computer into the PLC at the station. The operator receives daily text notifications of current conditions daily, and is also notified of alarms via text. The operator could log in to view the system data by downloading a free Proview software program and plugging into the PLC at the station. Additional software could be purchased to allow the operator to log in remotely from a computer at the Maintenance facility, or other location, to monitor and retrieve data, and view setpoints.

EOS Research indicated that the existing panel is getting old, but is functional. A new cellular modem was installed in the panel 3-5 years ago, and the panel was evaluated at that time and the components were determined to be in good condition. There is a small area of rust on the exterior of the cabinet. The panel modem is a 3G unit and will need to be upgraded to 4G LTE soon, as Verizon is phasing out 3G service. The panel appears to have limited digital input modules available, but has 4 analog input slots and 4 digital output slots available. The following is a list of signals terminated in the panel:

Table 3-1- PLC termination signals

Discrete Input Devices
Well #1 Run Input
Well #1 Overload
Well BW-1 Run
Well BW-1 Overload
Well BW-2 Run
Well BW-2 Overload
Door Switch
Low Temp
Analog Input Devices
Flow Meter (External power 115V)
Well #1 – Level
Well #BW-1 Level
Well #BW-2 Level
Reservoir #1 Level
Reservoir #2 Level
Discrete Outputs
Well #1 Pump (connect at Motor Starter Start/Stop Contacts)
Well BW-1 Pump (connect at Motor Starter Startr/Stop Contacts)
Well BW-2 Pump (connect at Motor Starter Start/Stop Contacts)
Chemical Metering Pump (115V from Electrical Panel circuit)
Analog Output
Chemical Metering Pump

There is a submersible level transducer in the tank, which transmits tank level to the control panel. High and low level alarms are sent to the operator via cell phone. The tank level transducer was recently replaced.

The system controls have reportedly not been modified in 15 years since they were installed.

a. Well BW-2 pump is set to come on at a tank level of 7.6 ft
b. Well BW-2 pump is set to go off at a tank level of 8.6 ft (There is about 19,000 gallons per ft of depth in the tank, and 19,000 gallons in the typical operational band between pump on and off)
c. If BW-2 pump doesn't provide enough flow and the tank level drops, the other 2 well pumps are called to come on at a tank level of 6.6 ft
d. All pumps will shut off at a tank level of 8.6 ft.
e. Chlorine pump is flow paced
f. The station is equipped with a variety of alarms, including low building temperature, overload on well pumps, low tank level (6.6 ft), etc.

g. The control system has the provision to accept well level, but there are currently no signals provided for this, as the level transducers were not installed.

At the time of our site visit, BW-2 was operating at about 24 gpm. At this rate, the pump will need to run for about 13 hours (with no system demand) to refill the tank to the high level setpoint.

The control system logs information every 10 minutes and has a 2,000 point capacity per input channel. The pump cumulative run time is recorded as well as tank level. The discharge flow from the wells would normally be recorded, but it is currently not functioning, so no data was available. We were able to review tank level data from October 19 through November 2, around the period when the system flushing was conducted.

The PLC panel has spare control wires for Reservoir #2 (removed from service after 2001) coiled inside the panel.

3.3 Storage Tank

Potable water storage for the system is provided by a 200,000 gallon in-ground cast-in-place concrete tank with a pre-stressed hollow core precast concrete roof, covered by a rubber membrane roof with a 30" x 36" aluminum access hatch and ladder. The tank is located near the wells and meter building on a hill behind the complex, and feeds the system by gravity. Static pressures in the system at the complex are about 40-50 psi and in the village about 130-140 psi. A separate fire storage pond is present at the County Complex, but according to the fire chief, it is only usable in the summer. I thas not been cleaned out in many years and the piping has been broken by the ice.

According to the operator, the exterior tank dimensions are 37 ft x 75 ft. The tank has two floor-to-ceiling baffle walls, each with a 5 ft opening. The 1999 Provan and Lorber report says the tank was constructed in 1987 and has a depth of 11 ft.

Underwater Solutions performed an inspection and tank cleaning in May of 2018 and found the tank to be in general good condition, with some concrete repair work needed on the exterior, and minor pipe cleaning/coating needed on the interior. What little sediment was found in the tank was removed during the inspection.

More specifically, the recommendations of the report were as follows:

Tank Exterior

1. The tank inspector recommended removing the expansion rivets and aluminum strips to roll back the rubber membrane and expose the exterior wall surfaces.
2. Power tool clean all surfaces of the exposed exterior walls (approx. 20%) having concrete spall to prepare the substrate and resurface all spalls with concrete repair material to seal the exposed reinforcement steel and prevent further concrete fatigue.
3. Repair cracked and deteriorated exterior corners of the tank, including exposed rebar.
4. Apply an elastomeric sealant having an ANSI/NSF 61 approval throughout the entire joint between the roof and walls to seal the junction and prevent intrusion into the tank.
5. Repair 4" x 2" tear in the roof membrane on the centerline of the easternmost side of the tank by applying sealant over the area.
6. Repair the aluminum strips and expansion rivets securing the roof membrane on the northernmost side of the tank where it has pulled free for approximately 36-inches. Re-attach the rubber membrane around the perimeter of the tank where removed for concrete repairs.
7. Excavate metal overflow pipe at tank penetration, power tool clean to remove corrosion, coat the pipe and restore partial burial.

Tank Interior

1. Repair three 1/4-inch gaps between the roof and wall junction ranging from 2-inches to 12-inches in length on the eastern side of the tank. Apply an elastomeric sealant having an ANSI/NSF 61 approval throughout the entire joint between the roof and walls to seal the junction and prevent intrusion into the tank.
2. Repair a 20 ft section of joint between the precast concrete roof panels where the foam backing rod material has become dislodged. This is approximately 8 ft from the wall on the westernmost side of the tank.
3. The surfaces of the metal pipes that penetrate the tank wall are not coated and have mild corrosion on all surfaces. Power tool cleaning of the surfaces to remove corrosion and re-coating of the surfaces are recommended.

As previously noted, in the control system discussions, the well pumps are controlled by water level in the storage tank. Tank control levels are included in that section.

3.4 Water Quality/Treatment

Sampling of public water systems is only required every 3 years, therefore, limited water quality data is available. Since BW-2 is operated alone as the primary source, this individual source is sampled, but because BW-1 and W-1 operate together, they are sampled together as one source. Additional sampling and monitoring is recommended to better assess and monitor potential water quality issues.

A summary of historic water quality, as obtained from the NHDES One Stop site is summarized in ***Table 3-2***. Full testing results are included in ***Appendix D***.

Table 3-2 – Water Quality Summary 2011-2021

			Concentration Range		
Parameter	**Units**	**MCL/SMCL**	**Dug Well Group (W-1)**	**Bedrock Well #1 (BW-1)**	**Bedrock Well #2 (BW-2)**
Arsenic[1]	mg/L	0.005	ND	ND	
Barium	mg/L	2	0.0071 to 0.0089	0.0071 to 0.00105	
Chloride	mg/l	250	ND to 41	ND	
Chromium	mg/L	0.1	ND	ND	
Hardness	mg $CaCO_3$/L		49.8 to 62.8	30.7 to 54.85	
Copper[2]	mg/L	1.3	ND to 0.059		
Fluoride	mg/L	4	1.8	1.8	
Iron	mg/l	0.3	ND to **0.601**	ND to **1.38**	
Lead[2]	mg/L	0.015	ND to 0.002		
Manganese	mg/l	0.05	0.0076 to 0.0433	0.038 to **0.3001**	
Nickel	mg/L	0.1	ND to 0.0057	ND	
Nitrate (as N)	mg/L	10	ND to 0.05	ND	
Nitrite (as N)	mg/L	1	ND	ND	
pH	Units	6.5-8.5	8.4 to 8.89	7.67 to 8.41	
Sodium	mg/l	100-250	8.63 to 34.1	8.88 to 10.3	
Sulfate	mg/l	250	9 to 9.3	8.6 to 9.8	
Turbidity	NTU	1	----	----	---
Zinc	mg/l	5	ND to 0.178	ND to **8.13**	
Disinfection Byproducts[3]					
Haloacetic acids (HAA)	ug/l	60	ND to 1.0		
Total trihalomethanes (TTHM)	ug/l	80	ND to 1.2		
PFAS Contaminants[4]					
Perfluorohexane sulfonic acid (PFHxS)	ng/L	18	ND		ND
Perfluorononanoic acid (PFNA)	ng/L	11	ND		ND
Perfluorooctane sulfonic acid (PFOS)	ng/L	15	ND		ND
Perfluorooctanoic acid (PFOA)	ng/L	12	ND		ND
Radionuclides					
Compliance Gross Alpha	pCi/L	15	7.49	5 to 7.49	5
Radium 226 + 228	pCi/L	5	0.3	0.3 to 3.3	1.2 to 3.3
Radon[5]	pCi/L	2000	----	----	----
Uranium	ug/L	30	6 to 7.9	1 to 7.9	1

Notes:

Disinfection byproducts, lead, and copper samples taken from distribution system. All other data from samples taken from pump station taps. See Appendix D for complete list of Historical Water Quality Data.

Red Bold indicates water concentration exceeds MLC or SMCL

1) NHDES MCL of 5 mg/L effective July 2021. Previous MCL = 10 mg/L

2) Copper and lead levels have Action Levels (AL) rather than MCLs. Data shown is 90th percentile of samples collected, which is then compared to AL for compliance

3) HAA and TTHM averages are Running Annual Averages (RAA). MCL standard is based off RAA.

4) NH MCL effective 6/30/2020

5) There is no established MCL for Radon. 2000 pCi/L is an Advisory level set by the State of NH.

Water quality from the wells is in general, very good. The pH is average to slightly on the high side, which is not unusual for New Hampshire groundwaters drawn from bedrock aquifers. Typically, slightly higher than average pH water is less corrosive, and therefore desirable.

High iron and manganese in New Hampshire groundwaters are very common. They have historically been considered aesthetic issues, rather than health issues, and therefore evaluated by non-enforceable Secondary Maximum Contaminant Levels (SMCL), as opposed to Maximum Contaminant Levels (MCLs), which are health related enforceable standards. In general, when above SMCL concentrations, iron and manganese can begin to cause customer complaints, such as staining of fixtures and laundry, colored water, taste issues, precipitation and scaling in piping system, etc.

As more research has been conducted in recent years on the health effects of manganese, many states have begun enacting MCLs for manganese due to evidence of neurological effects from elevated concentrations. As of July 1, 2022 the MCL for manganese in New Hampshire will be 0.3 mg/l, matching the federal health advisory concentration, and there will be a public notification requirement for manganese concentrations over a concentration of 0.1 mg/l. This is due to health concerns for infants to even short-term (acute) exposure to concentrations over this concentration. The SMCL, for aesthetic concerns, will remain at 0.05 mg/l.

There was a wide range of iron concentrations reported for all the sources, some which exceed the SMCL. Similarly, there are a wide range of concentrations of manganese, some which exceed the SMCL, and some that may exceed the new MCL of 0.3 mg/l, and the new public notification level of 0.1 mg/l. Most samples had non-detect levels of iron and manganese, however, select samples had exceedances, sometimes significant. Iron and manganese exceeded the SMCLs as follows:

September 2017 - blend of the bedrock wells
- Iron 1.38 mg/l
- Manganese 0.3 mg/l

October 2015 - dug wells
- Iron 0.6 mg/l
- Manganese 0.04 mg/l

Two other samples were close to the manganese SMCL as follows:

September 2014 - blend of bedrock wells
- Iron non detect
- Manganese 0.038 mg/l

December 2012 - dug wells
- Iron non detect
- Manganese 0.04 mg/l

3.5 Distribution System

A construction project in 2001 replaced the majority of the distribution system, as follows:

- New 2-inch PVC was installed from BW #1 to the new meter building

- A small section of new 2-inch HDPE was installed to connect existing 2-inch HDPE from dug wells #2 (W-2) and #3 (W-3) to dug well #1 (W-1).
- 3-inch PVC was installed between dug well #1 (W-1) and the new meter building
- 2-inch PVC was installed between bedrock Well #2 (BW-2) and the new meter building
- 4-inch DI was installed between the new meter building and the storage tank
- A small section of the 8-inch DI from the storage tank was replaced
- New 10-inch DI was installed from near the storage tank to the Carol County Complex
- New 10-inch was installed throughout the Complex; in front of the Administration building, behind the nursing home, and maintenance building and in front of the new jail
- New 10-inch DI was installed across the field and down County Farm Road and Route 28 to the traffic circle
- New 10-inch DI was installed on Route 171 between the Rte 28 traffic circle and Old Route 28
- New 8-inch DI was installed on Brown's Ridge Rd and a short section of 8-inch to a hydrant on Granite Rd.

The only remaining "older" pipe in the system that was not replaced in 2001 appears to be a 4-inch PVC on Old Route 28. This main should be replaced with an 8-inch ductile iron main to provide proper fire protection in this area.

3.6 Fire Protection

There are a total of 12 hydrants in the system, most of which were installed in 2001. The hydrants in the system are over 20 years old, and the Department of Public Works (DPW) has reported difficulty in finding parts, as well as unacceptable delivery times (weeks to months) when parts are located. Significant difficulties have been experienced with at least one hydrant in front of the old courthouse. Replacement is recommended for all 12 hydrants in the system with a more modern hydrant model with better parts availability. The DPW would like to replace the hydrants with Model B84B American Darling hydrants.

A summary of the existing hydrant locations and color coding/flow capacity was provided by the Ossipee Center Fire Chief in ***Table 3-3***.

Table 3-3 – Fire Department Hydrant Summary

Location/Description	Address	Hydrant Color	Available Flow (gpm)*
CCC Administration Building	95 Water Village Road	Light Blue	1,500+
Front Mountain View Community Nursing Home	93 Water Village Road	Green	1,000-1,500
Rear Mountain View Community Nursing Home	93 Water Village Road	Green	1,000-1,500
Side Mountain View Community Nursing Home	93 Water Village Road	Green	1,000-1,500
Barn Yard		Light Blue	1,500+
Front of Jail	50 County Farm Road	Green	1,000-1,500
Okkola	120 County Farm and Route 28	Light Blue	1,500+
by Roundabout	15 Courthouse Square	Light Blue	1,500+
Old Courthouse	20 Courthouse Square	Light Blue	1,500+
Across from Professional Suites	45 Old Granite Road	Light Blue	1,500+
30 Browns Ridge Road	30 Browns Ridge Road	Light Blue	1,500+
Old Route 28 near DOT shed	35 Old Route 28	Orange	500-1,000

***as reported by the Fire Chief**

The fire chief reports that the last ISO survey was completed in 2017/2018. The basic needed flow was identified as 750 gpm, which is available at all of the hydrants. The highest needed fire flow was 2,500 gpm at the nursing home for 2 hours. The report also noted that fire flows of 3,000 – 3,500 gpm should be obtainable for 3 hours. We believe this is a general statement, and that "obtainable" could mean from off-site sources. The next highest requirements were 1,250 gpm for the administration building, and 1,250 gpm at another commercial building in the village.

The fire department performs annual flushing of the hydrants, and coordinates with the County DPW staff to ensure the tank is full prior to flushing.

Fire Department flushing & testing apparatus

The hydrants in the system appear to be in varying condition. Most of them, with the exception of the one on Old Route 28, were installed in 2001.

Staff reported that all of the hydrants are non-draining with the exception of the one in front of the jail, which is a draining hydrant. The fire department pumps out all of the hydrants at the end of the year, prior to winter conditions.

We conducted flow testing at three of the hydrants when the fire department was flushing them in October. The Fire Department also collected their own readings on each hydrant as they flushed them. They used a Hose Monster pitot attached to a 25 ft length of 2.5-inch fire hose for flushing and flow measurement and also mounted a pressure gage on the opposite side of the hydrant. This setup was switched to a 50 ft hose for hydrants 9 through 12.

UE used an Acron pitot mounted to the hydrant, and pressure gages at the flow hydrant and two residual hydrants upstream.

Fire Department staff were very cautious while flushing the hydrant near the old courthouse, and requested that we arrange our flow tesing so that the hydrant only had to be opened once for flushing. They reported numerous issues with it in the past, with something blowing out 2 years ago, and setting off sprinklers in the courthouse last year.

Results of the flow testing conducted by UE are included in ***Table 3-4***. Our results were consistent with that shown previously by the fire department, with most hydrants having well over 1,000 gpm capacity. Hydrants in the Complex had roughly 1,500 gpm fire flow available at 20 psi, while those in the village were closer to 1,800-2,000 gpm available flow at 20 psi. Static pressures (no flow) in the Complex are typically between 40 and 50 psi, while static pressures in the village are typically 120-130 psi. We assume services in the village are equipped with pressure reducing valves (PRVs), and if not, they should be, or an in-line PRV installed on the main. PRVs should be installed whenever static pressures exceed 80 psi.

Table 3-4 – Hydrant Testing

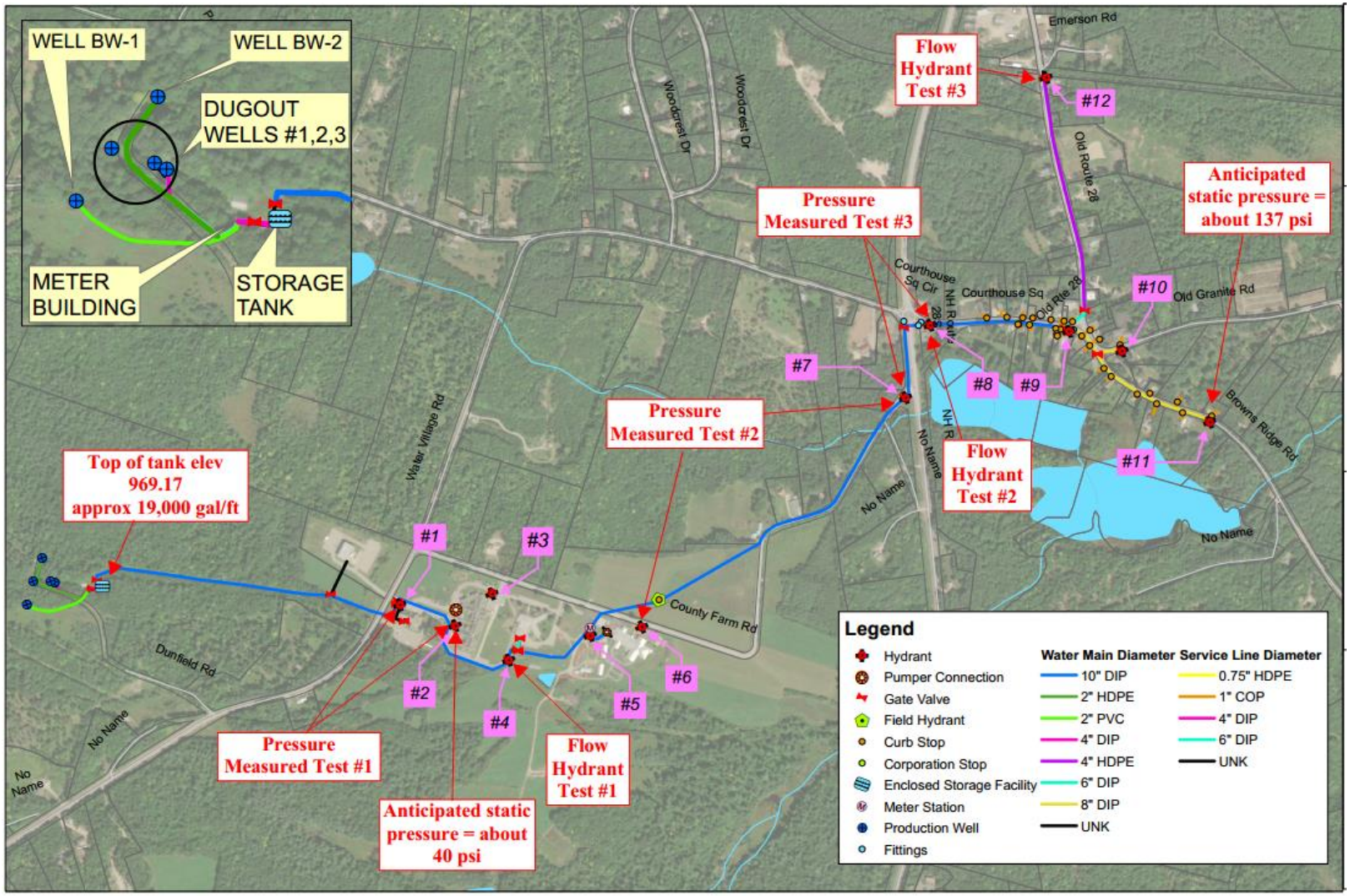
UE Fire Flow Testing, October 2021

UE Hydrant Number	Location/Description	Address	Hydrant Color	Available Flow (gpm) *From FD	Elevation, Ft MSL	Est Static, Ft	Est static, PSI	Actual static from flow testing- UE	UE Flow Tesing	Hydrant Flow during test, gpm	Calculated Available Fire Flow at 20 psi, gpm		Notes
1	CCC Administration Building	95 Water Village Road	Light Blue	1,500+ gpm	867	99.17	42.94	42.50	Gauge hydrant, test #1		1,719		
2	Front Mountain View Community Nursing Home	93 Water Village Road	Green	1,000-1,500 gpm	860	106.17	45.97	44.00	Gauge hydrant, test #1		1,563		
3	Side Mountain View Community Nursing Home (Loading Bay)	93 Water Village Road	Green	1,000-1,500 gpm	850	116.17	50.30	48.00					
4	Rear Mountain View Community Nursing Home	93 Water Village Road	Green	1,000-1,500 gpm	854	112.17	48.57	43.00	Flow hydrant, test #1	803			
5	Barnyard, next to Maintenance		Light Blue	1,500+ gpm	840	126.17	54.63	52.00					
6	Front of Jail	50 County Farm Road	Green	1,000-1,500 gpm	826	140.17	60.69	62.00	Gauge hydrant, test #2		1,437		FD notes: This hydrant is self draining, all others non-draining FD gage read 74 psi after
7	End of County Farm Rd, near Rte 28	120 County Farm and Route 28	Light Blue	1,500+ gpm	662	304.17	131.71	132 130	Gauge hydrant, test #2; Gauge hydrant, test #3		2,080	1,819	
8	Rte 171, near Rte 28 Roundabout	15 Courthouse Square	Light Blue	1,500+ gpm	660	306.17	132.57	132 133	Flow hydrant, test #2, Gauge hydrant, test #3	1,240	2,622	1,601	notified of tank low level alarm while flushing
9	Old Courthouse	20 Courthouse Square	Light Blue	1,500+ gpm	678	288.17	124.78	123.00					FD notes: 2 years ago, issues with something on hydrant "blowing off". Last Year, set off courthouse sprinkler system, this year FD hose lining blew during flushing
10	Across from Professional Suites - Granite Road	45 Old Granite Road	Light Blue	1,500+ gpm	676	290.17	125.64						
11	30 Browns Ridge Road	30 Browns Ridge Road	Light Blue	1,500+ gpm	648	318.17	137.77						
12	Before Emerson Rd, Green roof House - end of line on Old Rte 28 near DOT shed	35 Old Route 28	Orange	500-1,000 gpm	640	326.17	141.23	140.00	Flow #3	498	533		

Top of Reservoir = 969.17
Assume full tank = 966.67

Data show is/ or was calcualted using FD fire flow testing done concurrently

Figure 3-1 - Hydrant Flow Testing Map



4. Source Capacity and Demand

4.1 System Demands

Actual system demands are difficult to quantify due to the lack of metering.

- Source meters are present for each of the wells, but they are read and reported to NHDES on a monthly basis.
- The distribution meter measures the total volume of water (from combined sourcs) being sent to the tank, and is connected to the PLC, but the meter is not currently transmitting to the PLC, and therefore data was not available.
- Meters are present at all users in the village, and these meters are read and billed quarterly.
- There are no meters at any of the county facilities, so it has to be assumed that the County Complex use is the total water produced by the wells, less the volume metered in the village, less any other non-metered usage, like hydrant flushing, fire fighting, contractor's use of hydrants, etc. These non-metered uses aren't routinely tracked.

We obtained the village quarterly meter reading/billing and monthly source production reported to NHDES. This data was used to estimate system usage, and compare to NHDES methods for evaluating system usage when precise flow data is lacking.

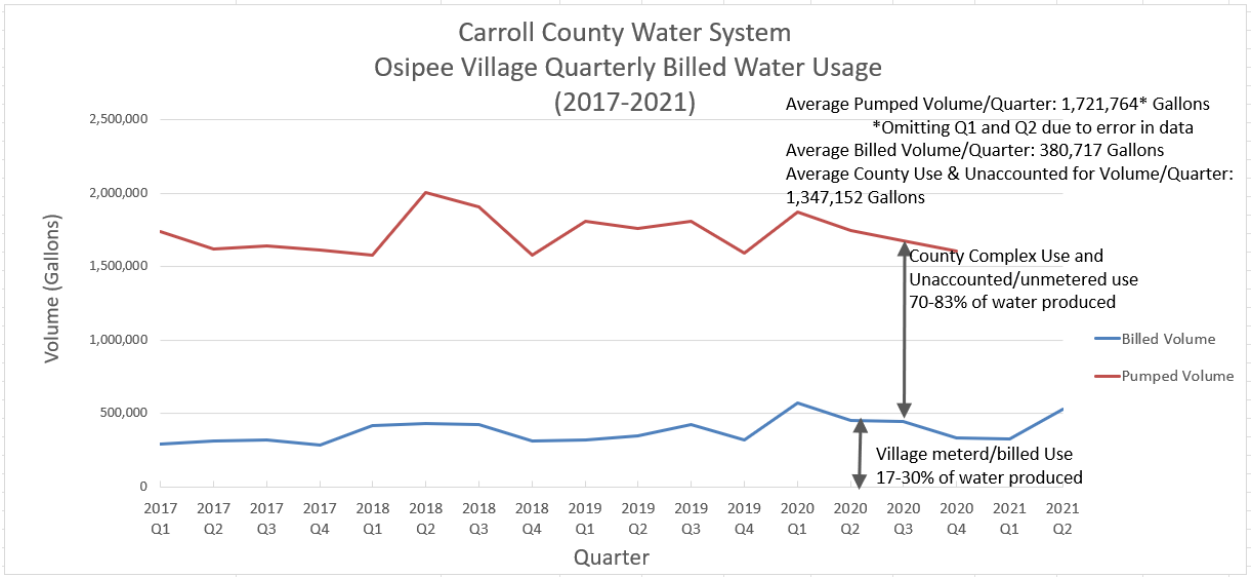
Homes in the village have meters, which are read and billed quarterly, as shown in ***Figure 4-1***. Source water from the wells is also illustrated for comparison. On average, over the period from 2017 through quarter 2 of 2021, metered use in the village ranged from 17% to 30% of the total water produced, with an average of 22% of the water produced being billed to customers in the village over the period. The average daily use over the period, assuming 91 days in a quarter, would be as follows:

Pumped volume =	18,920 gpd
Billed use in village =	4,194 gpd
Remaining use from County Complex =	14,804 gpd

There is one meter listed for the Superior Court at 96 Water Village Road, which is on the Carroll County Complex. This appears to be the only metered building at the County Complex. Typical metered use at this location is about 250 gpd.

Based on the metered data, about ¾ of the water produced is used at the County Complex, and about ¼ is provided to Ossipee Village. Until meters are installed at the County buildings, this can not be verified, nor can unaccounted-for water be evaluated.

Figure 4-1 – Ossipee Village Quarterly Billed Water Usage



4.2 NHDES Standards

The *New Hampshire Code of Administrative Rules*, Part Env-Dw 405 outlines requirements for the design of small community water systems servicing less than 1,000 people. These rules only apply to small community water systems without fire protection. Because the Carroll County system has fire protection, this system technically falls under the requirements of Env-Dw 404, Design Standards for Large Public Water Systems. Because the large system rules do not specifically address the unique requirements of small systems, we will refer to the small system rules for an alternative analysis of source water requirements for the system.

Section Env – Dw 405.10 of the rules addresses design flow for various types of small systems in Table 405-1. This section recommends the following:

- Design flow for a nursing home be based on 125 gallons per day (gpd) per bed,
- Other institutions be based on 135 gpd/bed, and
- Single family homes be based on 150 gpd/bedroom

Maximum water demand estimates based on NHDES small system rules are as follows:

Ossipee Village

Residences	40 x 3 bedrooms x 150 gpd/br =	18,000 gpd
Businesses	4 x 3 employees x 15 gpd/employee=	180 gpd
		18,180 gpd

Carroll County Complex

County Courthouse	20 employees x 15 gpd/employee =	300 gpd
Administration bldg.	40 employees x 15 gpd/employee =	600 gpd
Nursing Home	103 beds x 125 gpd/bed =	12,900 gpd
Jail	40 inmates x 135 gpd/pp =	5,400 gpd
		18,300 gpd

Design Daily Demand for Carroll County System based on Table 405-1=36,480 gpd

Since daily use is typically considered to be 2 to 2.2 times average daily usage, based on this estimated usage 36,480 /2 = 18,240 gpd, which is consistent with the average daily pumped volume metered.

Based on these values, usage by the village and the County Complex would be nearly a 50-50 split. However, based on actual metered (and billed) usage, the village uses between 17% and 30% of the total water produced, with a long term average of 22%. The long term average daily use in the village (based on quarterly data) is about 4,200 gpd.

The NHDES Administrative Rules 405.10 also allow existing systems to determine the design flow using historical water readings, either:

(1) By finding the daily average flow from water meter readings and multiplying the average by a minimum factor of 2 or a maximum factor of 3 depending on the type or frequency of the meter readings; or
(2) By examining 12 months of consecutive daily water meter readings, in which case the water system's design flow shall be based on the highest daily flow noted, without application of a multiplying factor.

The individual source meters for the wells are read quarterly and reported to NHDES on a (calculated) monthly basis, so daily metered flow data is not available. Monthly usage from each source was evaluated from Jan 2014 – June 2021, as shown in ***Figures 4-2 & 4-3***.

Figure 4-2 – Carroll County Groundwater Withdrawals Each Source

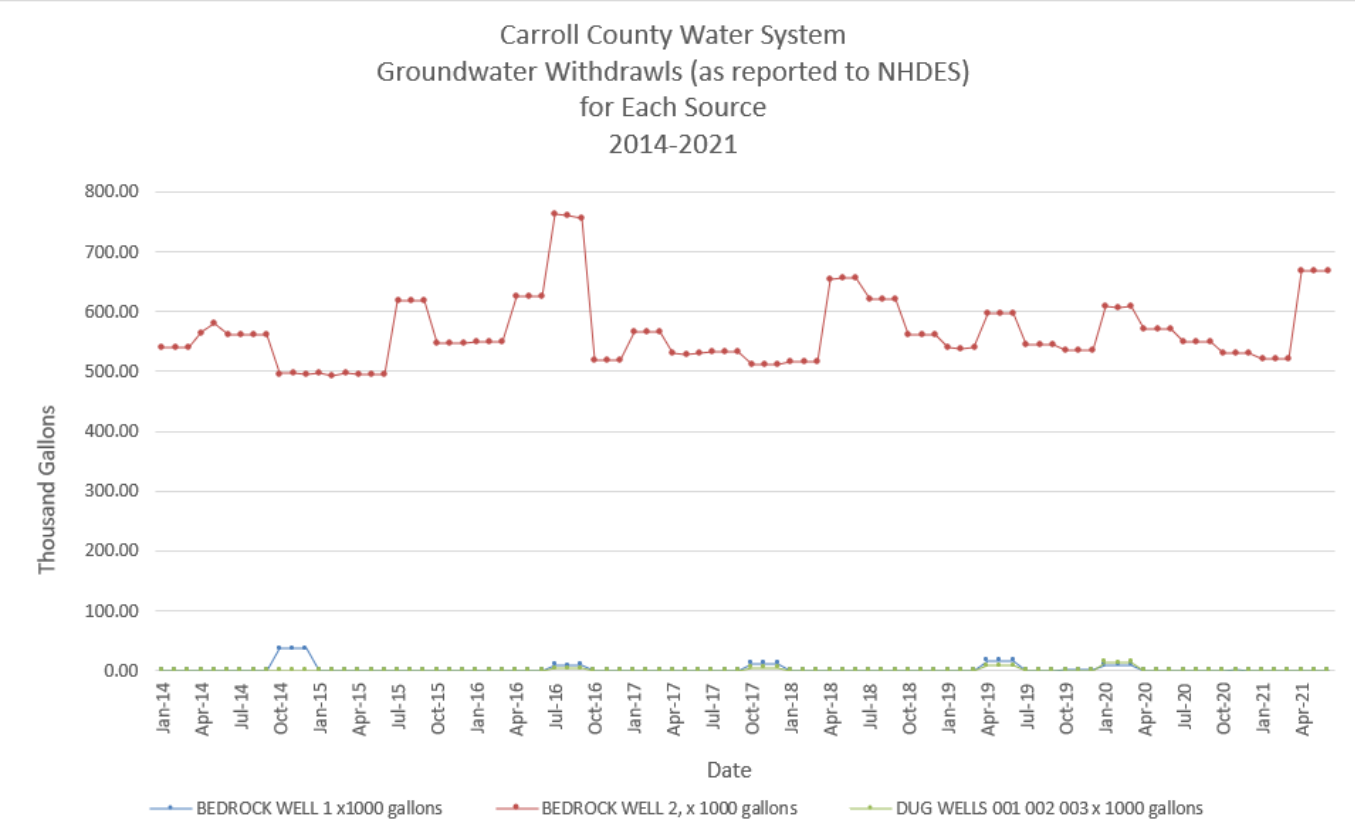
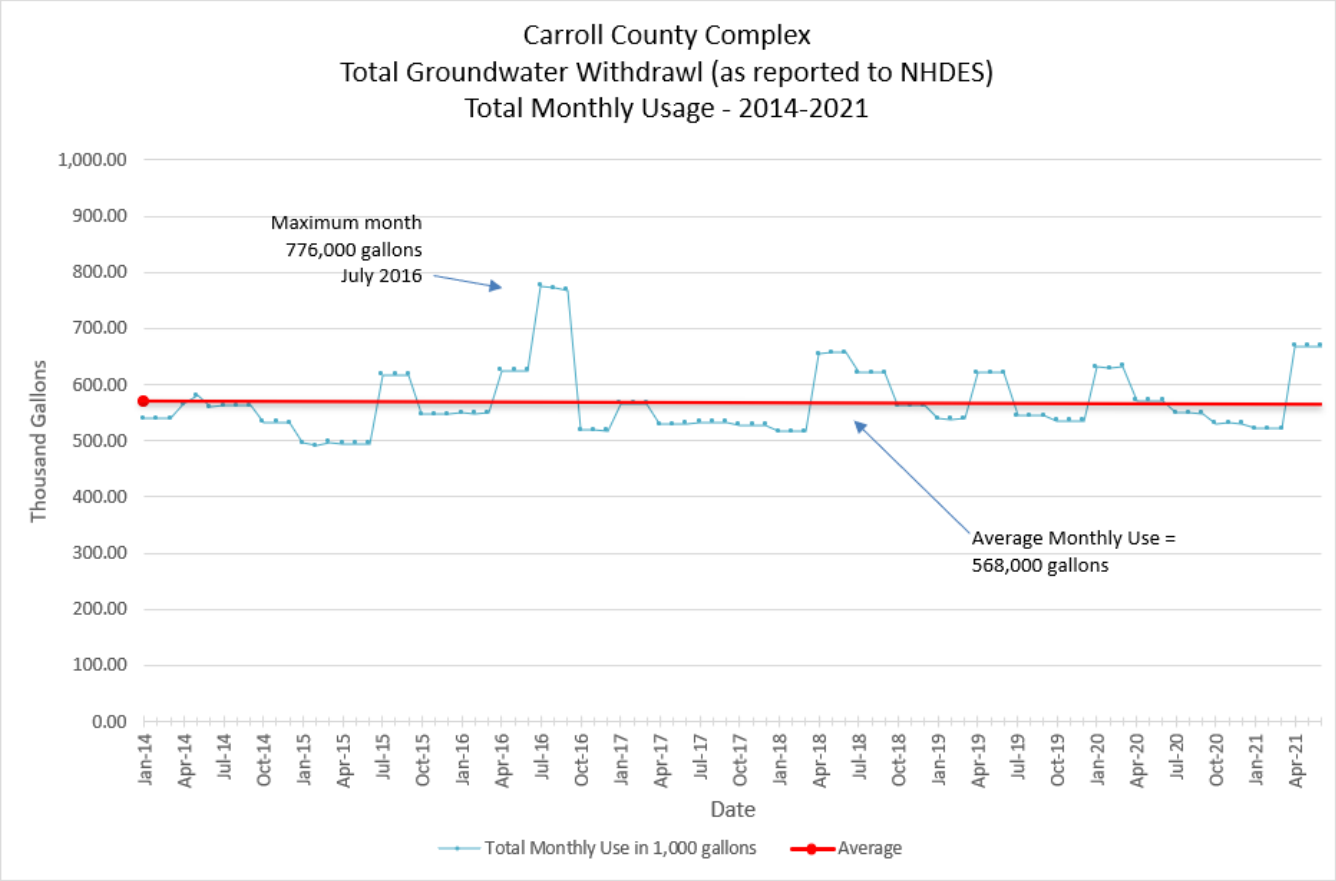


Figure 4-3 – Carroll County Total Groundwater Withdrawals



The average daily use over the entire period was about 19,000 gpd. The maximum monthly use occurred in July 2016 with a monthly use of 776,000 gpd, which would yield a maximum daily flow of 26,000 gpd. The second highest usage was 668,000 gpd in April – May 2021, which would equate to a daily usage of about 22,288 in June 2021. Using these values as maximum daily demand would underestimate this figure, since it is not a measured daily flow, but an average over the month.

Approximate historic average daily use (ADD)	**19,000 gpd**
Approximate historic maximum daily use (MDD)	**26,000 gpd**

This would equate to an average historic peaking factor (PF) of about 1.3

Using criteria (1) above, from NHDES Administrative Rules 405.10, the system design flow would be 19,000 gpd x 2 = 38,000 gpd.

Design flow based on NHDES 405.10 = 38,000 gpd

4.3 Pump Run Time

The pump control system is set to turn on BW#2 when the tank is at a level of 7.6 ft and turn it off when it reaches 8.6 ft. The tank has a volume of about 19,000 gallons/ft. If the pumping rate is constant at 24 gpm (the flow observed when we visited in August 2021), we would expect the pump to run for about 13 hours to refill the tank (with no system use).

We looked at a pump cycle over a two day period from August 30 to 31, 2021. Well pump BW#2 came on at 6 am on August 30th and ran for 30 hours, turning off at noon on August 31st. Assuming a pump rate of 24 gpm, this would yield 43,200 gallons pumped over the 30 hour period. Assuming 19,000 gallons went to raising the storage tank level from 7.6 ft to 8.6 ft over a period of 13 hours, the remaining 24,000 gallons would be assumed to be usage over the remaining 18 hour period. For comparison, based on the reported monthly volume pumped from BW#2 during August 2021, the average daily flow over the month was 21,000 gpd. Therefore, based on pump run time, it would appear that the **daily use on this date in August was about 24,000 gallons.**

4.4 Projected Future Demands

Projected demands for the Carroll County system are dependent on two factors: growth of of the County Complex, population increases in the village and system extensions. The New Hampshire Office of Energy and Planning's projected 2040 population for the Town of Ossipee is estimated to increase only 0.96% from the current population. Therefore, barring any planned water main extensions to new areas, or new developments of current property, there is little growth predicted for the village use.

Planned additions to the Carroll County Complex are unknown at this time. An expansion of 50 additional beds was assumed. At 125 gpd/bed this would increase future usage by 6,250 gpd. This results in the following current and projected average day demand flows.

Current Average daily use 19,000 gpd
Future Average daily use 25,250 gpd

4.5 Design Flow

In general, metered data is considered more representative of actual use. In this case, NHDES design standards for design flows, are very close to design flows determined by metered flows:

NHDES Table 405-1 Design Flow:	36,480 gpd
Two (2) times metered daily usage:	38,000 gpd
Maximum day metered usage:	26,000 gpd *
Pump run time August 30, 2021:	24,000 gpd

* calculated from maximum monthly water use.

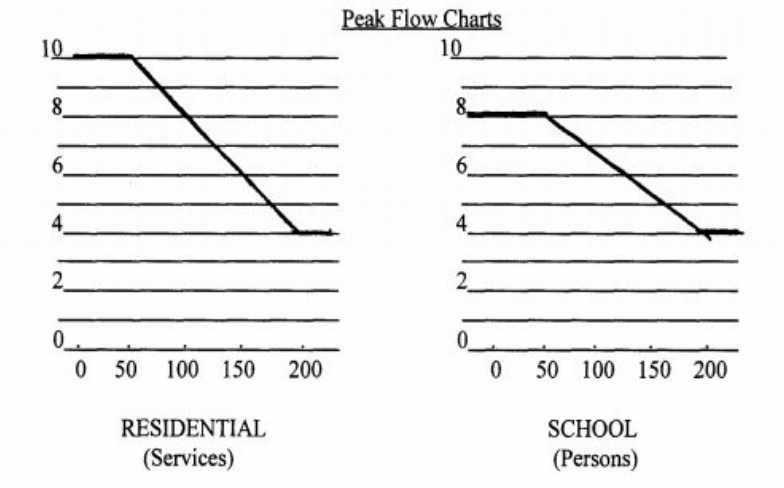
We recommend a **current design flow of 38,000 gpd** be used for the existing Carroll County System. The **future design flow would be 50,500 gpd** (i.e. Future Avg Day x 2).

4.6 Peak Flow

Peak flows are typically calculated by applying a peaking factor to the average daily flow. Typical peaking factors for small systems are between 6 and 10 times the average daily flow. Peaking factors in larger municipal systems may be much lower. Env-Dw 405.19 describes the relationships between peak and design flows using peaking factors in ***Table 4-1 (Env-Dw table 405-5)*** as shown below:

Table 4-1 – Peak Flow Charts

Table 405-5: Peak Flow Charts



Although there is no information specific to nursing homes and jails, the residential and school peaking factors can give guidance to estimate an appropriate peaking factor for the complex. A residential system with 40 services would have a peaking factor of 10. A school with 130 students would have a peaking factor of about 6. We recommend using a peaking factor of 6, considering the residential village uses a low percentage of the total water from the system.

Current design peak flow:
38,000 gpd design flow = 26 gpm x peaking factor of 6.0 = **158 gpm**

Future design peak flow:
50,500 gpd design flow = 35 gpm x peaking factor of 6.0 = **210 gpm**

This is a short-term flow that might occur during peak water usage. This is a flowrate that any pumps in the distribution system would be designed to meet. Since the entire system is gravity

fed, and the distribution system has plenty of capacity, the peak hour flow for the system is not a significant number.

For larger municipal systems, AWWA M32 indicates that peak hour flows are typically between 1.3 and 2.0 times the maximum day demand, and are generally considered to occur for up to 2 hours. The maximum day usage (from historic monthly data) was 26,000 gpd or 18 gpm. Assuming the peak hour flow was 2 times this rate would be a flowrate of 36 gpm, which is much less than the previous estimate using small system criteria. In this case, it is more probable that the County system would behave more like a small community system than a larger municipal system, even though the system provides fire protection.

Therefore, in the absence of real-time flow data, the current estimated peak hour flow based on the small system criteria is believed to be more accurate.

Current Peak hour flowrate = 158 gpm
Future Peak hour flowrate = 210 gpm

4.7 Required Source Capacity

Section Env-Dw 405.12 of the *New Hampshire Code of Administrative Rules* outlines the requirements for source capacity in small community water systems. The minimum total required source capacity for community water systems is at least two (2) times the design flow for the system, based on a 24-hour day. With a current design flow of 38,000 gpd, the required source capacity for the system is 76,000 gpd.

Current Required Source Capacity:	**76,000 gpd**
Future Required Source Capacity:	**101,000 gpd**

4.8 Existing Source Capacity

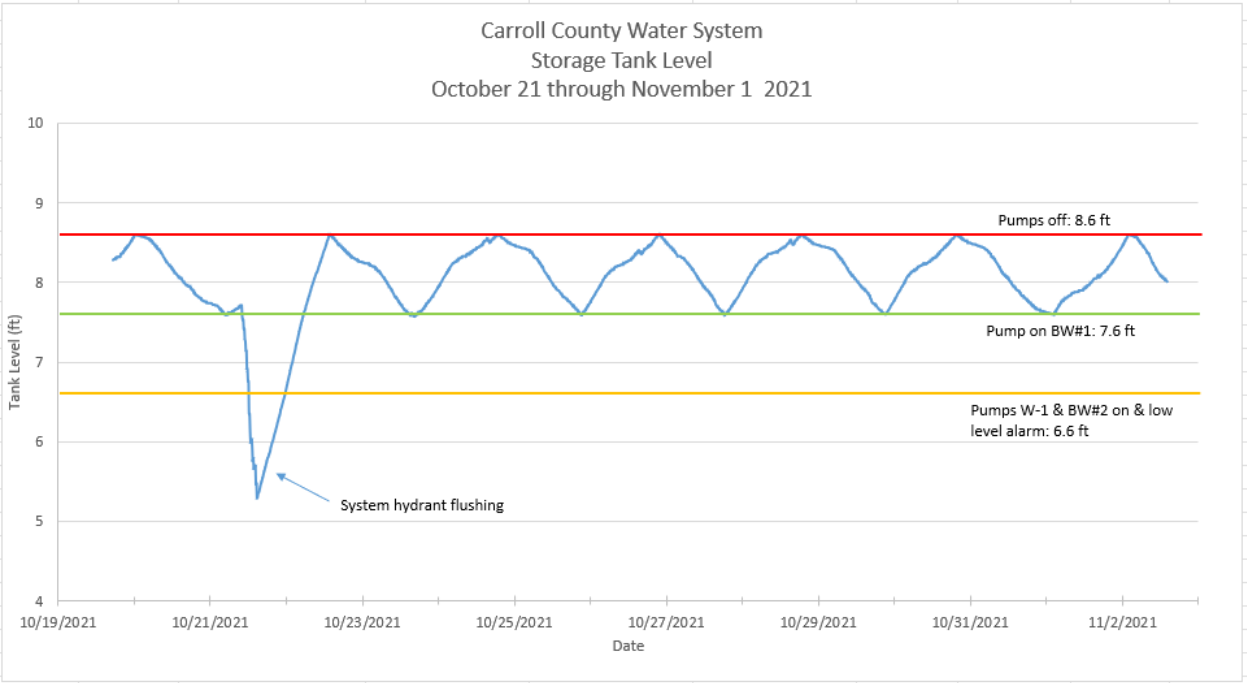
The yield of BW#2 was identified as 29 gpm in the 1999 Provan and Lorber Report. The flowmeter was registering about 24 gpm during our site visit in 2001. An assumed yield of 25 gpm was included for the analysis. The dug well (W-1) capacity of 15 gpm was estimated by Provan & Lorber in 1999. NHDES lists the capacity of this source as unknown. Based on an analysis of the storage tank fill after system flushing in October 2021 (see below), we have estimated the possible capacity of BW#1 at 15 gpm. All of these capacities should be field verified to perform the demand/capacity analysis.

Storage tank level analysis

We were able to obtain tank level data from the SCADA system from October 19th through November 2, 2021. Hydrant flushing was conducted during this period on October 21, so the

tank level data was analyzed during the period to help evaluate system usage and pumping rates. This information is illustrated in ***Figure 4-4***.

Figure 4-4 – Carroll County Storage Tank Level 2021



On normal days (non-flushing), when BW#2 was called to run, it ran for 22.5 to 26.33 hours, with a tank fill rate of 12.4 to 14 gpm. Since the pump rate is believed to be about 24 gpm, we assume the system usage was about 10 to 11.6 gpm over the 24 hour period. Evaluating the draw cycle of the tank, when the well pumps are not operational, the tank drawdown ranged from 10.5 to 15.5 gpm (15,000-22,300 gpd). These values appear to be consistent with the previous calculations of about 19,000 gpd average daily use for the system.

Flushing

Prior to system flushing on October 21, 2021, the storage tank was filling (BW#2), but not full (level 7.71 ft) when flushing began at about 10 am. The tank reached a low level of 6.6 ft around noon, which would have turned the pumps for W-1 and BW#1 on, and triggered the low level alarm (we received word of the alarm in the field about 12:40 pm). The tank level continued to drop to a low level of 5.29 ft at 2:40 pm, when flushing was completed and the tank began filling again.

The tank did not fill to 8.6 ft to shut the pumps off again until October 22 at 1:30 pm, so all 3 pumps were presumably operational from about noon on October 21, until 1:30 pm on October 22. Using the increase in tank level between midnight and 4 am, and assuming there is no system use during that period, we can estimate the flowrate from the three wells. The tank level

rose 0.7 ft over the 4 hours. With about 19,000 gallons per foot in the tank, this would equate to about 13,300 gallons over the 4 hour period, or a fill rate of 55 gpm from the 3 wells. Since we know BW#2 operates at about 24 gpm, this would mean W-1 and BW#1 combined were pumping about 31 gpm.

Depending upon the actual capacity of the wells, it appears that the system may have adequate source capacity to supply current design flows if all sources are viable long term at the assumed yields, which should be verified.

In larger systems, source capacity is evaluated by comparing the maximum daily use (about 26,000 gpd) with the available source capacity with the largest source out of service. In this case, that largest source would be BW #2, which provides nearly all of the water to the system. If W-1 and BW#1 are found to be reliable sources at the previously estimated yields, there is likely adequate source capacity. However, it is unknown if W-1 and BW #1 can supply adequate water to the system consistently and long term. The fact that air was encountered during a sampling event of BW#1 makes this somewhat suspect.

The well pump control system is programmed such that W-1 and BW #1 operate simultaneously when a low tank level is reached. However, the source meter records reported to NHDES show that water was pumped from BW#1 in Feb, April, May, and June 2021, yet flow was only recorded from W-1 in February. This has happened in other periods in the past, when flow was recorded from BW#1, but not W-1, in July-September 2017 and October to December 2014. This could signify that flow was not available from the dug wells during these periods. These sources only have metered flow a few months of the year, typically in the spring and fall. It is likely that the only time the storage tank level falls low enough to call these two sources to run is during system flushing.

The actual long term source capacity of the current wells is unknown and should be evaluated. The following capacities are assumed:

BW #1	15 gpm =	21,600 gpd
BW #2	25 gpm =	36,000 gpd
Dug Wells	15 gpm =	21,600 gpd
Total estimated capacity =		**79,200 gpd**

This would meet the current required capacity of 76,000 gpd, but would not meet future requirements of 101,000 gpd if 50 beds were added to the facility.

If BW#1 and the dug wells have long term sustainable capacities of about 15 gpm each, it is likely that the system has adequate source capacity. However, if either of these sources has significantly less capacity, or is not able to provide that capacity at all times of the year (which would be typical of dug wells), then it is likely that another source should be added to the system. Additionally, if the system is to be expanded in any capacity (additional beds at the

County Complex, or significant additions to the village system), an additional source would be needed. Field investigations to evaluate the condition and long term yield of the wells will be needed to determine if adequate source capacity exists or verify if another source is needed.

4.9 Required Storage

Section Env-Dw 405.18 of the *New Hampshire Code of Administrative Rules* outlines the requirements for sizing storage tanks in small community water systems. Requirements differ for systems that are served by one source or multiple sources (***Table 4-2***). With the largest source (BW #2) off-line, the source capacity of the system (using assumed source capacities noted above,) would be 43,200 gpd or 1.14 times the design flow. Based on the DES requirements in Table 405-4, the required storage would be 75% of the design flow, or 28,500 gallons. However, as previously mentioned, the NHDES rules for small systems only apply to community systems without fire flow, so this storage capacity would be to satisfy domestic use only.

Required storage capacity based on Env-Dw 405.18 (domestic only) = 28,500 gallons

Table 4-2 – Required Atmospheric Water Storage Capacity (Multiple Sources)

Table 405-4: Requirement for Atmospheric Water Storage Capacity
For Water Systems That Have More Than One Source

Minimum groundwater source capacity with largest producing well out-of-service	Atmospheric water storage capacity required
Peak flow	none required
2.5 times the design flow	25 percent of design flow
1.5 times the design flow	50 percent of design flow
Design flow	75 percent of design flow
Less than design flow	100 percent of design flow

In larger municipal systems, it is common to evaluate necessary storage using AWWA Manual of Practice M32 *Computer Modeling of Water Distribution Systems* to provide equalization storage, fire suppression storage and emergency storage. Recommended Standards for Water Works (Ten State Standards) recommends that storage facilities have sufficient capacity to meet domestic demands and fire flow demands.

Equalization storage is that required to meet system demands, above the source capacity. For example, if the three wells are capable of providing 55 gpm, but the peak hour demand is 158 gpm, the difference, or 103 gpm, must be provided by the tank. Peak hour demands are typically assumed for a period of 2 hours, which would equate to 12,360 gallons of storage. If the source capacity of the wells is determined to be less than the 55 gpm assumed, then these calculations should be adjusted.

Storage for Current peak hour demand for 2 hours = 103 gpm x 2 hrs = 12,360 gallons
Storage for Future peak hour demand for 2 hours = 155 gpm x 2 hours = 18,600 gallons

As previously noted, the last ISO survey was completed in 2017/2018 and identified the highest needed fire flow was 2,500 gpm at the nursing home for 2 hours, or 300,000 gallons. This volume is not available from the tank. The report also noted that fire flows of 3,000 – 3,500 gpm should be obtainable for 3 hours. We believe this is a general statement, and that "obtainable" could mean from off-site sources. The next highest requirements were 1,250 gpm for the administration building, and 1,250 gpm at another commercial building in the village.

Fire suppression storage = 2,500 gpm x 2 hrs = 300,000 gallons

The 1999 P&L report also noted the presence of a fire pond at the complex with an estimated capacity of 170,000 gallons. If this pond is still present, and accessible/available for fire use, then only 130,000 gallons of storage would be needed from the potable water system.

Emergency storage is recommended to provide buffer capacity in the event of an emergency, such as a power outage or unexpected equipment failure. Assuming an emergency would be resolved within two days, the emergency storage could be considered as follows:

Current emergency storage = 19,000 gpd average usage x 2 days = 38,000 gallons
Future emergency storage = 25,500 gpd average usabge x 2 days = 51,000 gallons

The Centers for Medicare and Medicaid Services (CMS) have specific requirements for nursing homes, and requires 3-days of storage. Assuming 103 beds at 125 gpd would yield a daily usage at the nursing home of 12,900 gpd. Three days of storage for that facility would be **38,700 gallons**. The County system has more than adequate storage to meet this requirement.

Therefore the recommended system storage volume, assuming the 170,000 gallon fire pond is functional, would be:

	Current	Future
Equalization storage	12,360 gallons	18,600 gallons
Fire Flow storage	130,000 gallons	130,000 gallons
Emergency storage	38,000 gallons	51,000 gallons
	180,360 gallons	**199,600 gallons**

If the fire pond is not providing functional fire storage, then the current storage required would increase to 350,360 gallons the the future storage required would be 369,600 gallons.

4.10 Available Storage

The storage tank has a reported capacity of about 200,000 gallons. The 1999 P&L report reported depth of the tank was 11 ft, but the pump shut-off level is 8.6 ft depth. The elevation of the tank overflow is unknown.

The tank currently has a pump shutoff level of 8.6 ft, which gives it a usable volume of about 164,000 gallons (35 ft x 75 ft x 8.6 ft, rounded down to account for baffle walls in the tank). The elevation of the tank is high enough that the entire volume of the tank is usable.

Current tank usable volume = 164,000 gallons

This meets the current storage requirements noted above (assuming a functional fire pond), but not the future requirements. If future users are added to the system, the tank overflow depth should be verified to see if the pump off setpoint could be raised to utilize more available storage in the tank.

With a current average daily flow of about 19,000 gallons, the tank will completely turn over every 8.6 days.

Sizing storage tanks for small systems like the County system with fire protection is difficult because of the need to balance potable water quality, and required fire storage. Chlorine residuals decay over time and may cause water quality issues as waterage increases. The system also has large mains (10-inch, with some 8-inch), which also provides significant residence time in the sytem. The current tank is more than adequate for current and future potable needs. Therefore, if additional storage is needed in the future, separate fire storage at the County Complex should be considered. This is where the high fire flow demand exists, and separate fire storage would not impact water quality concerns for the potable system.

We understand that the fire pond is not currently operable. It has not been cleaned out in 25 years and the ice has broken the pipe at the elbow. This has reportedly broken multiple times at the elbow. The fire chief reports that the pond can be used for fire protection when the pond is not frozen, but not when the pond is frozen because of the broken pipe.

We do not recommend adding additional storage to the potable water system, as the 8+ day current residence time is already lengthy. Instead, separate additional fire storage is recommended, which appears to be achievable by verifying the volume, and restoring the use of the existing fire pond. Assessment and repair of the fire storage pond should be addressed immediately. This includes cleaning and repairing, or replacement of the fire storage system.

4.11 Rate Evaluation

The 53 service connections (258 service population) are billed quarterly at a uniform rate. The current water rate for is $0.40/100 gal plus a $100 per quarter service charge. In 2020, the average monthly water usage based on meter data was 3,121 gallons per service connection. This is less than the state average of 6,000 gallons/month/service connection.

Carroll County was compared to the 126 participating utilities in NHDES's Table of Rate Structures for FY 20-21. At 4,000 gallons/month, the closest quantity to Carroll County's average usage for which data is provided, Carroll County was the 27th most expensive water utility in the state. Carroll County was also compared to a similarly sized water utility with the same rate structure: Plainfield Village Water District (284 service population). At 4,000 gallons/month, Carroll Country was 19.6% more expensive than Plainfield Village Water District which was ranked 53rd most expensive water utility in the state.

When compared to the statewide average annual water bill of $587.35 for 71,996 gallons, a Carroll County customer would pay $687.98 for the same annual quantity. This higher than average rate is typical of small systems because of the small user base. A state affordability index is calculated by dividing the state annual average water rate by the statewide MHI, and comparing said state index to that calculated by using the same parameters for the specific utility.

The median household income (MHI) for Carroll County is $62,917 (according to the NH Water Rate Dashboard), and the State-wide MHI average is $76,768. According to the NH water rate dashboard, the mean affordability for the system is therefore 1.1%, meaning the annual average water bill is 1.1% of the median household income, compared to a state average of 0.8%. Therefore, it appears the County would meet the disadvantaged status regarding loan/grant funding from the Drinking Water SRF.

The current water rates charged to the village appear to be reasonable. They are slightly above the state average. Based on metered usage, the village customers use about ¼ of the water produced by the system, and based on a cursory review of the DPW budget and water costs, the reveue generated appears to be reasonable given this usage.

4.12 Source Capacity and Demand Analysis

Ossipee Village Use

A meter vault is located near the maintenance building, which contains a compound meter. This meter was presumably intended to meter water leaving the Complex going to Ossipee Village. Downstream of this vault is a yard hydrant in the field between the Complex and Rtoute 28 (for watering the blueberry bushes). It is unclear where

the connections for the Maintenance Building and Jail services are located, but they are believed to be from a branch main near the hydrant upstream of the vault.

An attempt was made to monitor water use (daily/weekly) at the vault during the month of October 2021, but based on meter readings returned by the Carroll County Complex maintence staff it appears the register on the low flow side of the meter is not operating correctly. The only operational dial on the meter was that of the hundreds, meaning verification of water used and comparison with billed water can not be performed. The high side flow of the meter appears to be operational and registered 34,940 gallons between October 26 and November 3rd, the week after the fire flow testing. There are 6 or 7 fire hydrants downstream of this meter (depending on where the hydrant near the jail is tied in). Assuming 6 hydrants downstream which were flushed during the test, the metered volume would average approximately 5,823 gallons flushed per hydrant. At a flushing rate of about 1,200 gpm, this would mean each hydrant was flushed for 4-5 minutes, which appears reasonable.

5. Recommendations

5.1 Existing sources

The capacity of the three existing well sources is largely unknown. BW#2 was operating at 24 gpm during a site visit in August, and this well is used as the primary source, supplying nearly all of the water for the system. There is antecdotal evidence that the other two wells (W-1 and BW#1) might contribute about 15 gpm each, but it is unknown if they are capable of that flow, or if it is sustainable long term, and during all times of the year. Testing of the wells to evaluate their capacity is recommended, and if necessary, exploration and installation of an additional source.

Additionally, there are no level transducers in the wells to monitor water level or to protect the pumps from damage in the event of a low water level. We recommend the following improvements to the existing sources:

1. Inspect existing wells and verify capacity
   - Remove pumps & inspect, verify well depth and water level depth in each of the wells. (open them up, see what is there and what is functioning).
   - Verify presence or absence of conduits between the wells and the control buildings (for level transducers).
   - Verify operation of Wells BW #1 & W-1, and pumping flowrate. This may be done by turning BW #2 off at the HOA switch and forcing BW#1 and W-1 to operate alone to fill the tank.
   - Verify the pumping rate of BW#2 throughout its pump cycle, drawdown and long-term yield.
   - Verify drawdown in each of the wells.
   - Perform pumping tests on the wells to monitor drawdown over time, estimate the safe yield of each, determine if there is any interference between wells, and determine the Wellhead Protection Area (WHPA) for each source.
2. Install stilling tubes and level transducers in each well and connect to the SCADA system. Install safety interlocks to shut down the well pump if water level reaches a low level.
3. Clear brush from wellheads and upgrade the access road to allow easier maintenance
4. Replace wooden electrical boards for disconnects at the wells (W-1 should be replaced; further assess condition at BW-1 and 2).
5. W-2 and W-3 - clean and assess the condition of concrete covers; patch/resurface the concrete as necessary.
6. If W-1 and BW#1 are found to have adequate, reliable, long term yields year-round, consideration should be given to altering the control system so that the

wells are alternated each time the tank requires filling (perhaps BW#2 one cycle and W-1 and BW#1 together on the next cycle). This will allow resting of BW#2 and provide more even wear on equipment.

5.2 New supply source

The long term sustainable yield of the existing sources must be verified to determine if an additional source of supply is necessary. Currently, BW#2 supplies nearly all of the water to the system, with BW#1 and W-1 only operating occasionally. This is not a typical mode of operation and may be set up this way because of limited capacity of BW-1 and/or W-1. Additionally, the maximum capacity of the existing sources may not be sufficient for any expansion of the system in the future. The necessary field work must be completed to determine the condition and yield of the existing sources. At this time, it is prudent to plan and budget for a new source.

5.3 Well Meter Building

The meter and treatment building was constructed 20 years ago. The building structure in general is in good condition. However, some of the equipment is nearing the end of it's useful life, and should be replaced. Additionally, upgrades should be made to the control system, and a chlorine analyzer installed.

1. Replace three positive displacement meters on source discharges.
2. Replace the positive displacement distribution meter with equipment to provide signal to SCADA (this is currently not operable).
3. Upgrade the SCADA system so that information from the system can be accessed from the office, and so that the data can be stored long-term. Data retrieval is currently limited to only a couple of weeks prior to the retrieval date, and can only be accessed by the SCADA consultant.
4. Replace the SCADA system modem to a 5G model.
5. Replace areas of wall plywood as necessary, including insulation, to replace water/moisture damaged sections. Install FRP panels over all walls and ceiling.
6. Trim trees/branches from incoming electrical line
7. Replace propane heater
8. Assess condition of ventilation fan and louvers, and replace if necessary.
9. Install a chlorine residual analyzer and connect it to the SCADA system; install drywell for analyzer discharge if necessary.

At the time of this evaluation, based on the data available, we have assumed that treatment for iron and manganese will not be required.

5.4 Storage Tank Repairs

The storage tank is in need of some concrete and other minor repairs, as outlined in the 2018 tank inspection report, as follows:

Tank Exterior

1. The tank inspector recommended removing the expansion rivets and aluminum strips to roll back the rubber membrane and expose the exterior wall surfaces.
2. Power tool clean all surfaces of the exposed exterior walls (approx. 20%) having concrete spall to prepare the substrate and resurface all spalls with concrete repair material to seal the exposed reinforcement steel and prevent further concrete fatigue.
3. Repair cracked and deteriorated exterior corners of the tank, including exposed rebar.
4. Apply an elastomeric sealant having an ANSI/NSF 61 approval throughout the entire joint between the roof and walls to seal the junction and prevent intrusion into the tank.
5. Repair 4" x 2" tear in the roof membrane on the centerline of the easternmost side of the tank by applying sealant over the area.
6. Repair the aluminum strips and expansion rivets securing the roof membrane on the northernmost side of the tank where it has pulled free for approximately 36-inches.
7. Excavate metal overflow pipe at tank penetration, power tool clean to remove corrosion, coat the pipe and restore partial burial.

Tank Interior

1. Repair three 1/4-inch gaps between the roof and wall junction ranging from 2-inches to 12-inches in length on the eastern side of the tank. Apply an elastomeric sealant having an ANSI/NSF 61 approval throughout the entire joint between the roof and walls to seal the junction and prevent intrusion into the tank.
2. Repair a 20 ft section of joint between the precast concrete roof panels where the foam backing rod material has become dislodged. This is approximately 8 ft from the wall on the westernmost side of the tank.
3. The surfaces of the metal pipes that penetrate the tank wall are not coated and have mild corrosion on all surfaces. Power tool cleaning of the surfaces to remove corrosion and re-coating of the surfaces are recommended.

The existing fire pond at the complex is not fully functional and usable for 170,000 gallons. The volume of the pond should be verified. The pond should then be cleaned out and the piping repaired to restore the pond to full use.

5.5 Distribution System Improvements

The majority of the distribution system was installed in 2001 and appears to be adequately sized, and in good condition. There is a 4-inch main on Old Route 28 that is believed to be PVC, that should be replaced. This main is old, and too small to provide adequate fire flow to the hydrant at the end of the main. We recommend replacement of approximately 2,300 LF of water main on Old Route 28, with new 8-inch ductile iron pipe.

All 12 hydrants in the system should be replaced with a more modern hydrant model, with better parts availability. The DPW would like to replace the hydrants with Model B84B American Darling hydrants. This will require draining and shutdown of the system to depressurize the system to replace the hydrants.

The compound meter in the vault near the maintenance shed, which is not functioning properly, should be repaired or replaced.

New meters should be installed throughout the County Complex, including a new radio meter reading system. A radio read system will allow the County to read meters more reliably and more frequently. The current manual reading of meters means that sometimes meters can't be read if they are inaccessible due to blockage of access, by cars, owner's items, snowbanks, etc. The new system would also allow the meters to be read monthly providing better data on the system operation. The meters in the village are over 20 years old and should be replaced to ensure accuracy in tracking and billing. Radios for the new reading system should be installed on the village meters, as well as the new meters within the complex.

5.6 Management & Maintenance Recommendations

General operation and maintenance recommendations for the system include the following:

1. Inspect/clean tank every 10 years
2. Clear/mow paths over water mains annually to allow access in the event of a main break or other maintenance. This includes the mains from the wells to the pump house, from the pump house/tank to the courthouse. The main between the maintenance building and County Farm Road, near Rte 28 is already maintained as a hayfield.
3. Open dug wells and visually inspect annually
4. Hydrant flushing annually (this is currently performed by the Ossipee Center fire department).
5. Maintain records of daily meter readings for the source and distribution meters.
6. Maintain records of chlorine dosage/usage & residual testing.
7. Exercise all valves in the system annually
8. Clear trees and trim branches from electrical lines feeding the well meter building

9. Read the meter in the vault near the maintenance building monthly and compare to metered/billed usage.

An asset management plan should be considered for the system. This plan would finish the distribution system mapping that RCAP solutions started, and inventory the assets of the water system, their age, anticipated life, and replacement cost. The plan would help the County plan ahead for various repairs and replacements. NHDES strongly encourages systems to develop a plan and requires partial plans be completed for any infrastructure they help fund. They are currently providing grants for up to $100,000 to help systems pay for the plans.

5.7 Opinion of Probable Cost

Underwood Engineers' Opinion of Probable Cost (**See Table 5-1**) is based on the above recomendations and is estimated at $3.51 Million. Details of the cost opinion can be found in ***Appendix E***. It should be noted, that at this very early stage, there are many unknowns. The cost opinion has been developed for improvements recommended based on some known deficiencies, and an educated estimation of work that might be required for other, more unknown issues. The cost opinion will be a fluid document that will be updated throughout each phase of the project, as more definitive information becomes available.

Table 5-1 – Summary of Cost Opinion

Summary of Opinion of Probable Cost		
Routing Option	**Planning Costs**	**Notes**
Source Improvements	$1,400,000	Includes evaluation of existing sources, improvements to existing sources, a new well and improvements to the existing metering/chlorination building
Storage Improvments	$180,000	Includes repairs to existing potable water storage tank and repairs to existing fire storage pond
Transmission and Distribution System Improvements	$1,930,000	Includes new hydrants, water main on Old Route 28A, replacement meters in the village, new meters at the County Complex and a new radio-read meter reading system
Total	**$3,510,000**	
Asset Management Plan	$60,000	Applied for AMP grant from NHDES

Note:

1. In addition to the capaital improvements identified above, we recommend that $100,000 per year be budgeted to support asset renewal of other assets not included in this project. An asset management plan should be completed to confirm/refine the necessary funding level.

6. Funding Evaluation

6.1 DWSRF

The Drinking Water State Revolving Fund (DWSRF) was established in 1996 as part of the Amendments to the Safe Drinking Water Act to provide assistance in the form of low-interest loans to public water systems to finance the cost of drinking water infrastructure. DWSRF funding is made available to states from the USEPA. The program is administered in New Hampshire by NHDES. Loans are offered with terms of 5, 10 or 20 years. A loan term of 30 years is available for disadvantaged systems or communities. Public water systems eligible for this program include all publicly and privately owned community water systems and non-transient non-profit public water systems.

A DWSRF pre-application is required in June for the following year's program. Projects are prioritized using a point ranking system which is defined in the Intended Use Plan (IUP) issued by NHDES. DWSRF typically offers 20% loan forgiveness, with an additional 10% forgiveness available if an applicant meets the definition of "disadvantaged" (serves residents whose median household income (MHI) is less than the statewide MHI based on the most recent census data and/or income survey), and if the resulting project user rate (which is the total of the existing rate in addition to the rate that results from the new project) exceeds the statewide affordability criteria. However, NHDES has received additional ARPA funds that have been used to increase grant funding, and many projects are currently receiving 30% up-front grant funding (as opposed to loan forgiveness). Additional funds from the recently passed Infrastructure Improvement and Jobs Act (IIJA) are also expected to be routed through the DWSRF, but there is little information available as to how those funds will be distributed.

The repayment period begins one year after the project improvements have been in operation. During construction, an interest rate of only 1% is applied.

The DWSRF Program requires that an asset management maintenance and renewal plan (AMRP) be developed for the funded asset(s). A system-wide AM Plan is not required by the DWSRF program although it is strongly encouraged. An Asset Management Grant Application was submitted to NHDES to develop a system-wide AMP for the system.

The DWSRF Program is subject to federal provisions including Davis-Bacon and Related Acts (require payment of prevailing wage rates for all construction projects), American Iron & Steel (AIS), Disadvantaged Business Enterprise rules, Environmental Review and Single Audit. Future funds from the IIJA may be subject to additional "buy American" type provisions.

6.2 American Recovery Plan Act (ARPA)

ARPA money is federal funding that has been allocated to States, Counties and Towns through the Coronavirus State and Local Fiscal Recovery Funds (CSLFRF). Carroll County was approved to receive about $9 million in grant monies from this program, which may be used for water, wastewater, broadband communication, small business grants and lost revenue, due to the Covid pandemic. The County may use these funds to aid in the water project. It is our understanding that the CSLFRF funds must be obligated by December 31, 2024, and expended by December 31, 2026. Annual reporting is required in October of each year. ARPA funds are not subject to Davis Bacon or AIS requirements. In addition, County and Town ARPA funds are not subject to the Environmental Review (ER) process (however State ARPA funds administered via DWSRF, do require an ER).

6.3 Asset Management Grant Program

The NHDES Drinking and Ground Water Bureau (DWGB) offers grants for the development of asset management programs for community water systems which serve populations of 150 or greater. The goal of the Asset Management Grant program is to create a centralized location to provide information, technical assistance, and funding opportunities for communities with the development of sustainable asset management programs. In the past, this program offered $20,000 matching grants (with the Owner providing $20,000). This year, the program is providing 100% grants up to $100,000 for community water systems to conduct asset management initiatives for drinking water infrastructure. The goal of asset management is to help communities shift from a reactive to proactive management.

Projects eligible for funding must include the following:

- Asset inventory and mapping with condition assessment and risk analysis
- A financial review that identifies current rates and determination if they reflect true cost of service. This cost of service is a monetary amount that must be reached for a utility to cover its costs to operate and earn a reasonable return for planning of future investments. Additionally, a capital investment plan and/or long-term funding strategies must be included to plan for replacement costs for existing assets and any improvements identified as being needed in the next 10 years
- A defined Level of Service developed using a workshop approach. This workshop should involve stakeholders such as operators, management, ratepayers, and engineers (if applicable).
- Implementation plan and community outreach strategy. This plan will address the use, the frequency of the review, and revision process to be submitted with the application. The plan must be done in coordination with the person(s) responsible for maintaining and executing the plan.

- Upon completion of the Asset Management Grant, complete an entry into the New Hampshire Asset Management Database (NHamD).

After approval, grant funds will expire after two years and the NHDES will not reimburse any completed work prior to grant approval. Grant applications are due January 7, 2022, and we recommend the County apply for a grant to accomplish this work.

This plan would help document and manage the County's water infrastructure facilities, condition, and plan future needs. RCAP performed work during the last two years to begin the process, and has developed a system map in Arc GIS. A full asset management plan would build on the work begun by RCAP and provide a more useful tool for the County to manage water system assets and plan for the future. This is additional work that would be helpful and useful for the County to have, but was not included in the preliminary project estimate that was prepared at the start of the project. UE submitted an application on behalf of the County for $60,000 to complete an asset management plan for the system.

6.4 Strategic Planning Grants Program

A new program being offered for 2022 is the Strategic Planning Grant program, offered by the NHDES DWGB to help community water systems improve their water infrastructure by initiating projects, and allowing them to apply for and receive funding for construction of eligible drinking water projects. Grants up to $50,000 may be awarded with no community match required. Projects may exceed $50,000, but grant funding will be capped at $50,000.

Planning efforts eligible for this grant include:

- Preliminary engineering evaluations
- Source exploration/hydrogeological investigation reports
- Capital improvement/water system business plans
- Master plans
- Community planning studies involving public water infrastructure components
- Other professionally prepared documents intended to enhance system capacities

The items listed above are not all-inclusive, and others may be considered for funding after review by the DWGB. To be eligible for this grant, community water systems must serve a population of 150 or greater. The NHDES will not reimburse any completed work prior to grant approval and if approved, grant funds will expire after two years. The deadline for applications for this program is January 7, 2022, and UE submitted a grant application on behalf of the County. We recommend the County apply for these funds to help offset the cost of hydrogeological investigations to evaluate source capacity and preliminary engineering.

6.5 Community Development Block Grant (CDBG)

The US Department of Housing and Urban Development provides grants to support economic development through improvements to public facilities, specifically, Public Facilities Grants for Water and Sewer. These grants are administered by the NH Community Development Finance Authority (CDFA). Eligible activities include; extending or replacing water or sewer lines, constructing water or sewer treatment facilities, constructing water storage facilities, and development of new water supply wells. Through a competitive process eligible applicants can receive implementation grants of up to $500,000 annually. A requirement for funding is that at least 51% of the population served must be of low to moderate income. This would have to be established by an income survey of the resident population.

Another requirement is that applicants must provide a 1:1 match of CDBG funds with non-CDBG funds. Counties are eligible applicants, however, per NH Administrative Rules, assistance for systems serving medical facilities and nursing homes are given low priority. Specifically, Cdfa 306.03 (b) states that, "Although an eligible activity, assistance for water and sewer systems serving primarily medical facilities and nursing homes shall be of low priority and shall receive 0 points when scored, as compared to the 50 points which an eligible activity otherwise shall receive." Along with this, Cdfa 310.01(m)(2) states that, "A county water or sewer system serving primarily institutionalized populations shall be eligible only if matching funds authorized for such improvements meet or exceed $1,500 per bed." If the Nursing Home has 103 beds and the Correctional Facility has 40 beds the County would need to come up with $214,500, as a threshold requirement and would not receive any points in the scoring process. A competing applicant that serves typical residential water users would receive anywhere from 10 to 50 points for this match depending on the percentage of non-CDBG funds compared to CDBG funds. This places the County in a disadvantageous position in terms of points in a competitive process.

There are two yearly deadlines for submitting applications for CDBG funds, the last Monday in January and the last Monday in July. It is our understanding that the January round is less competitive than the July round.

6.6 USDA Rural Development (RD)

The Rural Development (RD) Office of the US Department of Agriculture (USDA) offers a grant and low interest loan program for improvements to water and wastewater systems. Funds can be used to cover engineering, construction, property or easement acquisition, and equipment. Eligible applicants must serve communities of less than 10,000 or be economically challenged. Based on past discussions with RD, there was some question as to whether the County would fall under the Water and Waste Disposal Loan and Grant Program or the Community Assistance Program. Subsequent contact with RD's Washington D.C. office determined that the County would fall under the Water and Waste Disposal Loan and Grant Program, which is preferred as it offers much better grant and loan opportunities. The maximum grant amount is 75% of the

project cost, but this is unusual. Grants up to 30% to 45% are more common. Grant eligibility is dependent both on the need/purpose of the project and on the MHI of the service area as compared to the statewide MHI. In the County's case, the average MHI of the entire County would be used to make this determination. The loan term is 30 years. In poverty areas, the term can be 40 years which reduces annual payments.

The actual grant/loan percentage eligibility takes into account user fees, debt on the system, new debt, and current and future O&M costs. Based on all these factors, RD makes a determination of what the grant recipient can afford to pay. This is in part based on an Equivalent Dwelling Unit (EDU) calculation. An EDU is defined as the level of service in gallons per day for an average residential dwelling. A typical municipal system is made up of residential, commercial, institutional, and perhaps industrial users. Using water meter data, a calculation is made on how much water an average single-family residence uses. The total system usage, minus leakage, is then divided by this amount to determine the number of EDUs. The County system is only partially metered (primarily the village users), so the system could be split between residential and institutional uses. RD typically uses a figure of 1.5% of the MHI as the amount that is affordable per EDU. The RD underwriters would likely look at what the County can afford, including the projected O&M cost for the selected project.

Before RD can commit funds to a project, authorization from the political body being served must be obtained. For a municipality, this would be a positive bond vote. In the County's case, this is assumed to be a positive vote by the County Commissioners and/or delegation.

To apply for RD funding, it is necessary to complete and submit a Preliminary Engineering Report (PER) and an Environmental Review (ER) in the format required by RD along with the application. While this report was not prepared strictly as a PER, it would form the basis of the report required by RD. The ER report would also be required. In the past RD accepted applications throughout the year which competed for funds in a national pool. Recently, a change was made such that USDA Vermont and New Hampshire have state allocation funds and they have typically instituted an application deadline of January 29th each year to compete for this local pool in a less competitive process. The complete PER and ER would need to be submitted by the January 29 date. To compete in the more competitive national pool, the application deadline is typically April 15.

6.7 DWGWT

The Drinking Water and Groundwater Trust Fund provides loan and grant funds for drinking water projects. The Trust Fund board looks for projects that have exhausted all other funding sources first. They require a complete project plan when applying and require signature of the authorizing board and evidence of approval as part of the application.

Ranking criteria for this program include:

1. Whether the proposed project results in the removal, reduction, or mitigation of contamination related to groundwater or drinking water.

2. Project readiness demonstrated through methods including but not limited to letters of support from local entities, preparation and submittal of preliminary engineering reports, and confirmation of approval of funds from leveraged funding sources. DWGTF funding requires that outside funding has been exhausted, the project maximizes non-DWGTF funding sources and maximizes trust fund loan over grant.
3. Consistency with the applicant's established Asset Management Program and proposed management of assets, Capital Improvement Plan, and rate analysis associated with the project.
4. DWGTF Rules for Construction.
5. Impact on economic development.
6. Energy efficiency.
7. Water efficiency in ensuring a minimization of water loss.
8. Enhancement of source water protection or acquisition of water sources for public consumption.
9. Long-term viability of the project.
10. The fairness of the geographic distribution of project awards.
11. Distribution system extensions.
12. Proof of thoroughness with respect to both applications and project development.
13. Innovation.
14. Whether the project serves a public water system with a low Median Household Income (MHI) or high Affordability Index (AI). AI is the project user rate divided by the community or water system's MHI.

Trust funds are not subject to Davis Bacon or AIS requirements. If after applying for other grant and loan programs, other funding options have been exhausted and the impact of the project makes the debt service unaffordable, the County could then apply to the DWGWT fund.

7. Conclusions

7.1 Improvements

Numerous improvements are recommended for several areas of the water system, including source, storage and transmission/distribution. The prioritized list includes (see Section 5 for a more detailed list of recommended improvements):

Source Improvements

- Hydrogeological assessement of existing wells
- Improvements to the existing wells
- Improvements to the existing metering/chlorination facility
- Replacement of source meters
- SCADA upgrades
- Repairs to corroded/ water damaged walls/components

Storage Improvements

- Repairs to the existing storage tank
- Rehabilitation and repair or replacement of the existing fire pond storage

Transmission & Distribution

- Replacement of hydrants
- Replacement of distribution system meters and new radio read system
- Installation of meters at the County Complex
- Water main replacement on Old Route 28

7.2 Funding

The total project cost is estimated to be about $3.51 Million.

UE applied for the following grants on January 7, 2022:

- Asset Management Grant Program: $60,000 (not included in the $3.51 Million above)
- Strategic Planning Grant Program: $50,000

The remainder of the funds (approx. $3.46 Million), may come from the County's ARPA funds. Alternatively, the County could apply to the DWSRF fund in June for a low interest loan, which may offer some grant provision. Pre-applications for DWSRF funding are typically due in June.

APPENDIX A

FIRE FLOW TESTS

Flow Test #1

10/21/2021 11:04AM

Ossipee, NH

Flow Hydrant		**Notes**
Hydrant Number	4	side of nursing home (Old #5) - KWR
Static Pressure, psi	43	FD gage
Static Pressure Gauge	FD Gauge	
Pitot Pressure (p), psi	26	25-27 psi fluctuation
Pitot Gauge	60D	
Dia. Of Discharge (d)	2.5	
Coeff. Of Discharge (c)	0.845	Per Akron pitot discharge outlet fact sheet. Note: FD gate valve used on hydrant before Akron outlet
Hydrant Flow (Q), gpm	803.30	Q=29.83 c (d^2)(p^0.5)
Gauge Hydrant #1		
Hydrant Number	1	at facility entrance from Water Village Rd - WRM
Static Pressure, psi	42.5	40-45 fluctuation
Residual Pressure, psi	37	35-37 fluctuation, mostly 37. 35-55 when shutdown
Pressure Gauge	100C	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr1), gpm	1718.9	Qr1 = {Q (static-required)^0.54}/{(static-residual)^0.54}
Gauge Hydrant #2		
Hydrant Number	2	front of nursing home (Old #3) - LBC
Static Pressure, psi	44	
Residual Pressure, psi	37	dropped steadily to 30 then 25-35 ~37psi. Went to 65 when shut down
Pressure Gauge	100D	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr2), gpm	1562.6	Qr2 = {Q (static-required)^0.54}/{(static-residual)^0.54}

Flow Test #2

10/21/2021 12:57PM

Ossipee, NH

Flow Hydrant		**Notes**
Hydrant Number	8	Rte 171 near intersection/circle on Rte 28 (Old #9) - KWR
Static Pressure, psi	132	FD gage
Static Pressure Gauge	FD Gauge	
Pitot Pressure (p), psi	62	60-65 fluctuation
Pitot Gauge	100D	
Residual Pressure, psi	104	*During FD Flow Testing
Required pressure, psi	20	Standard pressure for fire flow values
Dia. Of Discharge (d)	2.5	
Coeff. Of Discharge (c)	0.845	Per Akron discharge outlet fact sheet. Note: FD gate valve used on hydrant before Akron outlet
Hydrant Flow (Q), gpm	1240.5	Q=29.83 c (d^2)(p^0.5)
Theoretical Fire Flow @ Gauge hydrant (Qr0), gpm	2622.4	Qr0 = {Q (static-required)^0.54}/{(static-residual)^0.54}
Gauge Hydrant #1		
Hydrant Number	6	in front of Jail (Old #7) - WRM
Static Pressure, psi	62	Beween 60-63
Residual Pressure, psi	30	30-35, mostly hovering at 30. Shutoff ~90-past 100
Pressure Gauge	100C	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr1), gpm	1436.7	Qr1 = {Q (static-required)^0.54}/{(static-residual)^0.54}
Gauge Hydrant #2		
Hydrant Number	7	end of County Farm Rd, near Rte 28 (Old #8) - LBC
Static Pressure, psi	132	
Residual Pressure, psi	89	drop to 50 then up to 90. Pegged @ 160 when shut down then slowly droping to 140 several min later
Pressure Gauge	160E	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr2), gpm	2080.1	Qr2 = {Q (static-required)^0.54}/{(static-residual)^0.54}

Flow Test #3

10/21/2021 2:15PM

Ossipee, NH

Flow Hydrant		**Notes**
Hydrant Number	12	End of Old Rte 29 (Old #14) - KWR
Static Pressure, psi	140	Nevert quite stabalized. Fluctuation between 138-142 - FD gage
Static Pressure Gauge	FD Gauge	
Pitot Pressure (p), psi	10	Steady at 10
Pitot Gauge	60D	
Residual Pressure, psi	34	*During FD Flow Testing
Required Pressure, psi	20	Standard pressure for fire flow values
Dia. Of Discharge (d)	2.5	
Coeff. Of Discharge (c)	0.845	Per Akron discharge outlet fact sheet. Note: FD gate valve used on hydrant before Akron outlet
Hydrant Flow (Q), gpm	498.18	Q=29.83 c (d^2)(p^0.5)
Theoretical Fire Flow @ Gauge hydrant (Qr0), gpm	532.7	Qr0 = {Q (static-required)^0.54}/{(static-residual)^0.54}
Gauge Hydrant #1		
Hydrant Number	7	End of County Farm Rd near Rte 28 (Old #8)-WRM
Static Pressure, psi	130	
Residual Pressure, psi	120	118-122, mostly at 120. shutdown spike past 160
Pressure Gauge	160E	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr1), gpm	1818.6	Qr1 = {Q (static-required)^0.54}/{(static-residual)^0.54}
Gauge Hydrant #2		
Hydrant Number	8	Rte 121 near intersection/circle on Rte 28 (Old #9) - LBC
Static Pressure, psi	133	Static 132-134 bounce to 130.
Residual Pressure, psi	120	Flowing dropped to 70 briefly, then 118-122; spiked >160 when shut down
Pressure Gauge	160F	
Required Pressure, psi	20	Standard pressure for fire flow values
Theoretical Fire Flow @ Gauge hydrant (Qr2), gpm	1601.485	Qr2 = {Q (static-required)^0.54}/{(static-residual)^0.54}

APPENDIX B

MONTHLY SOURCE WATER METERED DATA PROVIDED TO NHDES

		MONTHLY USAGE (GALLONS x1000)		
YEAR	MONTH	BEDROCK WELL 1	BEDROCK WELL 2	DUG WELLS 001 002 003
2013	OCT	0.00	555.00	0.00
2013	NOV	0.00	1164.10	0.00
2013	DEC	0.00	533.00	0.00
2014	JAN	0.00	539.30	0.00
2014	FEB	0.00	539.30	0.00
2014	MAR	0.00	539.30	0.00
2014	APR	0.00	565.00	0.00
2014	MAY	0.00	580.00	0.00
2014	JUN	0.00	560.70	0.00
2014	JUL	0.00	561.93	0.00
2014	AUG	0.00	561.93	0.00
2014	SEP	0.00	561.94	0.00
2014	OCT	36.80	496.20	0.00
2014	NOV	37.00	496.41	0.00
2014	DEC	36.60	496.00	0.00
2015	JAN	0.00	496.70	0.00
2015	FEB	0.00	491.52	0.00
2015	MAR	0.00	497.33	0.00
2015	APR	0.00	495.19	0.00
2015	MAY	0.00	495.13	0.00
2015	JUN	0.00	495.22	0.00
2015	JUL	0.00	617.60	0.00
2015	AUG	0.00	617.82	0.00
2015	SEP	0.00	617.48	0.00
2015	OCT	0.00	547.60	0.00
2015	NOV	0.00	547.48	0.00
2015	DEC	0.00	547.84	0.00
2016	JAN	0.00	549.47	0.00
2016	FEB	0.00	549.03	0.00
2016	MAR	0.00	549.87	0.00
2016	APR	0.00	625.47	0.00
2016	MAY	0.00	625.40	0.00
2016	JUN	0.00	625.60	0.00
2016	JUL	8.80	764.00	3.20
2016	AUG	8.63	760.00	3.13
2016	SEP	8.96	755.62	3.38
2016	OCT	0.00	518.57	0.07
2016	NOV	0.00	518.81	0.07
2016	DEC	0.00	518.36	0.07
2017	JAN	0.00	565.93	0.00
2017	FEB	0.00	565.98	0.00
2017	MAR	0.00	566.00	0.00
2017	APR	0.00	529.68	0.00
2017	MAY	0.00	528.98	0.00
2017	JUN	0.00	530.58	0.00
2017	JUL	0.11	533.56	0.00
2017	AUG	0.12	533.60	0.00
2017	SEP	0.11	533.53	0.00
2017	OCT	11.26	512.16	4.65

2017	NOV	11.20	512.55	4.57
2017	DEC	11.34	512.36	4.72
2018	JAN	0.00	517.21	0.00
2018	FEB	0.00	517.31	0.00
2018	MAR	0.00	517.17	0.00
2018	APR	0.00	653.95	0.00
2018	MAY	0.00	656.82	0.00
2018	JUN	0.00	657.36	0.00
2018	JUL	0.00	621.10	0.00
2018	AUG	0.00	621.20	0.00
2018	SEP	0.00	621.10	0.00
2018	OCT	0.00	562.58	0.00
2018	NOV	0.00	562.50	0.00
2018	DEC	0.02	562.62	0.02
2019	JAN	0.00	539.36	0.00
2019	FEB	0.00	538.87	0.00
2019	MAR	0.00	540.20	0.00
2019	APR	16.92	597.27	7.61
2019	MAY	16.87	597.10	7.61
2019	JUN	16.91	597.24	7.60
2019	JUL	0.00	544.41	0.00
2019	AUG	0.00	544.63	0.00
2019	SEP	0.00	544.40	0.00
2019	OCT	0.39	534.97	0.10
2019	NOV	0.41	534.96	0.10
2019	DEC	0.40	534.98	0.10
2020	JAN	9.39	608.98	13.66
2020	FEB	9.26	606.33	13.29
2020	MAR	9.41	609.86	13.85
2020	APR	0.01	571.72	0.00
2020	MAY	0.01	572.06	0.00
2020	JUN	0.01	571.97	0.00
2020	JUL	0.00	549.19	0.00
2020	AUG	0.00	549.36	0.00
2020	SEP	0.00	549.02	0.00
2020	OCT	0.00	530.60	0.00
2020	NOV	0.56	530.82	0.14
2020	DEC	0.00	530.73	0.00
2021	JAN	0.00	521.46	0.00
2021	FEB	0.32	521.10	0.07
2021	MAR	0.00	521.57	0.00
2021	APR	0.17	668.23	0.00
2021	MAY	0.17	668.00	0.00
2021	JUN	0.19	668.45	0.00

APPENDIX C

OSSIPEE VILLAGE BILLED WATER USE

RT #	Carroll County Water Dept - Meter Route Customer	Pysical Locations	Meter ID #	Previous 3/31/2021	Current Reading 6/30/2021	Estimates USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	1,103,100	1,120,000	16,900	169	$ 67.60	$ 100	$ 167.60
47		14 Courthouse Sq	34157099	510,800	517,400	6,600	66	$ 26.40	$ 100	$ 126.40
20		25 Old Route 28	12641267	917,700	924,800	7,100	71	$ 28.40	$ 100	$ 128.40
25		80 Old Route 28	34157116	973,200	983,100	9,900	99	$ 39.60	$ 100	$ 139.60
16		85 Old Route 28	34157113	90,000	92,300	2,300	23	$ 9.20	$ 100	$ 109.20
	No Billing	65 County Farm Rd	12742015	281,700	293,700	12,000	120	$ -	$ -	$ -
15		93 Old Route 28	34157096	870,400	932,900	62,500	625	$ 250.00	$ 100	$ 350.00
32		25 Browns Ridge Rd	34157098	623,800	633,800	10,000	100	$ 40.00	$ 100	$ 140.00
10		29 Courthouse Sq	34157090	622,500	628,800	6,300	63	$ 25.20	$ 100	$ 125.20
9		27 Courthouse Sq	34157089	664,300	677,100	12,800	128	$ 51.20	$ 100	$ 151.20
6		21 Courthouse Sq	12493674	419,200	423,500	4,300	43	$ 17.20	$ 100	$ 117.20
19		5 Emerson Rd	34157092	820,000	826,400	6,400	64	$ 25.60	$ 100	$ 125.60
44		24 Courthouse Sq	34157109	255,200	255,200	-	0	$ -	$ 100	$ 100.00
33		27 Browns Ridge Rd	71972946	82,900	101,000	18,100	181	$ 72.40	$ 100	$ 172.40
		10 Courthouse Sq	34157088	1,068,600	1,076,500	7,900	79	$ 31.60	$ 100	$ 131.60
24		70 Old Route 28	34157112	1,052,000	1,061,800	9,800	98	$ 39.20	$ 100	$ 139.20
42		41 Courthouse Sq	12639595	546,900	552,500	5,600	56	$ 22.40	$ 100	$ 122.40
46		16 Courthouse Sq	12723489	490,200	523,200	33,000	330	$ 132.00	$ 100	$ 232.00
30		1 Browns Ridge Rd	71973129	269,800	283,600	13,800	138	$ 55.20	$ 100	$ 155.20
39		45 Granite Rd	12617221	116,400	116,400	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12616992	88,800	88,800	-	0	$ -	$ 100	$ 100.00
41		45 Granite Rd	12620562	249,100	249,100	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,102,800	1,134,300	31,500	315	$ 126.00	$ 100	$ 226.00
36		24 Browns Ridge Rd	87983189	8,100	13,900	5,800	58	$ 23.20	$ 100	$ 123.20
23		60 Old Route 28	34157107	530,000	535,100	5,100	51	$ 20.40	$ 100	$ 120.40
11		31 Courthouse Sq	34157091	610,900	618,000	7,100	71	$ 28.40	$ 100	$ 128.40
1		105 Water Village Rd	34157118	1,188,700	1,229,800	41,100	411	$ 164.40	$ 100	$ 264.40
37		36 Granite Rd	12639637	1,097,100	1,111,700	14,600	146	$ 58.40	$ 100	$ 158.40
22		20 Old Route 28	71403149	27,200	29,400	2,200	22	$ 8.80	$ 100	$ 108.80
2		96 Water Village Rd	54640046	1,934,000	1,950,100	16,100	161	$ 64.40	$ 100	$ 164.40
12	*No Billing*	105 Old Route 28	52698946	379,900	385,000	5,100	51	$ -	$ -	$ -
45		20 Courthouse Sq	52197676	233,400	237,700	4,300	43	$ 17.20	$ 100	$ 117.20
14		95A Old Route 28	07771383	484,100	489,700	5,600	56	$ 22.40	$ 100	$ 122.40
13		95 Old Route 28	34157093	1,251,200	1,258,000	6,800	68	$ 27.20	$ 100	$ 127.20
43		115 Old Route 28	72371032	296,600	305,600	9,000	90	$ 36.00	$ 100	$ 136.00
34		31 Browns Ridge Rd	72151807	65,100	67,300	2,200	22	$ 8.80	$ 100	$ 108.80
18		35 Old Route 28	63525371	364,500	378,100	13,600	136	$ 54.40	$ 100	$ 154.40
		45 Old Route 28	87983192	99,827	99,790	3,700	37	$ 14.80	$ 100	$ 114.80
3		5 Courthouse Sq	34157108	155,400	157,300	1,900	19	$ 7.60	$ 100	$ 107.60
7		23 Courthouse Sq	34157111	502,200	509,600	7,400	74	$ 29.60	$ 100	$ 129.60
28		96 Old Route 28	34157095	362,300	365,500	3,200	32	$ 12.80	$ 100	$ 112.80
27		94 Old Route 28	07753901	400,300	405,800	5,500	55	$ 22.00	$ 100	$ 122.00
26		90 Old Route 28	34157110	1,335,300	1,351,100	15,800	158	$ 63.20	$ 100	$ 163.20
4		19 Courthouse Sq	07763543	117,200	117,500	300	3	$ 1.20	$ 100	$ 101.20
8		25 Courthouse Sq	34157094	843,700	849,200	5,500	55	$ 22.00	$ 100	$ 122.00
29		26 Courthouse Sq	12710761	571,000	587,300	16,300	163	$ 65.20	$ 100	$ 165.20
21		19 Old Route 28	71403144	54,000	55,700	1,700	17	$ 6.80	$ 100	$ 106.80
48		12 Courthouse Sq	34157100	296,300	300,000	3,700	37	$ 14.80	$ 100	$ 114.80
17		75 Old Route 28	12639639	867,100	899,300	32,200	322	$ 128.80	$ 100	$ 228.80
38		40 Granite Rd	12720317	832,700	842,200	9,500	95	$ 38.00	$ 100	$ 138.00
31		9 Browns Ridge Rd	12639087	213,300	221,900	8,600	86	$ 34.40	$ 100	$ 134.40
	customer gallons used					530,700	5307	$ 2,054.40	$ 4,900	$ 6,954.40
	Total Flow @ Reservoir pumped			*48,623,425*	44,776,000	(3,847,425)				

Per Will D. He says "oops he had the wrong amount"

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 12/31/2020	Current Reading 3/31/2021	Estimates USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	1,088,200	1,103,100	14,900	149	$ 59.60	$ 100	$ 159.60
47		14 Courthouse Sq	34157099	506,000	510,800	4,800	48	$ 19.20	$ 100	$ 119.20
20		25 Old Route 28	12641267	911,000	917,700	6,700	67	$ 26.80	$ 100	$ 126.80
25		80 Old Route 28	34157116	966,200	973,200	7,000	70	$ 28.00	$ 100	$ 128.00
16		85 Old Route 28	34157113	90,000	90,000	-	0	$ -	$ 100	$ 100.00
	No Billing	65 County Farm Rd	12742015	271,300	281,700	10,400	104	$ -	$ -	$ -
15		93 Old Route 28	34157096	866,900	870,400	3,500	35	$ 14.00	$ 100	$ 114.00
32		25 Browns Ridge Rd	34157098	616,500	623,800	7,300	73	$ 29.20	$ 100	$ 129.20
10		29 Courthouse Sq	34157090	617,200	622,500	5,300	53	$ 21.20	$ 100	$ 121.20
9		27 Courthouse Sq	34157089	663,700	664,300	600	6	$ 2.40	$ 100	$ 102.40
6		21 Courthouse Sq	12493674	414,900	419,200	4,300	43	$ 17.20	$ 100	$ 117.20
19		5 Emerson Rd	34157092	813,500	820,000	6,500	65	$ 26.00	$ 100	$ 126.00
44		24 Courthouse Sq	34157109	250,900	255,200	4,300	43	$ 17.20	$ 100	$ 117.20
33		27 Browns Ridge Rd	71972946	71,700	82,900	11,200	112	$ 44.80	$ 100	$ 144.80
		10 Courthouse Sq	34157088	1,063,400	1,068,600	5,200	52	$ 20.80	$ 100	$ 120.80
24		70 Old Route 28	34157112	1,044,200	1,052,000	7,800	78	$ 31.20	$ 100	$ 131.20
42		41 Courthouse Sq	12639595	540,400	546,900	6,500	65	$ 26.00	$ 100	$ 126.00
46		16 Courthouse Sq	12723489	489,500	490,200	700	7	$ 2.80	$ 100	$ 102.80
30		1 Browns Ridge Rd	71973129	261,700	269,800	8,100	81	$ 32.40	$ 100	$ 132.40
39		45 Granite Rd	12617221	116,400	116,400	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12616992	88,800	88,800	-	0	$ -	$ 100	$ 100.00
41		45 Granite Rd	12620562	249,100	249,100	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,098,200	1,102,800	4,600	46	$ 18.40	$ 100	$ 118.40
36		24 Browns Ridge Rd	87983189	2,800	8,100	5,300	53	$ 21.20	$ 100	$ 121.20
23		60 Old Route 28	34157107	526,000	530,000	4,000	40	$ 16.00	$ 100	$ 116.00
11		31 Courthouse Sq	34157091	604,700	610,900	6,200	62	$ 24.80	$ 100	$ 124.80
1		105 Water Village Rd	34157118	1,163,800	1,188,700	24,900	249	$ 99.60	$ 100	$ 199.60
37		36 Granite Rd	12639637	1,084,700	1,097,100	12,400	124	$ 49.60	$ 100	$ 149.60
22		20 Old Route 28	71403149	19,400	27,200	7,800	78	$ 31.20	$ 100	$ 131.20
2		96 Water Village Rd	54640046	1,921,900	1,934,000	12,100	121	$ 48.40	$ 100	$ 148.40
12	*No Billing*	105 Old Route 28	52698946	377,400	379,900	2,500	25	$ -	$ -	$ -
45		20 Courthouse Sq	52197676	233,400	233,400	-	0	$ -	$ 100	$ 100.00
14		95A Old Route 28	07771383	479,700	484,100	4,400	44	$ 17.60	$ 100	$ 117.60
13		95 Old Route 28	34157093	1,245,800	1,251,200	5,400	54	$ 21.60	$ 100	$ 121.60
43		115 Old Route 28	72371032	287,600	estimate	9,000	90	$ 36.00	$ 100	$ 136.00
34		31 Browns Ridge Rd	72151807	65,100	65,100	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	362,500	364,500	2,000	20	$ 8.00	$ 100	$ 108.00
		45 Old Route 28	87983192	99,868	99,827	4,100	41	$ 16.40	$ 100	$ 116.40
3		5 Courthouse Sq	34157108	153,500	155,400	1,900	19	$ 7.60	$ 100	$ 107.60
7		23 Courthouse Sq	34157111	495,500	502,200	6,700	67	$ 26.80	$ 100	$ 126.80
28		96 Old Route 28	34157095	360,100	362,300	2,200	22	$ 8.80	$ 100	$ 108.80
27		94 Old Route 28	07753901	393,800	400,300	6,500	65	$ 26.00	$ 100	$ 126.00
26		90 Old Route 28	34157110	1,321,000	1,335,300	14,300	143	$ 57.20	$ 100	$ 157.20
4		19 Courthouse Sq	07763543	95,300	117,200	21,900	219	$ 87.60	$ 100	$ 187.60
8		25 Courthouse Sq	34157094	839,400	843,700	4,300	43	$ 17.20	$ 100	$ 117.20
29		26 Courthouse Sq	12710761	557,800	571,000	13,200	132	$ 52.80	$ 100	$ 152.80
21		19 Old Route 28	71403144	52,500	54,000	1,500	15	$ 6.00	$ 100	$ 106.00
48		12 Courthouse Sq	34157100	293,600	296,300	2,700	27	$ 10.80	$ 100	$ 110.80
17		75 Old Route 28	12639639	848,700	867,100	18,400	184	$ 73.60	$ 100	$ 173.60
38		40 Granite Rd	12720317	826,600	832,700	6,100	61	$ 24.40	$ 100	$ 124.40
31		9 Browns Ridge Rd	12639087	204,400	213,300	8,900	89	$ 35.60	$ 100	$ 135.60
	customer gallons used					328,400	3284	$ 1,262.00	$ 4,900	$ 6,162.00
	Total Flow @ Reservoir pumped			41,173,125	48,623,425	7,450,300				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 9/30/2020	Current Reading 12/31/2020	Estimates USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	1,074,000	1,088,200	14,200	142	$ 56.80	$ 100	$ 156.80
47		14 Courthouse Sq	34157099	501,000	506,000	5,000	50	$ 20.00	$ 100	$ 120.00
20		25 Old Route 28	12641267	904,600	911,000	6,400	64	$ 25.60	$ 100	$ 125.60
25		80 Old Route 28	34157116	960,000	966,200	6,200	62	$ 24.80	$ 100	$ 124.80
16		85 Old Route 28	34157113	90,000	90,000	-	0	$ -	$ 100	$ 100.00
	No Billing	65 County Farm Rd	12742015	262,000	271,300	9,300	93	$ -	$ -	$ -
15		93 Old Route 28	34157096	862,000	866,900	4,900	49	$ 19.60	$ 100	$ 119.60
32		25 Browns Ridge Rd	34157098	605,300	616,500	11,200	112	$ 44.80	$ 100	$ 144.80
10		29 Courthouse Sq	34157090	610,800	617,200	6,400	64	$ 25.60	$ 100	$ 125.60
9		27 Courthouse Sq	34157089	662,400	663,700	1,300	13	$ 5.20	$ 100	$ 105.20
6		21 Courthouse Sq	12493674	405,000	414,900	9,900	99	$ 39.60	$ 100	$ 139.60
19		5 Emerson Rd	34157092	806,400	813,500	7,100	71	$ 28.40	$ 100	$ 128.40
44		24 Courthouse Sq	34157109	245,700	250,900	5,200	52	$ 20.80	$ 100	$ 120.80
33		27 Browns Ridge Rd	71972946	60,100	71,700	11,600	116	$ 46.40	$ 100	$ 146.40
		10 Courthouse Sq	34157088	1,057,900	1,063,400	5,500	55	$ 22.00	$ 100	$ 122.00
24		70 Old Route 28	34157112	1,035,800	1,044,200	8,400	84	$ 33.60	$ 100	$ 133.60
42		41 Courthouse Sq	12639595	534,200	540,400	6,200	62	$ 24.80	$ 100	$ 124.80
46		16 Courthouse Sq	12723489	482,500	489,500	7,000	70	$ 28.00	$ 100	$ 128.00
30		1 Browns Ridge Rd	71973129	255,500	261,700	6,200	62	$ 24.80	$ 100	$ 124.80
39		45 Granite Rd	12617221	116,400	116,400	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12616992	88,700	88,800	100	1	$ 0.40	$ 100	$ 100.40
41		45 Granite Rd	12620562	249,100	249,100	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,094,000	1,098,200	4,200	42	$ 16.80	$ 100	$ 116.80
36	NEW meter 9/30/20	24 Browns Ridge Rd	87983189	0	2,800	2,800	28	$ 11.20	$ 100	$ 111.20
23		60 Old Route 28	34157107	521,700	526,000	4,300	43	$ 17.20	$ 100	$ 117.20
11		31 Courthouse Sq	34157091	598,600	604,700	6,100	61	$ 24.40	$ 100	$ 124.40
1		105 Water Village Rd	34157118	1,136,400	1,163,800	27,400	274	$ 109.60	$ 100	$ 209.60
37		36 Granite Rd	12639637	1,071,300	1,084,700	13,400	134	$ 53.60	$ 100	$ 153.60
22		20 Old Route 28	71403149	17,100	19,400	2,300	23	$ 9.20	$ 100	$ 109.20
2		96 Water Village Rd	54640046	1,909,200	1,921,900	12,700	127	$ 50.80	$ 100	$ 150.80
12	*No Billing*	105 Old Route 28	52698946	374,900	377,400	2,500	25	$ -	$ -	$ -
45		20 Courthouse Sq	52197676	233,200	233,400	200	2	$ 0.80	$ 100	$ 100.80
14		95A Old Route 28	07771383	475,700	479,700	4,000	40	$ 16.00	$ 100	$ 116.00
13		95 Old Route 28	34157093	1,239,700	1,245,800	6,100	61	$ 24.40	$ 100	$ 124.40
43		115 Old Route 28	72371032	278,600	287,600	9,000	90	$ 36.00	$ 100	$ 136.00
34		31 Browns Ridge Rd	72151807	65,100	65,100	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	358,700	362,500	3,800	38	$ 15.20	$ 100	$ 115.20
		45 Old Route 28	87983192	99,904	99,868	9,000	90	$ 36.00	$ 100	$ 136.00
3		5 Courthouse Sq	34157108	151,600	153,500	1,900	19	$ 7.60	$ 100	$ 107.60
7		23 Courthouse Sq	34157111	490,600	495,500	4,900	49	$ 19.60	$ 100	$ 119.60
28		96 Old Route 28	34157095	350,900	360,100	9,200	92	$ 36.80	$ 100	$ 136.80
27		94 Old Route 28	07753901	388,300	393,800	5,500	55	$ 22.00	$ 100	$ 122.00
26		90 Old Route 28	34157110	1,308,400	1,321,000	12,600	126	$ 50.40	$ 100	$ 150.40
4		19 Courthouse Sq	07763543	95,200	95,300	100	1	$ 0.40	$ 100	$ 100.40
8		25 Courthouse Sq	34157094	835,100	839,400	4,300	43	$ 17.20	$ 100	$ 117.20
29		26 Courthouse Sq	12710761	541,700	557,800	16,100	161	$ 64.40	$ 100	$ 164.40
21		19 Old Route 28	71403144	51,000	52,500	1,500	15	$ 6.00	$ 100	$ 106.00
48		12 Courthouse Sq	34157100	290,700	293,600	2,900	29	$ 11.60	$ 100	$ 111.60
17		75 Old Route 28	12639639	827,800	848,700	20,900	209	$ 83.60	$ 100	$ 183.60
38		40 Granite Rd	12720317	819,700	826,600	6,900	69	$ 27.60	$ 100	$ 127.60
31		9 Browns Ridge Rd	12639087	197,100	204,400	7,300	73	$ 29.20	$ 100	$ 129.20
	customer gallons used					334,000	3340	$ 1,288.80	$ 4,900	$ 6,188.80
	Total Flow @ Reservoir pumped			39,566,602	41,173,125	1,606,523				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 6/30/2020	Current Reading 9/30/2020	Estimates USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	1,053,900	1,074,000	20,100	201	$ 80.40	$ 100	$ 180.40
47		14 Courthouse Sq	34157099	478,800	501,000	22,200	222	$ 88.80	$ 100	$ 188.80
20		25 Old Route 28	12641267	898,200	904,600	6,400	64	$ 25.60	$ 100	$ 125.60
25		80 Old Route 28	34157116	952,500	960,000	7,500	75	$ 30.00	$ 100	$ 130.00
16		85 Old Route 28	34157113	79,600	90,000	10,400	104	$ 41.60	$ 100	$ 141.60
	No Billing	65 County Farm Rd	12742015	251,500	262,000	10,500	105	$ -	$ -	$ -
15		93 Old Route 28	34157096	843,600	862,000	18,400	184	$ 73.60	$ 100	$ 173.60
32		25 Browns Ridge Rd	34157098	590,900	605,300	14,400	144	$ 57.60	$ 100	$ 157.60
10		29 Courthouse Sq	34157090	603,000	610,800	7,800	78	$ 31.20	$ 100	$ 131.20
9		27 Courthouse Sq	34157089	656,000	662,400	6,400	64	$ 25.60	$ 100	$ 125.60
6		21 Courthouse Sq	12493674	395,100	405,000	9,900	99	$ 39.60	$ 100	$ 139.60
19		5 Emerson Rd	34157092	799,900	806,400	6,500	65	$ 26.00	$ 100	$ 126.00
44		24 Courthouse Sq	34157109	245,700	245,700	-	0	$ -	$ 100	$ 100.00
33		27 Browns Ridge Rd	71972946	40,400	60,100	19,700	197	$ 78.80	$ 100	$ 178.80
		10 Courthouse Sq	34157088	1,049,000	1,057,900	8,900	89	$ 35.60	$ 100	$ 135.60
24		70 Old Route 28	34157112	1,020,600	1,035,800	15,200	152	$ 60.80	$ 100	$ 160.80
42		41 Courthouse Sq	12639595	527,200	534,200	7,000	70	$ 28.00	$ 100	$ 128.00
46		16 Courthouse Sq	12723489	474,900	482,500	7,600	76	$ 30.40	$ 100	$ 130.40
30		1 Browns Ridge Rd	71973129	247,500	255,500	8,000	80	$ 32.00	$ 100	$ 132.00
39		45 Granite Rd	12617221	116,300	116,400	100	1	$ 0.40	$ 100	$ 100.40
40		45 Granite Rd	12616992	88,700	88,700	-	0	$ -	$ 100	$ 100.00
41		45 Granite Rd	12620562	249,100	249,100	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,069,500	1,094,000	24,500	245	$ 98.00	$ 100	$ 198.00
36	NEW meter 9/30/20	24 Browns Ridge Rd	87983189	0	Start Q4	-	0	$ -	$ 100	$ -
23		60 Old Route 28	34157107	516,600	521,700	5,100	51	$ 20.40	$ 100	$ 120.40
11		31 Courthouse Sq	34157091	591,200	598,600	7,400	74	$ 29.60	$ 100	$ 129.60
1		105 Water Village Rd	34157118	1,112,700	1,136,400	23,700	237	$ 94.80	$ 100	$ 194.80
37		36 Granite Rd	12639637	1,055,100	1,071,300	16,200	162	$ 64.80	$ 100	$ 164.80
22		20 Old Route 28	71403149	14,500	17,100	2,600	26	$ 10.40	$ 100	$ 110.40
2		96 Water Village Rd	54640046	1,896,200	1,909,200	13,000	130	$ 52.00	$ 100	$ 152.00
12	*No Billing*	105 Old Route 28	52698946	370,600	374,900	4,300	43	$ -	$ -	$ -
45		20 Courthouse Sq	52197676	232,800	233,200	400	4	$ 1.60	$ 100	$ 101.60
14		95A Old Route 28	07771383	470,300	475,700	5,400	54	$ 21.60	$ 100	$ 121.60
13		95 Old Route 28	34157093	1,227,200	1,239,700	12,500	125	$ 50.00	$ 100	$ 150.00
43		115 Old Route 28	72371032	269,600	278,600	9,000	90	$ 36.00	$ 100	$ 136.00
34		31 Browns Ridge Rd	72151807	65,100	65,100	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	343,900	358,700	14,800	148	$ 59.20	$ 100	$ 159.20
		45 Old Route 28	87983192	99,946	99,904	9,000	90	$ 36.00	$ 100	$ 136.00
3		5 Courthouse Sq	34157108	149,500	151,600	2,100	21	$ 8.40	$ 100	$ 108.40
7		23 Courthouse Sq	34157111	486,200	490,600	4,400	44	$ 17.60	$ 100	$ 117.60
28		96 Old Route 28	34157095	349,500	350,900	1,400	14	$ 5.60	$ 100	$ 105.60
27		94 Old Route 28	07753901	382,400	388,300	5,900	59	$ 23.60	$ 100	$ 123.60
26		90 Old Route 28	34157110	1,296,900	1,308,400	11,500	115	$ 46.00	$ 100	$ 146.00
4		19 Courthouse Sq	07763543	95,100	95,200	100	1	$ 0.40	$ 100	$ 100.40
8		25 Courthouse Sq	34157094	830,800	835,100	4,300	43	$ 17.20	$ 100	$ 117.20
29		26 Courthouse Sq	12710761	526,800	541,700	14,900	149	$ 59.60	$ 100	$ 159.60
21		19 Old Route 28	71403144	50,000	51,000	1,000	10	$ 4.00	$ 100	$ 104.00
48		12 Courthouse Sq	34157100	287,500	290,700	3,200	32	$ 12.80	$ 100	$ 112.80
17		75 Old Route 28	12639639	795,400	827,800	32,400	324	$ 129.60	$ 100	$ 229.60
38		40 Granite Rd	12720317	811,000	819,700	8,700	87	$ 34.80	$ 100	$ 134.80
31		9 Browns Ridge Rd	12639087	196,800	197,100	300	3	$ 1.20	$ 100	$ 101.20
	customer gallons used					445,100	4451	$ 1,721.20	$ 4,900	$ 6,521.20
	Total Flow @ Reservoir pumped			37,889,183	39,566,602	1,677,419				

Carroll County Water Dept - Meter Route				Previous	Current Reading	Estimates	Usage/100	$.40/100 gal		Total Due
RT #	Customer	Meter Address	Meter ID #	3/31/2020	6/30/2020	USAGE	for billing	$ Due for usage	$100/Qtr	Water
35		30 Browns Ridge Rd	12680426	1,031,800	1,053,900	22,100	221	$ 88.40	$ 100	$ 188.40
46		14 Courthouse Sq	34157099	467,800	478,800	11,000	110	$ 44.00	$ 100	$ 144.00
20		25 Old Route 28	12641267	890,800	898,200	7,400	74	$ 29.60	$ 100	$ 129.60
25		80 Old Route 28	34157116	946,900	952,500	5,600	56	$ 22.40	$ 100	$ 122.40
28		96 Old Route 28	34157095	349,300	349,500	200	2	$ 0.80	$ 100	$ 100.80
16		85 Old Route 28	34157113	75,500	79,600	4,100	41	$ 16.40	$ 100	$ 116.40
	No Billing	65 County Farm Rd	12742015	248,500	251,500	3,000	30	$ -	$ -	$ -
15		93 Old Route 28	34157096	821,100	843,600	22,500	225	$ 90.00	$ 100	$ 190.00
32		25 Browns Ridge Rd	34157098	578,700	590,900	12,200	122	$ 48.80	$ 100	$ 148.80
	- not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	594,200	603,000	8,800	88	$ 35.20	$ 100	$ 135.20
9		27 Courthouse Sq	34157089	643,600	656,000	12,400	124	$ 49.60	$ 100	$ 149.60
6		21 Courthouse Sq	12493674	386,800	395,100	8,300	83	$ 33.20	$ 100	$ 133.20
19		5 Emerson Rd	34157092	793,600	799,900	6,300	63	$ 25.20	$ 100	$ 125.20
43		24 Courthouse Sq	34157109	245,700	245,700	-	0	$ -	$ 100	$ 100.00
33		27 Browns Ridge Rd	71972946	26,000	40,400	14,400	144	$ 57.60	$ 100	$ 157.60
48		10 Courthouse Sq	34157088	1,041,100	1,049,000	7,900	79	$ 31.60	$ 100	$ 131.60
24		70 Old Route 28	34157112	1,006,700	1,020,600	13,900	139	$ 55.60	$ 100	$ 155.60
41		41 Courthouse Sq	12639595	520,700	527,200	6,500	65	$ 26.00	$ 100	$ 126.00
29		26 Courthouse Sq	12710761	516,600	526,800	10,200	102	$ 40.80	$ 100	$ 140.80
45		16 Courthouse Sq	12723489	468,800	474,900	6,100	61	$ 24.40	$ 100	$ 124.40
30		1 Browns Ridge Rd	71973129	237,400	247,500	10,100	101	$ 40.40	$ 100	$ 140.40
38		45 Granite Rd	12617221	116,100	116,300	200	2	$ 0.80	$ 100	$ 100.80
39		45 Granite Rd	12616992	88,700	88,700	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12620562	249,000	249,100	100	1	$ 0.40	$ 100	$ 100.40
5		15 Courthouse Sq	34157117	1,058,700	1,069,500	10,800	108	$ 43.20	$ 100	$ 143.20
27		94 Old Route 28	07753901	378,000	382,400	4,400	44	$ 17.60	$ 100	$ 117.60
23		60 Old Route 28	34157107	508,400	516,600	8,200	82	$ 32.80	$ 100	$ 132.80
11		31 Courthouse Sq	34157091	586,100	591,200	5,100	51	$ 20.40	$ 100	$ 120.40
1		105 Water Village Rd	34157118	1,093,000	1,112,700	19,700	197	$ 78.80	$ 100	$ 178.80
36		36 Granite Rd	12639637	1,040,300	1,055,100	14,800	148	$ 59.20	$ 100	$ 159.20
22		20 Old Route 28	71403149	9,700	14,500	4,800	48	$ 19.20	$ 100	$ 119.20
2		96 Water Village Rd	54640046	1,884,200	1,896,200	12,000	120	$ 48.00	$ 100	$ 148.00
12	*No Billing*	105 Old Route 28	52698946	366,400	370,600	4,200	42	$ -	$ -	$ -
44		20 Courthouse Sq	52197676	232,700	232,800	100	1	$ 0.40	$ 100	$ 100.40
14		95A Old Route 28	07771383	461,400	470,300	8,900	89	$ 35.60	$ 100	$ 135.60
13		95 Old Route 28	34157093	1,215,200	1,227,200	12,000	120	$ 48.00	$ 100	$ 148.00
42		115 Old Route 28	72371032	256,500	269,600	13,100	131	$ 52.40	$ 100	$ 152.40
34		31 Browns Ridge Rd	72151807	65,100	65,100	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	313,100	343,900	30,800	308	$ 123.20	$ 100	$ 223.20
		45 Old Route 28	87983192	99,946	99,946	-	0	$ -	$ 100	$ 100.00
3		5 Courthouse Sq	34157108	148,000	149,500	1,500	15	$ 6.00	$ 100	$ 106.00
7		23 Courthouse Sq	34157111	481,200	486,200	5,000	50	$ 20.00	$ 100	$ 120.00
26		90 Old Route 28	34157110	1,286,600	1,296,900	10,300	103	$ 41.20	$ 100	$ 141.20
4		19 Courthouse Sq	07763543	95,100	95,100	-	0	$ -	$ 100	$ 100.00
8		25 Courthouse Sq	34157094	826,000	830,800	4,800	48	$ 19.20	$ 100	$ 119.20
21		19 Old Route 28	71403144	48,900	50,000	1,100	11	$ 4.40	$ 100	$ 104.40
47		12 Courthouse Sq	34157100	284,100	287,500	3,400	34	$ 13.60	$ 100	$ 113.60
17		75 Old Route 28	12639639	724,600	795,400	70,800	708	$ 283.20	$ 100	$ 383.20
37		40 Granite Rd	12720317	801,100	811,000	9,900	99	$ 39.60	$ 100	$ 139.60
31		9 Browns Ridge Rd	12639087	196,800	196,800	-	0	$ -	$ 100	$ 100.00
	customer gallons used					449,000	4490	$ 1,767.20	$ 4,800	$ 6,567.20
	Total Flow @ Reservoir pumped			36,141,586	37,889,183	1,747,597				

RT #	Carroll County Water Dept - Meter Route Customer	Meter Address	Meter ID #	Previous 12/31/19	Current Reading 3/30/2020	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	1,016,700	1,031,800	15,100	151	$ 60.40	$ 100	$ 160.40
46		14 Courthouse Sq	34157099	462,900	467,800	4,900	49	$ 19.60	$ 100	$ 119.60
20		25 Old Route 28	12641267	885,300	890,800	5,500	55	$ 22.00	$ 100	$ 122.00
25		80 Old Route 28	34157116	940,300	946,900	6,600	66	$ 26.40	$ 100	$ 126.40
28		96 Old Route 28	34157095	349,300	349,300	-	0	$ -	$ 100	$ 100.00
16		85 Old Route 28	34157113	75,500	75,500	-	0	$ -	$ 100	$ 100.00
	NO Billing	65 County Farm Rd	12742015	248,500	248,500	-	0	$ -	$ -	$ -
15		93 Old Route 28	34157096	816,000	821,100	5,100	51	$ 20.40	$ 100	$ 120.40
32		25 Browns Ridge Rd	34157098	570,600	578,700	8,100	81	$ 32.40	$ 100	$ 132.40
	not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	586,500	594,200	7,700	77	$ 30.80	$ 100	$ 130.80
9		27 Courthouse Sq	34157089	643,600	643,600	-	0	$ -	$ 100	$ 100.00
6		21 Courthouse Sq	12493674	380,900	386,800	5,900	59	$ 23.60	$ 100	$ 123.60
19		5 Emerson Rd	34157092	786,800	793,600	6,800	68	$ 27.20	$ 100	$ 127.20
43		24 Courthouse Sq	34157109	245,700	245,700	-	0	$ -	$ 100	$ 100.00
33		27 Browns Ridge Rd	71972946	23,600	26,000	2,400	24	$ 9.60	$ 100	$ 109.60
48		10 Courthouse Sq	34157088	1,037,600	1,041,100	3,500	35	$ 14.00	$ 100	$ 114.00
24		70 Old Route 28	34157112	998,600	1,006,700	8,100	81	$ 32.40	$ 100	$ 132.40
41		41 Courthouse Sq	12639595	514,100	520,700	6,600	66	$ 26.40	$ 100	$ 126.40
29		26 Courthouse Sq	12710761	196,500	516,600	320,100	3201	$ 1,280.40	$ 100	$ 1,380.40
45		16 Courthouse Sq	12723489	462,000	468,800	6,800	68	$ 27.20	$ 100	$ 127.20
30		1 Browns Ridge Rd	71973129	231,500	237,400	5,900	59	$ 23.60	$ 100	$ 123.60
38		45 Granite Rd	12617221	116,100	116,100	-	0	$ -	$ 100	$ 100.00
39		45 Granite Rd	12616992	88,600	88,700	100	1	$ 0.40	$ 100	$ 100.40
40		45 Granite Rd	12620562	249,000	249,000	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,053,600	1,058,700	5,100	51	$ 20.40	$ 100	$ 120.40
27		94 Old Route 28	07753901	374,700	378,000	3,300	33	$ 13.20	$ 100	$ 113.20
23		60 Old Route 28	34157107	503,100	508,400	5,300	53	$ 21.20	$ 100	$ 121.20
11		31 Courthouse Sq	34157091	581,800	586,100	4,300	43	$ 17.20	$ 100	$ 117.20
1		105 Water Village Rd	34157118	1,081,600	1,093,000	11,400	114	$ 45.60	$ 100	$ 145.60
36		36 Granite Rd	12639637	1,026,100	1,040,300	14,200	142	$ 56.80	$ 100	$ 156.80
22		20 Old Route 28	71403149	4,900	9,700	4,800	48	$ 19.20	$ 100	$ 119.20
2		96 Water Village Rd	54640046	1,864,300	1,884,200	19,900	199	$ 79.60	$ 100	$ 179.60
12	- No Billing	105 Old Route 28	52698946	361,300	366,400	5,100	51	$ -	$ -	$ -
44		20 Courthouse Sq	52197676	232,700	232,700	-	0	$ -	$ 100	$ 100.00
14		95A Old Route 28	07771383	454,900	461,400	6,500	65	$ 26.00	$ 100	$ 126.00
13		95 Old Route 28	34157093	1,208,000	1,215,200	7,200	72	$ 28.80	$ 100	$ 128.80
42		115 Old Route 28	72371032	249,100	256,500	7,400	74	$ 29.60	$ 100	$ 129.60
34		31 Browns Ridge Rd	72151807	65,100	65,100	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	306,700	313,100	6,400	64	$ 25.60	$ 100	$ 125.60
3		5 Courthouse Sq	34157108	146,200	148,000	1,800	18	$ 7.20	$ 100	$ 107.20
7		23 Courthouse Sq	34157111	477,400	481,200	3,800	38	$ 15.20	$ 100	$ 115.20
26		90 Old Route 28	34157110	1,277,200	1,286,600	9,400	94	$ 37.60	$ 100	$ 137.60
4		19 Courthouse Sq	07763543	94,900	95,100	200	2	$ 0.80	$ 100	$ 100.80
8		25 Courthouse Sq	34157094	821,000	826,000	5,000	50	$ 20.00	$ 100	$ 120.00
21		19 Old Route 28	71403144	47,100	48,900	1,800	18	$ 7.20	$ 100	$ 107.20
47		12 Courthouse Sq	34157100	281,200	284,100	2,900	29	$ 11.60	$ 100	$ 111.60
17		75 Old Route 28	12639639	707,400	724,600	17,200	172	$ 68.80	$ 100	$ 168.80
37		40 Granite Rd	12720317	793,700	801,100	7,400	74	$ 29.60	$ 100	$ 129.60
31		9 Browns Ridge Rd	12639087	196,800	196,800	-	0	$ -	$ 100	$ 100.00
	customer gallons used					569,600	5696	$ 2,258.00	$ 4,700	$ 6,958.00
	Total Flow @ Reservoir pumped			34,269,300	36,141,586	1,872,286				
					Qtr Avg /service	*11,624*				
					ADF/service	129				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 9/30/2019	Current Reading Dec	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
1		30 Browns Ridge Rd	12680426	1,002,800	1,016,700	13,900	139	$ 55.60	$ 100	$ 155.60
2		14 Courthouse Sq	34157099	457,800	462,900	5,100	51	$ 20.40	$ 100	$ 120.40
3		25 Old Route 28	12641267	879,300	885,300	6,000	60	$ 24.00	$ 100	$ 124.00
4		80 Old Route 28	34157116	934,500	940,300	5,800	58	$ 23.20	$ 100	$ 123.20
5		96 Old Route 28	34157095	349,300	349,300	-	0	$ -	$ 100	$ 100.00
6		85 Old Route 28	34157113	75,500	75,500	-	0	$ -	$ 100	$ 100.00
7	- *NO Billing*	65 County Farm Rd	12742015	241,000	248,500	7,500	75	$ -	$ -	$ -
8		93 Old Route 28	34157096	810,600	816,000	5,400	54	$ 21.60	$ 100	$ 121.60
9		25 Browns Ridge Rd	34157098	564,800	570,600	5,800	58	$ 23.20	$ 100	$ 123.20
10	- not activated		34157097				0	$ -		$ -
11		29 Courthouse Sq	34157090	579,200	586,500	7,300	73	$ 29.20	$ 100	$ 129.20
12		27 Courthouse Sq	34157089	625,400	643,600	18,200	182	$ 72.80	$ 100	$ 172.80
13		21 Courthouse Sq	12493674	378,400	380,900	2,500	25	$ 10.00	$ 100	$ 110.00
14		5 Emerson Rd	34157092	780,200	786,800	6,600	66	$ 26.40	$ 100	$ 126.40
15		24 Courthouse Sq	34157109	237,100	245,700	8,600	86	$ 34.40	$ 100	$ 134.40
16		27 Browns Ridge Rd	71972946	12,300	23,600	11,300	113	$ 45.20	$ 100	$ 145.20
17		10 Courthouse Sq	34157088	1,025,500	1,037,600	12,100	121	$ 48.40	$ 100	$ 148.40
18		70 Old Route 28	34157112	989,600	998,600	9,000	90	$ 36.00	$ 100	$ 136.00
19		41 Courthouse Sq	12639595	508,000	514,100	6,100	61	$ 24.40	$ 100	$ 124.40
20		26 Courthouse Sq	12710761	191,200	196,500	5,300	53	$ 21.20	$ 100	$ 121.20
21		16 Courthouse Sq	12723489	457,800	462,000	4,200	42	$ 16.80	$ 100	$ 116.80
22		1 Browns Ridge Rd	71973129	225,500	231,500	6,000	60	$ 24.00	$ 100	$ 124.00
23		45 Granite Rd	12617221	116,100	116,100	-	0	$ -	$ 100	$ 100.00
24		45 Granite Rd	12616992	88,600	88,600	-	0	$ -	$ 100	$ 100.00
25		45 Granite Rd	12620562	249,000	249,000	-	0	$ -	$ 100	$ 100.00
26		15 Courthouse Sq	34157117	1,043,000	1,053,600	10,600	106	$ 42.40	$ 100	$ 142.40
27		94 Old Route 28	07753901	371,700	374,700	3,000	30	$ 12.00	$ 100	$ 112.00
28		60 Old Route 28	34157107	496,500	503,100	6,600	66	$ 26.40	$ 100	$ 126.40
29		31 Courthouse Sq	34157091	575,400	581,800	6,400	64	$ 25.60	$ 100	$ 125.60
30		105 Water Village Rd	34157118	1,064,100	1,081,600	17,500	175	$ 70.00	$ 100	$ 170.00
31		36 Granite Rd	12639637	1,010,500	1,026,100	15,600	156	$ 62.40	$ 100	$ 162.40
32		20 Old Route 28	71403149	2,400	4,900	2,500	25	$ 10.00	$ 100	$ 110.00
33		96 Water Village Rd	54640046	1,841,200	1,864,300	23,100	231	$ 92.40	$ 100	$ 192.40
34	No Billing	105 Old Route 28	52698946	356,400	361,300	4,900	49	$ -	$ -	$ -
35		20 Courthouse Sq	52197676	232,600	232,700	100	1	$ 0.40	$ 100	$ 100.40
36		95A Old Route 28	07771383	449,400	454,900	5,500	55	$ 22.00	$ 100	$ 122.00
37		95 Old Route 28	34157093	1,198,800	1,208,000	9,200	92	$ 36.80	$ 100	$ 136.80
38		115 Old Route 28	72371032	241,000	249,100	8,100	81	$ 32.40	$ 100	$ 132.40
39		31 Browns Ridge Rd	72151807	63,000	65,100	2,100	21	$ 8.40	$ 100	$ 108.40
40		35 Old Route 28	63525371	299,200	306,700	7,500	75	$ 30.00	$ 100	$ 130.00
41		5 Courthouse Sq	34157108	144,600	146,200	1,600	16	$ 6.40	$ 100	$ 106.40
42		23 Courthouse Sq	34157111	473,600	477,400	3,800	38	$ 15.20	$ 100	$ 115.20
43		90 Old Route 28	34157110	1,268,000	1,277,200	9,200	92	$ 36.80	$ 100	$ 136.80
44		19 Courthouse Sq	07763543	94,500	94,900	400	4	$ 1.60	$ 100	$ 101.60
45		25 Courthouse Sq	34157094	815,300	821,000	5,700	57	$ 22.80	$ 100	$ 122.80
46		19 Old Route 28	71403144	45,600	47,100	1,500	15	$ 6.00	$ 100	$ 106.00
47		12 Courthouse Sq	34157100	279,200	281,200	2,000	20	$ 8.00	$ 100	$ 108.00
48		75 Old Route 28	12639639	691,100	707,400	16,300	163	$ 65.20	$ 100	$ 165.20
		40 Granite Rd	12720317	785,700	793,700	8,000	80	$ 32.00	$ 100	$ 132.00
		9 Browns Ridge Rd	12639087	196,800	196,800	-	0	$ -	$ 100	$ 100.00
	customer gallons used					317,900	3179	$ 1,222.00	$ 4,700	$ 5,922.00
	Total Flow @ Reservoir pumped			32,678,200	34,269,300	1,591,100				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 6/30/2019	Current Reading 9/30/2019	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	980,500	1,002,800	22,300	223	$ 89.20	$ 100	$ 189.20
46		14 Courthouse Sq	34157099	451,900	457,800	5,900	59	$ 23.60	$ 100	$ 123.60
20		25 Old Route 28	12641267	873,400	879,300	5,900	59	$ 23.60	$ 100	$ 123.60
25		80 Old Route 28	34157116	928,000	934,500	6,500	65	$ 26.00	$ 100	$ 126.00
28		96 Old Route 28	34157095	348,900	349,300	400	4	$ 1.60	$ 100	$ 101.60
16		85 Old Route 28	34157113	67,100	75,500	8,400	84	$ 33.60	$ 100	$ 133.60
	NO Billing	65 County Farm Rd	12742015	233,000	241,000	8,000	80	$ -	$ -	$ -
15		93 Old Route 28	34157096	791,100	810,600	19,500	195	$ 78.00	$ 100	$ 178.00
32		25 Browns Ridge Rd	34157098	564,700	564,800	100	1	$ 0.40	$ 100	$ 100.40
	not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	572,100	579,200	7,100	71	$ 28.40	$ 100	$ 128.40
9		27 Courthouse Sq	34157089	605,200	625,400	20,200	202	$ 80.80	$ 100	$ 180.80
6		21 Courthouse Sq	12493674	364,800	378,400	13,600	136	$ 54.40	$ 100	$ 154.40
19		5 Emerson Rd	34157092	773,900	780,200	6,300	63	$ 25.20	$ 100	$ 125.20
43		24 Courthouse Sq	34157109	230,900	237,100	6,200	62	$ 24.80	$ 100	$ 124.80
33	new meter 7/30/19	27 Browns Ridge Rd	71972946	200	12,300	12,100	121	$ 48.40	$ 100	$ 148.40
48		10 Courthouse Sq	34157088	1,010,000	1,025,500	15,500	155	$ 62.00	$ 100	$ 162.00
24		70 Old Route 28	34157112	964,000	989,600	25,600	256	$ 102.40	$ 100	$ 202.40
41		41 Courthouse Sq	12639595	502,200	508,000	5,800	58	$ 23.20	$ 100	$ 123.20
29		26 Courthouse Sq	12710761	189,500	191,200	1,700	17	$ 6.80	$ 100	$ 106.80
45		16 Courthouse Sq	12723489	446,900	457,800	10,900	109	$ 43.60	$ 100	$ 143.60
30		1 Browns Ridge Rd	71973129	218,600	241,000	22,400	224	$ 89.60	$ 100	$ 189.60
38		45 Granite Rd	12617221	116,100	116,100	-	0	$ -	$ 100	$ 100.00
39		45 Granite Rd	12616992	88,600	88,600	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12620562	249,000	249,000	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,037,000	1,043,000	6,000	60	$ 24.00	$ 100	$ 124.00
27		94 Old Route 28	07753901	368,500	371,700	3,200	32	$ 12.80	$ 100	$ 112.80
23		60 Old Route 28	34157107	490,300	496,500	6,200	62	$ 24.80	$ 100	$ 124.80
11		31 Courthouse Sq	34157091	567,700	575,400	7,700	77	$ 30.80	$ 100	$ 130.80
1		105 Water Village Rd	34157118	1,042,400	1,064,100	21,700	217	$ 86.80	$ 100	$ 186.80
36		36 Granite Rd	12639637	993,100	1,010,500	17,400	174	$ 69.60	$ 100	$ 169.60
22		20 Old Route 28	71403149	2,100	2,400	300	3	$ 1.20	$ 100	$ 101.20
2		96 Water Village Rd	54640046	1,818,400	1,841,200	22,800	228	$ 91.20	$ 100	$ 191.20
12	No Billing	105 Old Route 28	52698946	349,900	356,400	6,500	65	$ -	$ -	$ -
44		20 Courthouse Sq	52197676	232,500	232,600	100	1	$ 0.40	$ 100	$ 100.40
14		95A Old Route 28	07771383	441,700	449,400	7,700	77	$ 30.80	$ 100	$ 130.80
13		95 Old Route 28	34157093	1,188,800	1,198,800	10,000	100	$ 40.00	$ 100	$ 140.00
42		115 Old Route 28	72371032	218,500	241,000	22,500	225	$ 90.00	$ 100	$ 190.00
34		31 Browns Ridge Rd	72151807	61,000	63,000	2,000	20	$ 8.00	$ 100	$ 108.00
18		35 Old Route 28	63525371	278,600	299,200	20,600	206	$ 82.40	$ 100	$ 182.40
3		5 Courthouse Sq	34157108	142,600	144,600	2,000	20	$ 8.00	$ 100	$ 108.00
7		23 Courthouse Sq	34157111	468,600	473,600	5,000	50	$ 20.00	$ 100	$ 120.00
26		90 Old Route 28	34157110	1,260,600	1,268,000	7,400	74	$ 29.60	$ 100	$ 129.60
4		19 Courthouse Sq	07763543	94,000	94,500	500	5	$ 2.00	$ 100	$ 102.00
8		25 Courthouse Sq	34157094	810,100	815,300	5,200	52	$ 20.80	$ 100	$ 120.80
21		19 Old Route 28	71403144	44,000	45,600	1,600	16	$ 6.40	$ 100	$ 106.40
47		12 Courthouse Sq	34157100	275,900	279,200	3,300	33	$ 13.20	$ 100	$ 113.20
17		75 Old Route 28	12639639	675,900	691,100	15,200	152	$ 60.80	$ 100	$ 160.80
37		40 Granite Rd	12720317	778,700	785,700	7,000	70	$ 28.00	$ 100	$ 128.00
31		9 Browns Ridge Rd	12639087	196,400	196,800	400	4	$ 1.60	$ 100	$ 101.60
	customer gallons used					426,700	4267	$ 1,648.80	$ 4,700	$ 6,348.80
	Total Flow @ Reservoir pumped			30,870,676	32,678,200	1,807,524				

as of sept 30 the #1
infront of the reservoir # per will

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 4/1/2019	Current Reading 6/30/2019	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
35		30 Browns Ridge Rd	12680426	960,300	980,500	20,200	202	$ 80.80	$ 100	$ 180.80
46		14 Courthouse Sq	34157099	446,100	451,900	5,800	58	$ 23.20	$ 100	$ 123.20
20		25 Old Route 28	12641267	867,100	873,400	6,300	63	$ 25.20	$ 100	$ 125.20
25		80 Old Route 28	34157116	919,900	928,000	8,100	81	$ 32.40	$ 100	$ 132.40
28		96 Old Route 28	34157095	345,600	348,900	3,300	33	$ 13.20	$ 100	$ 113.20
16		85 Old Route 28	34157113	65,200	67,100	1,900	19	$ 7.60	$ 100	$ 107.60
	NO Billing	65 County Farm Rd	12742015	226,000	233,000	7,000	70	$ -	$ -	$ -
15		93 Old Route 28	34157096	777,900	791,100	13,200	132	$ 52.80	$ 100	$ 152.80
32		25 Browns Ridge Rd	34157098	564,700	564,700	-	0	$ -	$ 100	$ 100.00
	not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	564,000	572,100	8,100	81	$ 32.40	$ 100	$ 132.40
9		27 Courthouse Sq	34157089	598,200	605,200	7,000	70	$ 28.00	$ 100	$ 128.00
6		21 Courthouse Sq	12493674	351,200	364,800	13,600	136	$ 54.40	$ 100	$ 154.40
19		5 Emerson Rd	34157092	766,100	773,900	7,800	78	$ 31.20	$ 100	$ 131.20
43		24 Courthouse Sq	34157109	230,200	230,900	700	7	$ 2.80	$ 100	$ 102.80
33	has to have even 100 at end	27 Browns Ridge Rd	62142731	69,200	72,600	3,400	34	$ 13.60	$ 100	$ 113.60
48		10 Courthouse Sq	34157088	996,500	1,010,000	13,500	135	$ 54.00	$ 100	$ 154.00
24		70 Old Route 28	34157112	954,400	964,000	9,600	96	$ 38.40	$ 100	$ 138.40
41		41 Courthouse Sq	12639595	495,400	502,200	6,800	68	$ 27.20	$ 100	$ 127.20
29		26 Courthouse Sq	12710761	189,200	189,500	300	3	$ 1.20	$ 100	$ 101.20
45		16 Courthouse Sq	12723489	442,400	446,900	4,500	45	$ 18.00	$ 100	$ 118.00
30		1 Browns Ridge Rd	71973129	212,100	218,600	6,500	65	$ 26.00	$ 100	$ 126.00
38		45 Granite Rd	12617221	116,000	116,100	100	1	$ 0.40	$ 100	$ 100.40
39		45 Granite Rd	12616992	88,600	88,600	-	0	$ -	$ 100	$ 100.00
40		45 Granite Rd	12620562	249,000	249,000	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	1,026,500	1,037,000	10,500	105	$ 42.00	$ 100	$ 142.00
27		94 Old Route 28	07753901	365,100	368,500	3,400	34	$ 13.60	$ 100	$ 113.60
23		60 Old Route 28	34157107	484,100	490,300	6,200	62	$ 24.80	$ 100	$ 124.80
11		31 Courthouse Sq	34157091	561,900	567,700	5,800	58	$ 23.20	$ 100	$ 123.20
1		105 Water Village Rd	34157118	1,024,400	1,042,400	18,000	180	$ 72.00	$ 100	$ 172.00
36		36 Granite Rd	12639637	977,700	993,100	15,400	154	$ 61.60	$ 100	$ 161.60
22		20 Old Route 28	71403149	1,900	2,100	200	2	$ 0.80	$ 100	$ 100.80
2		96 Water Village Rd	54640046	1,792,100	1,818,400	26,300	263	$ 105.20	$ 100	$ 205.20
12	No Billing	105 Old Route 28	52698946	340,100	349,900	9,800	98	$ -	$ -	$ -
44		20 Courthouse Sq	52197676	231,500	232,500	1,000	10	$ 4.00	$ 100	$ 104.00
14		95A Old Route 28	07771383	434,900	441,700	6,800	68	$ 27.20	$ 100	$ 127.20
13		95 Old Route 28	34157093	1,177,700	1,188,800	11,100	111	$ 44.40	$ 100	$ 144.40
42		115 Old Route 28	72371032	213,400	218,500	5,100	51	$ 20.40	$ 100	$ 120.40
34		31 Browns Ridge Rd	72151807	59,900	61,000	1,100	11	$ 4.40	$ 100	$ 104.40
18		35 Old Route 28	63525371	267,100	278,600	11,500	115	$ 46.00	$ 100	$ 146.00
3		5 Courthouse Sq	34157108	140,400	142,600	2,200	22	$ 8.80	$ 100	$ 108.80
7		23 Courthouse Sq	34157111	464,200	468,600	4,400	44	$ 17.60	$ 100	$ 117.60
26		90 Old Route 28	34157110	1,243,000	1,260,600	17,600	176	$ 70.40	$ 100	$ 170.40
4		19 Courthouse Sq	07763543	93,500	94,000	500	5	$ 2.00	$ 100	$ 102.00
8		25 Courthouse Sq	34157094	804,100	810,100	6,000	60	$ 24.00	$ 100	$ 124.00
21		19 Old Route 28	71403144	42,200	44,000	1,800	18	$ 7.20	$ 100	$ 107.20
47		12 Courthouse Sq	34157100	269,500	275,900	6,400	64	$ 25.60	$ 100	$ 125.60
17		75 Old Route 28	12639639	655,500	675,900	20,400	204	$ 81.60	$ 100	$ 181.60
37		40 Granite Rd	12720317	772,100	778,700	6,600	66	$ 26.40	$ 100	$ 126.40
31		9 Browns Ridge Rd	12639087	195,400	196,400	1,000	10	$ 4.00	$ 100	$ 104.00
	customer gallons used					346,800	3468	$ 1,320.00	$ 4,700	$ 6,020.00
	Total Flow @ Reservoir pumped			129,111,147	130,870,676	1,759,529				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 12/31/2018	Current Reading 4/1/2019	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
34		30 Browns Ridge Rd	12680426	945,500	960,300	14,800	148	$ 59.20	$ 100	$ 159.20
45		14 Courthouse Sq	34157099	440,900	446,100	5,200	52	$ 20.80	$ 100	$ 120.80
20		25 Old Route 28	12641267	860,300	867,100	6,800	68	$ 27.20	$ 100	$ 127.20
24		80 Old Route 28	34157116	912,200	919,900	7,700	77	$ 30.80	$ 100	$ 130.80
27		96 Old Route 28	34157095	340,500	345,600	5,100	51	$ 20.40	$ 100	$ 120.40
16		85 Old Route 28	34157113	65,200	65,200	-	0	$ -	$ 100	$ 100.00
	NO Billing	65 County Farm Rd	12742015	225,100	226,000	900	9	$ -	$ -	$ -
15		93 Old Route 28	34157096	772,100	777,900	5,800	58	$ 23.20	$ 100	$ 123.20
31		25 Browns Ridge Rd	34157098	564,700	564,700	-	0	$ -	$ 100	$ 100.00
	not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	555,800	564,000	8,200	82	$ 32.80	$ 100	$ 132.80
9		27 Courthouse Sq	34157089	592,300	598,200	5,900	59	$ 23.60	$ 100	$ 123.60
6		21 Courthouse Sq	12493674	344,700	351,200	6,500	65	$ 26.00	$ 100	$ 126.00
19		5 Emerson Rd	34157092	759,300	766,900	7,600	76	$ 30.40	$ 100	$ 130.40
42		24 Courthouse Sq	34157109	227,700	230,200	2,500	25	$ 10.00	$ 100	$ 110.00
32	has to have even 100 at end	27 Browns Ridge Rd	62142731	65,800	69,200	3,400	34	$ 13.60	$ 100	$ 113.60
47		10 Courthouse Sq	34157088	983,700	996,500	12,800	128	$ 51.20	$ 100	$ 151.20
23		70 Old Route 28	34157112	947,800	954,400	6,600	66	$ 26.40	$ 100	$ 126.40
40		41 Courthouse Sq	12639595	487,800	495,400	7,600	76	$ 30.40	$ 100	$ 130.40
28		26 Courthouse Sq	12710761	188,900	189,200	300	3	$ 1.20	$ 100	$ 101.20
44		16 Courthouse Sq	12723489	439,000	442,400	3,400	34	$ 13.60	$ 100	$ 113.60
29		1 Browns Ridge Rd	71973129	206,900	212,100	5,200	52	$ 20.80	$ 100	$ 120.80
37		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
38		45 Granite Rd	12616992	88,600	88,600	-	0	$ -	$ 100	$ 100.00
39		45 Granite Rd	12620562	249,000	249,100	100	1	$ 0.40	$ 100	$ 100.40
5		15 Courthouse Sq	34157117	1,001,600	1,026,500	24,900	249	$ 99.60	$ 100	$ 199.60
26		94 Old Route 28	07753901	361,900	365,100	3,200	32	$ 12.80	$ 100	$ 112.80
22		60 Old Route 28	34157107	479,100	484,100	5,000	50	$ 20.00	$ 100	$ 120.00
11		31 Courthouse Sq	34157091	558,400	561,900	3,500	35	$ 14.00	$ 100	$ 114.00
1		105 Water Village Rd	34157118	1,001,400	1,024,400	23,000	230	$ 92.00	$ 100	$ 192.00
35		36 Granite Rd	12639637	961,700	977,700	16,000	160	$ 64.00	$ 100	$ 164.00
		20 Old Route 28	71403149	800	1,900	1,100	11	$ 4.40	$ 100	$ 104.40
2		96 Water Village Rd	54640046	1,769,800	1,792,100	22,300	223	$ 89.20	$ 100	$ 189.20
12	Fire Dept	105 Old Route 28	52698946	336,400	340,100	3,700	37	$ -	$ -	$ -
43		20 Courthouse Sq	52197676	231,400	231,500	100	1	$ 0.40	$ 100	$ 100.40
14		95A Old Route 28	07771383	428,900	434,900	6,000	60	$ 24.00	$ 100	$ 124.00
13		95 Old Route 28	34157093	1,166,300	1,177,700	11,400	114	$ 45.60	$ 100	$ 145.60
41		115 Old Route 28	72371032	207,100	213,400	6,300	63	$ 25.20	$ 100	$ 125.20
33		31 Browns Ridge Rd	72151807	59,900	59,900	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	258,200	267,100	8,900	89	$ 35.60	$ 100	$ 135.60
3		5 Courthouse Sq	34157108	138,500	140,400	1,900	19	$ 7.60	$ 100	$ 107.60
7		23 Courthouse Sq	34157111	460,200	464,200	4,000	40	$ 16.00	$ 100	$ 116.00
25		90 Old Route 28	34157110	1,218,700	1,243,000	24,300	243	$ 97.20	$ 100	$ 197.20
4		19 Courthouse Sq	07763543	93,200	93,500	300	3	$ 1.20	$ 100	$ 101.20
8		25 Courthouse Sq	34157094	798,100	804,100	6,000	60	$ 24.00	$ 100	$ 124.00
21		19 Old Route 28	71403144	40,100	42,200	2,100	21	$ 8.40	$ 100	$ 108.40
46		12 Courthouse Sq	34157100	269,500	269,500	-	0	$ -	$ 100	$ 100.00
17		75 Old Route 28	12639639	634,100	655,500	21,400	214	$ 85.60	$ 100	$ 185.60
36		40 Granite Rd	12720317	762,600	772,100	9,500	95	$ 38.00	$ 100	$ 138.00
30		9 Browns Ridge Rd	12639087	195,400	195,400	-	0	$ -	$ 100	$ 100.00
	customer gallons used					321,300	3213	$ 1,266.80	$ 4,700	$ 5,966.80
	Total Flow @ Reservoir pumped			127,305,195	129,111,147	1,805,952				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 9/30/2018	Current Reading 12/31/2018	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
24		30 Browns Ridge Rd	12680426	927,500	945,500	18,000	180	$ 72.00	$ 100	$ 172.00
14		14 Courthouse Sq	34157099	435,800	440,900	5,100	51	$ 20.40	$ 100	$ 120.40
41		25 Old Route 28	12641267	854,000	860,300	6,300	63	$ 25.20	$ 100	$ 125.20
45		80 Old Route 28	34157116	902,400	912,200	9,800	98	$ 39.20	$ 100	$ 139.20
48		96 Old Route 28	34157095	335,200	340,500	5,300	53	$ 21.20	$ 100	$ 121.20
37		85 Old Route 28	34157113	64,400	65,200	800	8	$ 3.20	$ 100	$ 103.20
3	*NO Billing*	65 County Farm Rd	12742015	220,900	225,100	4,200	42	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	564,700	564,700	-	0	$ -	$ 100	$ 100.00
25	not activated		34157097				0	$ -	$ -	$ -
11		20 Old Route 28	71403149	0	800	800	8	$ 3.20	$ 100	$ 103.20
10		29 Courthouse Sq	34157090	548,700	555,800	7,100	71	$ 28.40	$ 100	$ 128.40
7		27 Courthouse Sq	34157089	580,100	592,300	12,200	122	$ 48.80	$ 100	$ 148.80
40		21 Courthouse Sq	12493674	339,100	344,700	5,600	56	$ 22.40	$ 100	$ 122.40
17		5 Emerson Rd	34157092	751,600	759,300	7,700	77	$ 30.80	$ 100	$ 130.80
19		24 Courthouse Sq	34157109	227,400	227,700	300	3	$ 1.20	$ 100	$ 101.20
22		1 Browns Ridge Rd	71973129	206,900	206,900	-	0	$ -	$ 100	$ 100.00
12	has to have even 100 at end	27 Browns Ridge Rd	62142731	52,700	65,800	13,100	131	$ 52.40	$ 100	$ 152.40
44		10 Courthouse Sq	34157088	974,300	983,700	9,400	94	$ 37.60	$ 100	$ 137.60
31		70 Old Route 28	34157112	939,300	947,800	8,500	85	$ 34.00	$ 100	$ 134.00
18		41 Courthouse Sq	12639595	481,600	487,800	6,200	62	$ 24.80	$ 100	$ 124.80
15		26 Courthouse Sq	12710761	188,600	188,900	300	3	$ 1.20	$ 100	$ 101.20
29		16 Courthouse Sq	12723489	433,800	439,000	5,200	52	$ 20.80	$ 100	$ 120.80
28		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
30		45 Granite Rd	12616992	88,500	88,600	100	1	$ 0.40	$ 100	$ 100.40
5		45 Granite Rd	12620562	248,900	249,000	100	1	$ 0.40	$ 100	$ 100.40
36		15 Courthouse Sq	34157117	999,800	1,001,600	1,800	18	$ 7.20	$ 100	$ 107.20
47		93 Old Route 28	34157096	767,000	772,100	5,100	51	$ 20.40	$ 100	$ 120.40
43		94 Old Route 28	07753901	358,900	361,900	3,000	30	$ 12.00	$ 100	$ 112.00
49		60 Old Route 28	34157107	474,400	479,100	4,700	47	$ 18.80	$ 100	$ 118.80
2		31 Courthouse Sq	34157091	552,800	558,400	5,600	56	$ 22.40	$ 100	$ 122.40
27		105 Water Village Rd	34157118	989,400	1,001,400	12,000	120	$ 48.00	$ 100	$ 148.00
26		36 Granite Rd	12639637	946,900	961,700	14,800	148	$ 59.20	$ 100	$ 159.20
1		96 Water Village Rd	54640046	1,748,100	1,769,800	21,700	217	$ 86.80	$ 100	$ 186.80
33	Fire Dept - **No Billing**	105 Old Route 28	52698946	333,800	336,400	2,600	26			$ -
16		20 Courthouse Sq	52197676	231,300	231,400	100	1	$ 0.40	$ 100	$ 100.40
35		95A Old Route 28	07771383	421,600	428,900	7,300	73	$ 29.20	$ 100	$ 129.20
34		95 Old Route 28	34157093	1,155,600	1,166,300	10,700	107	$ 42.80	$ 100	$ 142.80
32		115 Old Route 28	72371032	185,300	207,100	21,800	218	$ 87.20	$ 100	$ 187.20
23		31 Browns Ridge Rd	72151807	59,200	59,900	700	7	$ 2.80	$ 100	$ 102.80
39		35 Old Route 28	63525371	251,200	258,200	7,000	70	$ 28.00	$ 100	$ 128.00
4		5 Courthouse Sq	34157108	136,700	138,500	1,800	18	$ 7.20	$ 100	$ 107.20
8		23 Courthouse Sq	34157111	456,300	460,200	3,900	39	$ 15.60	$ 100	$ 115.60
46		90 Old Route 28	34157110	1,195,400	1,218,700	23,300	233	$ 93.20	$ 100	$ 193.20
6		19 Courthouse Sq	07763543	92,700	93,200	500	5	$ 2.00	$ 100	$ 102.00
9		25 Courthouse Sq	34157094	793,000	798,100	5,100	51	$ 20.40	$ 100	$ 120.40
42		19 Old Route 28	71403144	38,000	40,100	2,100	21	$ 8.40	$ 100	$ 108.40
13		12 Courthouse Sq	34157100	266,700	269,500	2,800	28	$ 11.20	$ 100	$ 111.20
38		75 Old Route 28	12639639	612,000	634,100	22,100	221	$ 88.40	$ 100	$ 188.40
20		40 Granite Rd	12720317	754,900	762,600	7,700	77	$ 30.80	$ 100	$ 130.80
		9 Browns Ridge Rd	12639087	195,400	195,400	-	0	$ -	$ 100	$ 100.00
	customer gallons used					314,300	*3143*	$ 1,230.00	$ 4,700	$ 5,930.00
	Total Flow @ Reservoir pumped			125,728,050	127,305,195	1,577,145				

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RT #	Customer	Meter Address	Meter ID #	Previous 6/29/2018	Current Reading 9/30/2018	Estimate USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
	Carroll County Water Dept - Meter Route									
24		30 Browns Ridge Rd	12680426	904,000	927,500	23,500	235.0	$ 94.00	$ 100	$ 194.00
14		14 Courthouse Sq	34157099	429,900	435,800	5,900	59.0	$ 23.60	$ 100	$ 123.60
41		25 Old Route 28	12641267	844,800	854,000	9,200	92.0	$ 36.80	$ 100	$ 136.80
45		80 Old Route 28	34157116	892,200	902,400	10,200	102.0	$ 40.80	$ 100	$ 140.80
48		96 Old Route 28	34157095	330,400	335,200	4,800	48.0	$ 19.20	$ 100	$ 119.20
37		85 Old Route 28	34157113	63,400	64,400	1,000	10.0	$ 4.00	$ 100	$ 104.00
3	- *NO Billing*	65 County Farm Rd	12742015	214,000	220,900	6,900	69.0	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	564,600	564,700	100	1.0	$ 0.40	$ 100	$ 100.40
25	not activated		34157097				0.0	$ -		$ -
11	no Q3 charge	20 Old Route 28	71403149			-	0.0	$ -	$ 100	$ 100.00
10		29 Courthouse Sq	34157090	540,300	548,700	8,400	84.0	$ 33.60	$ 100	$ 133.60
7		27 Courthouse Sq	34157089	564,400	580,100	15,700	157.0	$ 62.80	$ 100	$ 162.80
40		21 Courthouse Sq	12493674	313,300	339,100	25,800	258.0	$ 103.20	$ 100	$ 203.20
17		5 Emerson Rd	34157092	744,200	751,600	7,400	74.0	$ 29.60	$ 100	$ 129.60
19		24 Courthouse Sq	34157109	222,700	227,400	4,700	47.0	$ 18.80	$ 100	$ 118.80
22		1 Browns Ridge Rd	71973129	206,800	206,900	100	1.0	$ 0.40	$ 100	$ 100.40
12	has to have even 100 at end	27 Browns Ridge Rd	62142731	52,200	52,700	500	5.0	$ 2.00	$ 100	$ 102.00
44		10 Courthouse Sq	34157088	966,100	974,300	8,200	82.0	$ 32.80	$ 100	$ 132.80
31		70 Old Route 28	34157112	920,800	939,300	18,500	185.0	$ 74.00	$ 100	$ 174.00
18		41 Courthouse Sq	12639595	471,800	481,600	9,800	98.0	$ 39.20	$ 100	$ 139.20
15		26 Courthouse Sq	12710761	188,100	188,600	500	5.0	$ 2.00	$ 100	$ 102.00
29		16 Courthouse Sq	12723489	419,600	433,800	14,200	142.0	$ 56.80	$ 100	$ 156.80
28		45 Granite Rd	12617221	116,000	116,000	-	0.0	$ -	$ 100	$ 100.00
30		45 Granite Rd	12616992	88,500	88,500	-	0.0	$ -	$ 100	$ 100.00
5		45 Granite Rd	12620562	248,900	248,900	-	0.0	$ -	$ 100	$ 100.00
36		15 Courthouse Sq	34157117	989,200	999,800	10,600	106.0	$ 42.40	$ 100	$ 142.40
47		93 Old Route 28	34157096	747,500	767,000	19,500	195.0	$ 78.00	$ 100	$ 178.00
43		94 Old Route 28	07753901	353,300	358,900	5,600	56.0	$ 22.40	$ 100	$ 122.40
49		60 Old Route 28	34157107	469,200	474,400	5,200	52.0	$ 20.80	$ 100	$ 120.80
2		31 Courthouse Sq	34157091	546,700	552,800	6,100	61.0	$ 24.40	$ 100	$ 124.40
27		105 Water Village Rd	34157118	978,100	989,400	11,300	113.0	$ 45.20	$ 100	$ 145.20
26		36 Granite Rd	12639637	930,500	946,900	16,400	164.0	$ 65.60	$ 100	$ 165.60
1		96 Water Village Rd	54640046	1,724,700	1,748,100	23,400	234.0	$ 93.60	$ 100	$ 193.60
33	Fire Dept -	105 Old Route 28	52698946	328,600	333,800	5,200	52.0	$ 20.80	$ 100	$ 120.80
16		20 Courthouse Sq	52197676	231,100	231,300	200	2.0	$ 0.80	$ 100	$ 100.80
35		95A Old Route 28	07771383	412,100	421,600	9,500	95.0	$ 38.00	$ 100	$ 138.00
34		95 Old Route 28	34157093	1,143,400	1,155,600	12,200	122.0	$ 48.80	$ 100	$ 148.80
32		115 Old Route 28	72371032	178,900	185,300	6,400	64.0	$ 25.60	$ 100	$ 125.60
23		31 Browns Ridge Rd	72151807	54,600	59,200	4,600	46.0	$ 18.40	$ 100	$ 118.40
39		35 Old Route 28	63525371	233,100	251,200	18,100	181.0	$ 72.40	$ 100	$ 172.40
4		5 Courthouse Sq	34157108	134,400	136,700	2,300	23.0	$ 9.20	$ 100	$ 109.20
8		23 Courthouse Sq	34157111	452,100	456,300	4,200	42.0	$ 16.80	$ 100	$ 116.80
46		90 Old Route 28	34157110	1,172,700	1,195,400	22,700	227.0	$ 90.80	$ 100	$ 190.80
6		19 Courthouse Sq	07763543	92,200	92,700	500	5.0	$ 2.00	$ 100	$ 102.00
9		25 Courthouse Sq	34157094	787,500	793,000	5,500	55.0	$ 22.00	$ 100	$ 122.00
42		19 Old Route 28	71403144	35,800	38,000	2,200	22.0	$ 8.80	$ 100	$ 108.80
13		12 Courthouse Sq	34157100	264,200	266,700	2,500	25.0	$ 10.00	$ 100	$ 110.00
38		75 Old Route 28	12639639	566,400	612,000	45,600	456.0	$ 182.40	$ 100	$ 282.40
20		40 Granite Rd	12720317	747,000	754,900	7,900	79.0	$ 31.60	$ 100	$ 131.60
		9 Browns Ridge Rd	12639087	194,900	195,400	500	5.0	$ 2.00	$ 100	$ 102.00
	customer gallons used					423,100		$ 1,664.80	$ 4,700	$ 6,364.80
	Total Flow @ Reservoir pumped			123,824,090	125,728,050	1,903,960				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 3/28/2018	Current Reading 6/29/2018	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
34		30 Browns Ridge Rd	12680426	885,900	904,000	18,100	181	$ 72.40	$ 100	$ 172.40
45		14 Courthouse Sq	34157099	424,300	429,900	5,600	56	$ 22.40	$ 100	$ 122.40
20		25 Old Route 28	12641267	837,700	844,800	7,100	71	$ 28.40	$ 100	$ 128.40
24		80 Old Route 28	34157116	881,800	892,200	10,400	104	$ 41.60	$ 100	$ 141.60
27		96 Old Route 28	34157095	325,800	330,400	4,600	46	$ 18.40	$ 100	$ 118.40
16		85 Old Route 28	34157113	61,800	63,400	1,600	16	$ 6.40	$ 100	$ 106.40
	NO Billing	65 County Farm Rd	12742015	205,700	214,000	8,300	83	$ -	$ -	$ -
31		25 Browns Ridge Rd	34157098	559,200	564,600	5,400	54	$ 21.60	$ 100	$ 121.60
	not activated		34157097	0	0	-	0	$ -		$ -
10		29 Courthouse Sq	34157090	533,200	540,300	7,100	71	$ 28.40	$ 100	$ 128.40
9		27 Courthouse Sq	34157089	555,100	564,400	9,300	93	$ 37.20	$ 100	$ 137.20
6		21 Courthouse Sq	12493674	291,600	313,300	21,700	217	$ 86.80	$ 100	$ 186.80
19		5 Emerson Rd	34157092	737,000	744,200	7,200	72	$ 28.80	$ 100	$ 128.80
42		24 Courthouse Sq	34157109	222,700	222,700	-	0	$ -	$ 100	$ 100.00
29		1 Browns Ridge Rd	71973129	205,500	206,800	1,300	13	$ 5.20	$ 100	$ 105.20
32	has to have even 100 at end	27 Browns Ridge Rd	62142731	43,500	52,200	8,700	87	$ 34.80	$ 100	$ 134.80
47		10 Courthouse Sq	34157088	936,500	966,100	29,600	296	$ 118.40	$ 100	$ 218.40
23		70 Old Route 28	34157112	907,000	920,800	13,800	138	$ 55.20	$ 100	$ 155.20
40		41 Courthouse Sq	12639595	463,100	471,800	8,700	87	$ 34.80	$ 100	$ 134.80
28		26 Courthouse Sq	12710761	187,600	188,100	500	5	$ 2.00	$ 100	$ 102.00
44		16 Courthouse Sq	12723489	400,500	419,600	19,100	191	$ 76.40	$ 100	$ 176.40
37		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
38		45 Granite Rd	12616992	88,500	88,500	-	0	$ -	$ 100	$ 100.00
39		45 Granite Rd	12620562	248,800	248,900	100	1	$ 0.40	$ 100	$ 100.40
5		15 Courthouse Sq	34157117	976,600	989,200	12,600	126	$ 50.40	$ 100	$ 150.40
15		93 Old Route 28	34157096	733,800	747,500	13,700	137	$ 54.80	$ 100	$ 154.80
26		94 Old Route 28	07753901	348,900	353,300	4,400	44	$ 17.60	$ 100	$ 117.60
22		60 Old Route 28	34157107	463,700	469,200	5,500	55	$ 22.00	$ 100	$ 122.00
11		31 Courthouse Sq	34157091	543,000	546,700	3,700	37	$ 14.80	$ 100	$ 114.80
1		105 Water Village Rd	34157118	967,400	978,100	10,700	107	$ 42.80	$ 100	$ 142.80
35		36 Granite Rd	12639637	915,200	930,500	15,300	153	$ 61.20	$ 100	$ 161.20
2		96 Water Village Rd	54640046	1,676,100	1,724,700	48,600	486	$ 194.40	$ 100	$ 294.40
12	Fire Dept	105 Old Route 28	52698946	319,400	328,600	9,200	92	$ -	$ -	$ -
43		20 Courthouse Sq	52197676	230,000	231,100	1,100	11	$ 4.40	$ 100	$ 104.40
14		95A Old Route 28	07771383	406,500	412,100	5,600	56	$ 22.40	$ 100	$ 122.40
13		95 Old Route 28	34157093	1,131,500	1,143,400	11,900	119	$ 47.60	$ 100	$ 147.60
41		115 Old Route 28	72371032	166,100	178,900	12,800	128	$ 51.20	$ 100	$ 151.20
33		31 Browns Ridge Rd	72151807	53,700	54,600	900	9	$ 3.60	$ 100	$ 103.60
18		35 Old Route 28	63525371	211,900	233,100	21,200	212	$ 84.80	$ 100	$ 184.80
3		5 Courthouse Sq	34157108	132,200	134,400	2,200	22	$ 8.80	$ 100	$ 108.80
7		23 Courthouse Sq	34157111	448,200	452,100	3,900	39	$ 15.60	$ 100	$ 115.60
25		90 Old Route 28	34157110	1,150,300	1,172,700	22,400	224	$ 89.60	$ 100	$ 189.60
4		19 Courthouse Sq	07763543	91,700	92,200	500	5	$ 2.00	$ 100	$ 102.00
8		25 Courthouse Sq	34157094	781,800	787,500	5,700	57	$ 22.80	$ 100	$ 122.80
21		19 Old Route 28	71403144	34,000	35,800	1,800	18	$ 7.20	$ 100	$ 107.20
46		12 Courthouse Sq	34157100	258,000	264,200	6,200	62	$ 24.80	$ 100	$ 124.80
17		75 Old Route 28	12639639	546,000	566,400	20,400	204	$ 81.60	$ 100	$ 181.60
36		40 Granite Rd	12720317	745,400	747,000	1,600	16	$ 6.40	$ 100	$ 106.40
30		9 Browns Ridge Rd	12639087	193,000	194,900	1,900	19	$ 7.60	$ 100	$ 107.60
	customer gallons used					432,000		$ 1,658.00	$ 4,600	$ 6,258.00
	Total Flow @ Reservoir pumped			121,816,737	123,824,090	2,007,353				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 12/29/2017	Current Reading 3/28/2018	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
34		30 Browns Ridge Rd	12680426	874,600	885,900	11,300	113	$ 45.20	$ 100	$ 145.20
45		14 Courthouse Sq	34157099	419,400	424,300	4,900	49	$ 19.60	$ 100	$ 119.60
20		25 Old Route 28	12641267	832,200	837,700	5,500	55	$ 22.00	$ 100	$ 122.00
24		80 Old Route 28	34157116	872,200	881,800	9,600	96	$ 38.40	$ 100	$ 138.40
27		96 Old Route 28	34157095	321,700	325,800	4,100	41	$ 16.40	$ 100	$ 116.40
16		85 Old Route 28	34157113	61,800	61,800	-	0	$ -	$ 100	$ 100.00
	NO Billing	65 County Farm Rd	12742015	205,700	205,700	-	0	$ -	$ -	$ -
31		25 Browns Ridge Rd	34157098	553,700	559,200	5,500	55	$ 22.00	$ 100	$ 122.00
	not activated		34157097				0	$ -		$ -
10		29 Courthouse Sq	34157090	527,100	533,200	6,100	61	$ 24.40	$ 100	$ 124.40
9		27 Courthouse Sq	34157089	544,600	555,100	10,500	105	$ 42.00	$ 100	$ 142.00
6		21 Courthouse Sq	12493674	289,900	291,600	1,700	17	$ 6.80	$ 100	$ 106.80
19		5 Emerson Rd	34157092	729,700	737,000	7,300	73	$ 29.20	$ 100	$ 129.20
42		24 Courthouse Sq	34157109	222,100	222,700	600	6	$ 2.40	$ 100	$ 102.40
29		1 Browns Ridge Rd	71973129	204,600	205,500	900	9	$ 3.60	$ 100	$ 103.60
32	has to have even 100 at end	27 Browns Ridge Rd	62142731	40,100	43,500	3,400	34	$ 13.60	$ 100	$ 113.60
47		10 Courthouse Sq	34157088	930,300	936,500	6,200	62	$ 24.80	$ 100	$ 124.80
23		70 Old Route 28	34157112	899,900	907,000	7,100	71	$ 28.40	$ 100	$ 128.40
40		41 Courthouse Sq	12639595	456,000	463,100	7,100	71	$ 28.40	$ 100	$ 128.40
28		26 Courthouse Sq	12710761	178,500	187,600	9,100	91	$ 36.40	$ 100	$ 136.40
44		16 Courthouse Sq	12723489	399,400	400,500	1,100	11	$ 4.40	$ 100	$ 104.40
37		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
38		45 Granite Rd	12616992	88,500	88,500	-	0	$ -	$ 100	$ 100.00
39		45 Granite Rd	12620562	248,800	248,800	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	970,200	976,600	6,400	64	$ 25.60	$ 100	$ 125.60
15		93 Old Route 28	34157096	723,500	733,800	10,300	103	$ 41.20	$ 100	$ 141.20
26		94 Old Route 28	07753901	345,300	348,900	3,600	36	$ 14.40	$ 100	$ 114.40
22		60 Old Route 28	34157107	463,100	463,700	600	6	$ 2.40	$ 100	$ 102.40
11		31 Courthouse Sq	34157091	538,200	543,000	4,800	48	$ 19.20	$ 100	$ 119.20
1		105 Water Village Rd	34157118	959,600	967,400	7,800	78	$ 31.20	$ 100	$ 131.20
35		36 Granite Rd	12639637	900,900	915,200	14,300	143	$ 57.20	$ 100	$ 157.20
2		96 Water Village Rd	54640046	1,647,500	1,676,100	28,600	286	$ 114.40	$ 100	$ 214.40
12	No Billing	105 Old Route 28	52698946	315,100	319,400	4,300	43	$ -	$ -	$ -
43		20 Courthouse Sq	52197676	229,900	230,000	100	1	$ 0.40	$ 100	$ 100.40
14		95A Old Route 28	07771383	401,800	406,500	4,700	47	$ 18.80	$ 100	$ 118.80
13		95 Old Route 28	34157093	1,119,700	1,131,500	11,800	118	$ 47.20	$ 100	$ 147.20
41		115 Old Route 28	72371032	110,800	166,100	55,300	553	$ 221.20	$ 100	$ 321.20
33		31 Browns Ridge Rd	72151807	53,700	53,700	-	0	$ -	$ 100	$ 100.00
18		35 Old Route 28	63525371	204,300	211,900	7,600	76	$ 30.40	$ 100	$ 130.40
3		5 Courthouse Sq	34157108	130,500	132,200	1,700	17	$ 6.80	$ 100	$ 106.80
7		23 Courthouse Sq	34157111	443,700	448,200	4,500	45	$ 18.00	$ 100	$ 118.00
25		90 Old Route 28	34157110	1,129,500	1,150,300	20,800	208	$ 83.20	$ 100	$ 183.20
4		19 Courthouse Sq	07763543	91,400	91,700	300	3	$ 1.20	$ 100	$ 101.20
8		25 Courthouse Sq	34157094	776,400	781,800	5,400	54	$ 21.60	$ 100	$ 121.60
21		19 Old Route 28	71403144	32,300	34,000	1,700	17	$ 6.80	$ 100	$ 106.80
46		12 Courthouse Sq	34157100	258,000	258,000	-	0	$ -	$ 100	$ 100.00
17		75 Old Route 28	12639639	527,300	546,000	18,700	187	$ 74.80	$ 100	$ 174.80
36		40 Granite Rd	12720317	643,400	745,400	102,000	1020	$ 408.00	$ 100	$ 508.00
30		9 Browns Ridge Rd	12639087	193,000	193,000	-	0	$ -	$ 100	$ 100.00
	customer gallons used					417,300	4173	$ 1,652.00	$ 4,600	$ 6,252.00
	Total Flow @ Reservoir pumped			120,236,089	121,816,737	1,580,648				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 9/30/2017	Current Reading 12/29/2017	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
24	Adjutant, Mr. & Mrs. Dennis	30 Browns Ridge Rd	12680426	864,700	874,600	9,900	99	$ 39.60	$ 100	$ 139.60
14		14 Courthouse Sq	34157099	414,900	419,400	4,500	45	$ 18.00	$ 100	$ 118.00
41		25 Old Route 28	12641267	823,800	832,200	8,400	84	$ 33.60	$ 100	$ 133.60
45		80 Old Route 28	34157116	861,300	872,200	10,900	109	$ 43.60	$ 100	$ 143.60
48		96 Old Route 28	34157095	317,600	321,700	4,100	41	$ 16.40	$ 100	$ 116.40
37		85 Old Route 28	34157113	61,600	61,800	200	2	$ 0.80	$ 100	$ 100.80
3	***NO Billing***	65 County Farm Rd	12742015	203,900	205,700	1,800	18	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	548,200	553,700	5,500	55	$ 22.00	$ 100	$ 122.00
25	***not activated***		34157097				0	$ -	$ -	$ -
11		29 Courthouse Sq	34157090	519,900	527,100	7,200	72	$ 28.80	$ 100	$ 128.80
10		27 Courthouse Sq	34157089	534,100	544,600	10,500	105	$ 42.00	$ 100	$ 142.00
7		21 Courthouse Sq	12493674	288,000	289,900	1,900	19	$ 7.60	$ 100	$ 107.60
40		5 Emerson Rd	34157092	721,800	729,700	7,900	79	$ 31.60	$ 100	$ 131.60
17		24 Courthouse Sq	34157109	221,100	222,100	1,000	10	$ 4.00	$ 100	$ 104.00
19		1 Browns Ridge Rd	71973129	204,400	204,600	200	2	$ 0.80	$ 100	$ 100.80
22		27 Browns Ridge Rd	62142731	36,600	40,100	3,500	35	$ 14.00	$ 100	$ 114.00
12		10 Courthouse Sq	34157088	924,400	930,300	5,900	59	$ 23.60	$ 100	$ 123.60
44		70 Old Route 28	34157112	890,800	899,900	9,100	91	$ 36.40	$ 100	$ 136.40
31		41 Courthouse Sq	12639595	449,600	456,000	6,400	64	$ 25.60	$ 100	$ 125.60
18		26 Courthouse Sq	12710761	175,000	178,500	3,500	35	$ 14.00	$ 100	$ 114.00
15		16 Courthouse Sq	12723489	393,100	399,400	6,300	63	$ 25.20	$ 100	$ 125.20
29		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
28		45 Granite Rd	12616992	88,500	88,500	-	0	$ -	$ 100	$ 100.00
30		45 Granite Rd	12620562	248,800	248,800	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	962,100	970,200	8,100	81	$ 32.40	$ 100	$ 132.40
36		93 Old Route 28	34157096	713,300	723,500	10,200	102	$ 40.80	$ 100	$ 140.80
47		94 Old Route 28	07753901	342,200	345,300	3,100	31	$ 12.40	$ 100	$ 112.40
43		60 Old Route 28	34157107	461,500	463,100	1,600	16	$ 6.40	$ 100	$ 106.40
49		31 Courthouse Sq	34157091	533,300	538,200	4,900	49	$ 19.60	$ 100	$ 119.60
2		105 Water Village Rd	34157118	950,300	959,600	9,300	93	$ 37.20	$ 100	$ 137.20
27		40 Granite Rd	12720317	643,000	643,400	400	4	$ 1.60	$ 100	$ 101.60
26		36 Granite Rd	12639637	886,600	900,900	14,300	143	$ 57.20	$ 100	$ 157.20
1		96 Water Village Rd	54640046	1,623,800	1,647,500	23,700	237	$ 94.80	$ 100	$ 194.80
33	*Fire Dept -* ***No Billing***	105 Old Route 28	52698946	310,700	315,100	4,400	44			$ -
16		20 Courthouse Sq	52197676	229,800	229,900	100	1	$ 0.40	$ 100	$ 100.40
35		95A Old Route 28	07771383	396,900	401,800	4,900	49	$ 19.60	$ 100	$ 119.60
34		95 Old Route 28	34157093	1,107,600	1,119,700	12,100	121	$ 48.40	$ 100	$ 148.40
32		115 Old Route 28	72371032	110,800	110,800	-	0	$ -	$ 100	$ 100.00
23		31 Browns Ridge Rd	72151807	51,700	53,700	2,000	20	$ 8.00	$ 100	$ 108.00
39		35 Old Route 28	63525371	196,200	204,300	8,100	81	$ 32.40	$ 100	$ 132.40
4		5 Courthouse Sq	34157108	128,800	130,500	1,700	17	$ 6.80	$ 100	$ 106.80
8		23 Courthouse Sq	34157111	438,800	443,700	4,900	49	$ 19.60	$ 100	$ 119.60
46		90 Old Route 28	34157110	1,096,000	1,129,500	33,500	335	$ 134.00	$ 100	$ 234.00
6		19 Courthouse Sq	07763543	91,100	91,400	300	3	$ 1.20	$ 100	$ 101.20
9		25 Courthouse Sq	34157094	770,900	776,400	5,500	55	$ 22.00	$ 100	$ 122.00
42		19 Old Route 28	71403144	30,700	32,300	1,600	16	$ 6.40	$ 100	$ 106.40
13		12 Courthouse Sq	34157100	254,700	258,000	3,300	33	$ 13.20	$ 100	$ 113.20
38		75 Old Route 28	12639639	512,000	527,300	15,300	153	$ 61.20	$ 100	$ 161.20
20		9 Browns Ridge Rd	12639087	193,000	193,000	-	0	$ -	$ 100	$ 100.00
	customer gallons used					282,000	*2820*	$ 1,103.20	$ 4,600	$ 5,703.20
	Total Flow @ Reservoir pumped			118,624,854	120,236,089	1,611,235				

RT #	Carroll County Water Dept - Meter Route Customer	Meter Address	Meter ID #	Previous 6/30/2017	Current Reading 9/30/2017	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
24	Adjutant, Mr. & Mrs. Dennis	30 Browns Ridge Rd	12680426	854,200	864,700	10,500	105.0	$ 42.00	$ 100	$ 142.00
14		14 Courthouse Sq	34157099	410,200	414,900	4,700	47.0	$ 18.80	$ 100	$ 118.80
41		25 Old Route 28	12641267	814,600	823,800	9,200	92.0	$ 36.80	$ 100	$ 136.80
45		80 Old Route 28	34157116	849,800	861,300	11,500	115.0	$ 46.00	$ 100	$ 146.00
48		96 Old Route 28	34157095	314,000	317,600	3,600	36.0	$ 14.40	$ 100	$ 114.40
37		85 Old Route 28	34157113	56,100	61,600	5,500	55.0	$ 22.00	$ 100	$ 122.00
3	NO Billing	65 County Farm Rd	12742015	199,600	203,900	4,300	43.0	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	542,800	548,200	5,400	54.0	$ 21.60	$ 100	$ 121.60
25	not activated		34157097				0.0	$ -		$ -
11		29 Courthouse Sq	34157090	511,800	519,900	8,100	81.0	$ 32.40	$ 100	$ 132.40
10		27 Courthouse Sq	34157089	532,600	534,100	1,500	15.0	$ 6.00	$ 100	$ 106.00
7		21 Courthouse Sq	12493674	287,100	288,000	900	9.0	$ 3.60	$ 100	$ 103.60
40		5 Emerson Rd	34157092	713,500	721,800	8,300	83.0	$ 33.20	$ 100	$ 133.20
17		24 Courthouse Sq	34157109	217,800	221,100	3,300	33.0	$ 13.20	$ 100	$ 113.20
19		1 Browns Ridge Rd	71973129	204,000	204,400	400	4.0	$ 1.60	$ 100	$ 101.60
22		27 Browns Ridge Rd	62142731	32,400	36,600	4,200	42.0	$ 16.80	$ 100	$ 116.80
12		10 Courthouse Sq	34157088	914,900	924,400	9,500	95.0	$ 38.00	$ 100	$ 138.00
44		70 Old Route 28	34157112	874,200	890,800	16,600	166.0	$ 66.40	$ 100	$ 166.40
31		41 Courthouse Sq	12639595	442,400	449,600	7,200	72.0	$ 28.80	$ 100	$ 128.80
18		26 Courthouse Sq	12710761	173,700	175,000	1,300	13.0	$ 5.20	$ 100	$ 105.20
15		16 Courthouse Sq	12723489	375,300	393,100	17,800	178.0	$ 71.20	$ 100	$ 171.20
29		45 Granite Rd	12617221	116,000	116,000	-	0.0	$ -	$ 100	$ 100.00
28		45 Granite Rd	12616992	88,400	88,500	100	1.0	$ 0.40	$ 100	$ 100.40
30		45 Granite Rd	12620562	248,800	248,800	-	0.0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	948,000	962,100	14,100	141.0	$ 56.40	$ 100	$ 156.40
36		93 Old Route 28	34157096	699,500	713,300	13,800	138.0	$ 55.20	$ 100	$ 155.20
47		94 Old Route 28	07753901	338,300	342,200	3,900	39.0	$ 15.60	$ 100	$ 115.60
43		60 Old Route 28	34157107	457,700	461,500	3,800	38.0	$ 15.20	$ 100	$ 115.20
49		31 Courthouse Sq	34157091	527,800	533,300	5,500	55.0	$ 22.00	$ 100	$ 122.00
2		105 Water Village Rd	34157118	939,900	950,300	10,400	104.0	$ 41.60	$ 100	$ 141.60
27		40 Granite Rd	12720317	638,400	643,000	4,600	46.0	$ 18.40	$ 100	$ 118.40
26		36 Granite Rd	12639637	871,900	886,600	14,700	147.0	$ 58.80	$ 100	$ 158.80
1		96 Water Village Rd	54640046	1,599,300	1,623,800	24,500	245.0	$ 98.00	$ 100	$ 198.00
33	No Billing	105 Old Route 28	52698946	309,300	310,700	1,400	14.0	$ 5.60	$ 100	$ 105.60
16		20 Courthouse Sq	52197676	229,600	229,800	200	2.0	$ 0.80	$ 100	$ 100.80
35		95A Old Route 28	07771383	390,600	396,900	6,300	63.0	$ 25.20	$ 100	$ 125.20
34		95 Old Route 28	34157093	1,095,300	1,107,600	12,300	123.0	$ 49.20	$ 100	$ 149.20
32		115 Old Route 28	72371032	110,800	110,800	-	0.0	$ -	$ 100	$ 100.00
23		31 Browns Ridge Rd	72151807	48,500	51,700	3,200	32.0	$ 12.80	$ 100	$ 112.80
39		35 Old Route 28	63525371	177,300	196,200	18,900	189.0	$ 75.60	$ 100	$ 175.60
4		5 Courthouse Sq	34157108	127,200	128,800	1,600	16.0	$ 6.40	$ 100	$ 106.40
8		23 Courthouse Sq	34157111	433,500	438,800	5,300	53.0	$ 21.20	$ 100	$ 121.20
46		90 Old Route 28	34157110	1,092,200	1,096,000	3,800	38.0	$ 15.20	$ 100	$ 115.20
6		19 Courthouse Sq	07763543	90,800	91,100	300	3.0	$ 1.20	$ 100	$ 101.20
9		25 Courthouse Sq	34157094	764,800	770,900	6,100	61.0	$ 24.40	$ 100	$ 124.40
42		19 Old Route 28	71403144	28,900	30,700	1,800	18.0	$ 7.20	$ 100	$ 107.20
13		12 Courthouse Sq	34157100	252,300	254,700	2,400	24.0	$ 9.60	$ 100	$ 109.60
38		75 Old Route 28	12639639	498,600	512,000	13,400	134.0	$ 53.60	$ 100	$ 153.60
20		9 Browns Ridge Rd	12639087	182,000	193,000	11,000	110.0	$ 44.00	$ 100	$ 144.00
	customer gallons used					317,200		$ 1,251.60	$ 4,700	$ 5,951.60
	Total Flow @ Reservoir pumped			116,983,714	118,624,854	1,641,140				

Carroll County Water Dept - Meter Route

RT #	Customer	Meter Address	Meter ID #	Previous 3/31/2017	Current Reading 6/30/2017	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
24		30 Browns Ridge Rd	12680426	846,600	854,200	7,600	76	$ 30.40	$ 100	$ 130.40
14		14 Courthouse Sq	34157099	408,000	410,200	2,200	22	$ 8.80	$ 100	$ 108.80
41		25 Old Route 28	12641267	806,300	814,600	8,300	83	$ 33.20	$ 100	$ 133.20
45		80 Old Route 28	34157116	837,500	849,800	12,300	123	$ 49.20	$ 100	$ 149.20
48		96 Old Route 28	34157095	310,900	314,000	3,100	31	$ 12.40	$ 100	$ 112.40
37		85 Old Route 28	34157113	56,000	56,100	100	1	$ 0.40	$ 100	$ 100.40
3	*NO Billing*	65 County Farm Rd	12742015	195,800	199,600	3,800	38	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	537,300	542,800	5,500	55	$ 22.00	$ 100	$ 122.00
25	*not activated*		34157097				0	$ -		$ -
11		29 Courthouse Sq	34157090	502,600	511,800	9,200	92	$ 36.80	$ 100	$ 136.80
10		27 Courthouse Sq	34157089	531,600	532,600	1,000	10	$ 4.00	$ 100	$ 104.00
7		21 Courthouse Sq	12493674	285,200	287,100	1,900	19	$ 7.60	$ 100	$ 107.60
40		5 Emerson Rd	34157092	704,900	713,500	8,600	86	$ 34.40	$ 100	$ 134.40
17		24 Courthouse Sq	34157109	214,100	217,800	3,700	37	$ 14.80	$ 100	$ 114.80
19		1 Browns Ridge Rd	71973129	199,700	204,000	4,300	43	$ 17.20	$ 100	$ 117.20
22		27 Browns Ridge Rd	62142731	28,500	32,400	3,900	39	$ 15.60	$ 100	$ 115.60
12		10 Courthouse Sq	34157088	909,300	914,900	5,600	56	$ 22.40	$ 100	$ 122.40
44		70 Old Route 28	34157112	868,700	874,200	5,500	55	$ 22.00	$ 100	$ 122.00
31		41 Courthouse Sq	12639595	436,600	442,400	5,800	58	$ 23.20	$ 100	$ 123.20
18		26 Courthouse Sq	12710761	172,100	173,700	1,600	16	$ 6.40	$ 100	$ 106.40
15		16 Courthouse Sq	12723489	371,200	375,300	4,100	41	$ 16.40	$ 100	$ 116.40
29		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
28		45 Granite Rd	12616992	88,400	88,400	-	0	$ -	$ 100	$ 100.00
30		45 Granite Rd	12620562	248,800	248,800	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	939,900	948,000	8,100	81	$ 32.40	$ 100	$ 132.40
36		93 Old Route 28	34157096	689,100	699,500	10,400	104	$ 41.60	$ 100	$ 141.60
47		94 Old Route 28	07753901	333,500	338,300	4,800	48	$ 19.20	$ 100	$ 119.20
43		60 Old Route 28	34157107	447,700	457,700	10,000	100	$ 40.00	$ 100	$ 140.00
49		31 Courthouse Sq	34157091	522,100	527,800	5,700	57	$ 22.80	$ 100	$ 122.80
2		105 Water Village Rd	34157118	930,300	939,900	9,600	96	$ 38.40	$ 100	$ 138.40
27		40 Granite Rd	12720317	630,200	638,400	8,200	82	$ 32.80	$ 100	$ 132.80
26		36 Granite Rd	12639637	857,900	871,900	14,000	140	$ 56.00	$ 100	$ 156.00
1		96 Water Village Rd	54640046	1,576,400	1,599,300	22,900	229	$ 91.60	$ 100	$ 191.60
33	*Fire Dept - No Billing*	105 Old Route 28	52698946	301,200	309,300	8,100	81	$ -	$ -	$ -
16		20 Courthouse Sq	52197676	229,100	229,600	500	5	$ 2.00	$ 100	$ 102.00
35		95A Old Route 28	07771383	385,300	390,600	5,300	53	$ 21.20	$ 100	$ 121.20
34		95 Old Route 28	34157093	1,083,400	1,095,300	11,900	119	$ 47.60	$ 100	$ 147.60
32		115 Old Route 28	72371032	86,700	110,800	24,100	241	$ 96.40	$ 100	$ 196.40
23		31 Browns Ridge Rd	72151807	48,500	48,500	-	0	$ -	$ 100	$ 100.00
39		35 Old Route 28	63525371	167,100	177,300	10,200	102	$ 40.80	$ 100	$ 140.80
4		5 Courthouse Sq	34157108	125,600	127,200	1,600	16	$ 6.40	$ 100	$ 106.40
8		23 Courthouse Sq	34157111	429,600	433,500	3,900	39	$ 15.60	$ 100	$ 115.60
46		90 Old Route 28	34157110	1,071,200	1,092,200	21,000	210	$ 84.00	$ 100	$ 184.00
6		19 Courthouse Sq	07763543	90,400	90,800	400	4	$ 1.60	$ 100	$ 101.60
9		25 Courthouse Sq	34157094	756,300	764,800	8,500	85	$ 34.00	$ 100	$ 134.00
42		19 Old Route 28	71403144	27,100	28,900	1,800	18	$ 7.20	$ 100	$ 107.20
13		12 Courthouse Sq	34157100	248,800	252,300	3,500	35	$ 14.00	$ 100	$ 114.00
38		75 Old Route 28	12639639	483,000	498,600	15,600	156	$ 62.40	$ 100	$ 162.40
20		9 Browns Ridge Rd	12639087	181,900	182,000	100	1	$ 0.40	$ 100	$ 100.40
	customer gallons used					308,300		$ 1,185.60	$ 4,600	$ 5,785.60
	Total Flow @ Reservoir pumped			115,361,460	116,983,714	1,622,254				
										$ 123.10

RT #	Carroll County Water Dept - Meter Route Customer	Meter Address	Meter ID #	Previous 12/28/2016	Current Reading 3/31/2017	USAGE	Usage/100 for billing	$.40/100 gal $ Due for usage	$100/Qtr	Total Due Water
24		30 Browns Ridge Rd	12680426	839,200	846,600	7,400	74	$ 29.60	$ 100	$ 129.60
14		14 Courthouse Sq	34157099	408,000	408,000	-	0	$ -	$ 100	$ 100.00
41		25 Old Route 28	12641267	799,300	806,300	7,000	70	$ 28.00	$ 100	$ 128.00
45		80 Old Route 28	34157116	826,400	837,500	11,100	111	$ 44.40	$ 100	$ 144.40
48		96 Old Route 28	34157095	307,700	310,900	3,200	32	$ 12.80	$ 100	$ 112.80
37		85 Old Route 28	34157113	56,000	56,000	-	0	$ -	$ 100	$ 100.00
3	*NO Billing*	65 County Farm Rd	12742015	194,000	195,800	1,800	18	$ -	$ -	$ -
21		25 Browns Ridge Rd	34157098	531,400	537,300	5,900	59	$ 23.60	$ 100	$ 123.60
25	*not activated*		34157097				0	$ -		$ -
11		29 Courthouse Sq	34157090	493,900	502,600	8,700	87	$ 34.80	$ 100	$ 134.80
10		27 Courthouse Sq	34157089	531,300	531,600	300	3	$ 1.20	$ 100	$ 101.20
7		21 Courthouse Sq	12493674	282,600	285,200	2,600	26	$ 10.40	$ 100	$ 110.40
40		5 Emerson Rd	34157092	696,900	704,900	8,000	80	$ 32.00	$ 100	$ 132.00
17		24 Courthouse Sq	34157109	214,100	214,100	-	0	$ -	$ 100	$ 100.00
19		1 Browns Ridge Rd	71973129	194,700	199,700	5,000	50	$ 20.00	$ 100	$ 120.00
22		27 Browns Ridge Rd	62142731	28,517	28,517	-	0	$ -	$ 100	$ 100.00
12		10 Courthouse Sq	34157088	904,700	909,300	4,600	46	$ 18.40	$ 100	$ 118.40
44		70 Old Route 28	34157112	861,400	868,700	7,300	73	$ 29.20	$ 100	$ 129.20
31		41 Courthouse Sq	12639595	429,400	436,600	7,200	72	$ 28.80	$ 100	$ 128.80
18		26 Courthouse Sq	12710761	170,200	172,100	1,900	19	$ 7.60	$ 100	$ 107.60
15		16 Courthouse Sq	12723489	370,200	371,200	1,000	10	$ 4.00	$ 100	$ 104.00
29		45 Granite Rd	12617221	116,000	116,000	-	0	$ -	$ 100	$ 100.00
28		45 Granite Rd	12616992	88,400	88,400	-	0	$ -	$ 100	$ 100.00
30		45 Granite Rd	12620562	248,800	248,800	-	0	$ -	$ 100	$ 100.00
5		15 Courthouse Sq	34157117	931,500	939,900	8,400	84	$ 33.60	$ 100	$ 133.60
36		93 Old Route 28	34157096	678,500	689,100	10,600	106	$ 42.40	$ 100	$ 142.40
47		94 Old Route 28	07753901	328,300	333,500	5,200	52	$ 20.80	$ 100	$ 120.80
43		60 Old Route 28	34157107	437,700	447,700	10,000	100	$ 40.00	$ 100	$ 140.00
49		31 Courthouse Sq	34157091	517,100	522,100	5,000	50	$ 20.00	$ 100	$ 120.00
2		105 Water Village Rd	34157118	923,600	930,300	6,700	67	$ 26.80	$ 100	$ 126.80
27		40 Granite Rd	12720317	622,200	630,200	8,000	80	$ 32.00	$ 100	$ 132.00
26		36 Granite Rd	12639637	844,000	857,900	13,900	139	$ 55.60	$ 100	$ 155.60
1		96 Water Village Rd	54640046	1,554,100	1,576,400	22,300	223	$ 89.20	$ 100	$ 189.20
33	Fire Dept	105 Old Route 28	52698946	295,000	301,200	6,200	62	$ 24.80	$ 100	$ 124.80
16		20 Courthouse Sq	52197676	207,600	229,100	21,500	215	$ 86.00	$ 100	$ 186.00
35		95A Old Route 28	07771383	379,400	385,300	5,900	59	$ 23.60	$ 100	$ 123.60
34		95 Old Route 28	34157093	1,072,200	1,083,400	11,200	112	$ 44.80	$ 100	$ 144.80
32		115 Old Route 28	72371032	74,000	86,700	12,700	127	$ 50.80	$ 100	$ 150.80
23		31 Browns Ridge Rd	72151807	48,500	48,500	-	0	$ -	$ 100	$ 100.00
39		35 Old Route 28	63525371	160,100	167,100	7,000	70	$ 28.00	$ 100	$ 128.00
4		5 Courthouse Sq	34157108	124,400	125,600	1,200	12	$ 4.80	$ 100	$ 104.80
8		23 Courthouse Sq	34157111	425,200	429,600	4,400	44	$ 17.60	$ 100	$ 117.60
46		90 Old Route 28	34157110	1,050,800	1,071,200	20,400	204	$ 81.60	$ 100	$ 181.60
6		19 Courthouse Sq	07763543	90,100	90,400	300	3	$ 1.20	$ 100	$ 101.20
9		25 Courthouse Sq	34157094	750,300	756,300	6,000	60	$ 24.00	$ 100	$ 124.00
42		19 Old Route 28	71403144	25,600	27,100	1,500	15	$ 6.00	$ 100	$ 106.00
13		12 Courthouse Sq	34157100	245,800	248,800	3,000	30	$ 12.00	$ 100	$ 112.00
38		75 Old Route 28	12639639	468,700	483,000	14,300	143	$ 57.20	$ 100	$ 157.20
20		9 Browns Ridge Rd	12639087	181,900	181,900	-	0	$ -	$ 100	$ 100.00
	customer gallons used					288,700	2887	$ 1,147.60	$ 4,700	$ 5,847.60
	Total Flow @ Reservoir pumped			113,624,894	115,361,460	1,736,566				
										$ 124.42

APPENDIX D

HISTORIC WATER QUALITY DATA FROM NHDES ONE-STOP

PWS ID: **1844010**
System Name and Address:
CARROLL COUNTY COMPLEX 95 WATER VILLAGE RD OSSIPEE
System Type: **COMMUNITY SYSTEM**
System Category: **SMALL CWS (<1000)**
Population Served: **258**
Service Connections: **53**

Source Key From One Stop GIS

Source 001 - Dug Well 1
Source 002 = Dug Well 2
Source 003 = Dug Well 3
Source 004 = Dug Well 4 (Inactive)
Source 005 = Bedrock Well 1
Source 006= Old spring (Inactive)
Source 007= Old spring (Inactive)
Source 008= Old spring (Inactive)
Source 009 = Bedrock Well 2
Source 010 = Dug Wells 1,2,3 Group

Sample Key

=Bedrock Well 2 (BW-2)
= Dug Well Group (W-1, W-2, W-3)
= Blend Bedrock Wells (BW-1, BW-2)
= Blend Bedrock Well 1, Dug Well Group
=Blend All Sources

Parameter	Units	MCL	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	505-DEP TAP/PUMPHOUSE/009	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	505-DEP TAP/PUMPHOUSE/009	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	505-DEP TAP/PUMPHOUSE/009	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	505-DEP TAP/PUMPHOUSE/009	505-DEP TAP/PUMPHOUSE/009
			7/6/21	7/6/21	5/5/21	5/5/21	3/11/21	3/11/21	11/2/20	11/2/20	11/2/20	9/10/20
Radionuclides												
Compliance Gross Alpha	pCi/L	15										
Radium 228	pCi/L											
Radium 226	pCi/L	5										
Uranium	ug/L	30										
Inorganic Compounds												
Antimony	mg/L	0.006										
Arsenic	mg/L	0.01										
Asbestos	million fibers/L (longer than 10 um)	7										
Barium	mg/L	2										
Beryllium	mg/L	0.004										
Cadmium	mg/L	0.005										
Chromium	mg/L	0.1										
Copper	mg/L											
Cyanide (as free cyanide)	mg/L	0.2										
Flouride	mg/L	4										
Lead	mg/L											
Mercury	mg/L	0.002										
Nickel	mg/L	0.1										
Nitrate (as N)	mg/L	10							ND			ND
Nitrite (as N)	mg/L	1										ND
Total Nitrate + Nitrite	mg/L	10										ND
Selenium	mg/L	0.05										
Silver	mg/L	0.1										
Thallium	mg/L	0.002										
Volatile Organic Compounds												
Benzene	mg/L	0.005										
Carbon tetrachloride	mg/L	0.005										
o-Dichlorobenzene (1,2-Dichlorobenzene)	mg/L	0.6										
para-Dichlorethane	mg/L	0.075										
1,2-Dichloroethane	mg/L	0.005										
1,1-Dichloroethylene	mg/L	0.007										
cis-1,2-Dichloroethylene	mg/L	0.07										
trans-1,2-Dichloroethylene	mg/L	0.1										
Dichloromethane (Methylene chloride)	mg/L	0.005										
1,2-Dichloropropane	mg/L	0.005										
Ethylbenzene	mg/L	0.7										
Methyl tertiary-butyl ether (MtBE)	mg/L	0.013										
Monochlorobenzene (chlorobenzene)	mg/L	0.1										
Styrene	mg/L	0.1										
Tetrachloroethylene	mg/L	0.005										
Toluene	mg/L	1										
1,2,4-Trichlorobenzene	mg/L	0.07										
1,1,1-Trichloroethane	mg/L	0.2										
1,1,2-Trichloroethane	mg/L	0.005										
Trichloroethylene	mg/L	0.005										
Vinyl Chloride	mg/L	0.002										
Xylene, Total	mg/L	10										
Disinfection Byproducts												
Acetone												
Total trihalomethanes (TTHM)	ug/l	RAA=80										
Haloacetic acids (HAA)	ug/l	RAA=60										
Bromate	mg/L	0.01										
Chlorite	mg/L	1										
Bromodichloromethane	ug/L											
Bromoform	ug/L											
Chloroform	mg/L											
Dibromoacetic Acid												
Dibromochloromethane	ug/L											
Dichloroacetic Acid	mg/L											
Monobromoacetic Acid												
Monochlooracetic Acid	mg/L											
Trichloroacetic Acid	mg/L											
PFAS Contaminants												
Perfluorohexane sulfonic acid (PFHxS)	ug/L	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ug/L	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonic acid (PFOS)	ug/L	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ug/L	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Additional Testing												
Calcium	mg/l											
Chloride	mg/l	250										
Disolved Oxygen												
Hardness	mg CaCO3/L											
Hydrogen Sulfide	mg/l											
Iron	mg/l	0.3										
Magnesium	ug/l											
Manganese	mg/l	0.05										
pH		6.5-8.5										
Sodium	mg/l											
Sulfide	mg/l											
Specific Conductance	umhos/cm											
Sulfate	mg/l											
Total Alkalinity	CaCO3/L											
Turbidity												
Zinc	mg/l	5										
Sulfate	mg/l											

PWS ID: **1844010**
System Name and Address:
CARROLL COUNTY COMPLEX 95 WATER VILLAGE RD OSSIPEE
System Type: **COMMUNITY SYSTEM**
System Category: **SMALL CWS (<1000)**
Population Served: **258**
Service Connections: **53**

Source Key From One Stop GIS

Source 001 - Dug Well 1
Source 002 = Dug Well 2
Source 003 = Dug Well 3
Source 004 = Dug Well 4 (Inactive)
Source 005 = Bedrock Well 1
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Source 007= Old spring (Inactive)
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Source 009 = Bedrock Well 2
Source 010 = Dug Wells 1,2,3 Group

Sample Key

=Bedrock Well 2 (BW-2)
= Dug Well Group (W-1, W-2, W-3)
= Blend Bedrock Wells (BW-1, BW-2)
= Blend Bedrock Well 1, Dug Well Group
=Blend All Sources

Parameter	Units	MCL	505-DEP TAP/PUMPHOUSE/009	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	501-DEP TAP/PUMPHOUSE/BLD 010 005/1 2 3	505-DEP TAP/PUMPHOUSE/009	301-MAINTENANCE BUILDING JANITORS CLOSET	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND 005 009	505-DEP TAP/PUMPHOUSE/BLEND 005 009
			9/10/20	12/11/19	12/9/19	12/5/19	9/12/19	9/12/19	10/17/18	10/17/18	9/6/18	8/15/18
Radionuclides												
Compliance Gross Alpha	pCi/L	15			7.49							
Radium 228	pCi/L			ND							ND	
Radium 226	pCi/L	5		0.3							1.2	
Uranium	ug/L	30			6	7.9						
Inorganic Compounds												
Antimony	mg/L	0.006	ND							ND		
Arsenic	mg/L	0.01	ND							ND		
Asbestos	million fibers/L (longer than 10 um)	7										
Barium	mg/L	2	0.0068							0.0069		
Beryllium	mg/L	0.004	ND							ND		
Cadmium	mg/L	0.005	ND							ND		
Chromium	mg/L	0.1	ND							ND		
Copper	mg/L		ND							0.0132		
Cyanide (as free cyanide)	mg/L	0.2										
Flouride	mg/L	4								1.8		
Lead	mg/L											
Mercury	mg/L	0.002	ND							ND		
Nickel	mg/L	0.1	ND							0.0057		
Nitrate (as N)	mg/L	10					ND					
Nitrite (as N)	mg/L	1					ND					
Total Nitrate + Nitrite	mg/L	10					ND					
Selenium	mg/L	0.05	ND							ND		
Silver	mg/L	0.1	ND							ND		
Thallium	mg/L	0.002	ND							ND		
Volatile Organic Compounds												
Benzene	mg/L	0.005								ND		
Carbon tetrachloride	mg/L	0.005								ND		
o-Dichlorobenzene (1,2-Dichlorobenzene)	mg/L	0.6								ND		
para-Dichlorethane	mg/L	0.075										
1,2-Dichloroethane	mg/L	0.005								ND		
1,1-Dichloroethylene	mg/L	0.007								ND		
cis-1,2-Dichloroethylene	mg/L	0.07								ND		
trans-1,2-Dichloroethylene	mg/L	0.1								ND		
Dichloromethane (Methylene chloride)	mg/L	0.005								ND		
1,2-Dichloropropane	mg/L	0.005								ND		
Ethylbenzene	mg/L	0.7								ND		
Methyl tertiary-butyl ether (MtBE)	mg/L	0.013								ND		
Monochlorobenzene (chlorobenzene)	mg/L	0.1								ND		
Styrene	mg/L	0.1								ND		
Tetrachloroethylene	mg/L	0.005								ND		
Toluene	mg/L	1								ND		
1,2,4-Trichlorobenzene	mg/L	0.07								ND		
1,1,1-Trichloroethane	mg/L	0.2								ND		
1,1,2-Trichloroethane	mg/L	0.005								ND		ND
Trichloroethylene	mg/L	0.005								ND		
Vinyl Chloride	mg/L	0.002								ND		
Xylene, Total	mg/L	10								ND		
Disinfection Byproducts												
Acetone												
Total trihalomethanes (TTHM)	ug/l	RAA=80					ND					
Haloacetic acids (HAA)	ug/l	RAA=60					ND					
Bromate	mg/L	0.01										
Chlorite	mg/L	1										
Bromodichloromethane	ug/L						ND			ND		
Bromoform	ug/L						ND			ND		
Chloroform	mg/L						0.5			0.6		
Dibromoacetic Acid												
Dibromochloromethane	ug/L						ND					
Dichloroacetic Acid	mg/L						ND					
Monobromoacetic Acid												
Monochlooracetic Acid	mg/L						ND					
Trichloroacetic Acid	mg/L						ND					
PFAS Contaminants												
Perfluorohexane sulfonic acid (PFHxS)	ug/L	18										
Perfluorononanoic acid (PFNA)	ug/L	11										
Perfluorooctane sulfonic acid (PFOS)	ug/L	15										
Perfluorooctanoic acid (PFOA)	ug/L	12										
Additional Testing												
Calcium	mg/l											
Chloride	mg/l	250								41		
Disolved Oxygen												
Hardness	mg CaCO3/L		50.7							62.8		
Hydrogen Sulfide	mg/l											
Iron	mg/l	0.3	ND							ND		
Magnesium	ug/l											
Manganese	mg/l	0.05	0.0397							0.0076		
pH		6.5-8.5								8.89		
Sodium	mg/l		8.88							34.1		
Sulfide	mg/l											
Specific Conductance	umhos/cm											
Sulfate	mg/l		9.8							9.3		
Total Alkalinity	CaCO3/L											
Turbidity												
Zinc	mg/l	5	ND							0.178		
Sulfate	mg/l									9.3		

PWS ID: **1844010**
System Name and Address:
CARROLL COUNTY COMPLEX 95 WATER VILLAGE RD OSSIPEE
System Type: **COMMUNITY SYSTEM**
System Category: **SMALL CWS (<1000)**
Population Served: **258**
Service Connections: **53**

Source Key From One Stop GIS

Source 001 - Dug Well 1
Source 002 = Dug Well 2
Source 003 = Dug Well 3
Source 004 = Dug Well 4 (Inactive)
Source 005 = Bedrock Well 1
Source 006= Old spring (Inactive)
Source 007= Old spring (Inactive)
Source 008= Old spring (Inactive)
Source 009 = Bedrock Well 2
Source 010 = Dug Wells 1,2,3 Group

Sample Key

=Bedrock Well 2 (BW-2)
= Dug Well Group (W-1, W-2, W-3)
= Blend Bedrock Wells (BW-1, BW-2)
= Blend Bedrock Well 1, Dug Well Group
=Blend All Sources

Parameter	Units	MCL	301-MAINTENANCE BUILDING JANITORS CLOSET	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND 005 009	505-DEP TAP/PUMPHOUSE/BLEND 005 009	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND 005 009	301-MAINTENANCE BUILDING JANITORS Closet	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND 005 009
			8/15/18	12/11/17	9/20/17	9/20/17	11/10/16	8/24/16	8/24/16	10/9/15	10/9/15	9/25/15
Radionuclides												
Compliance Gross Alpha	pCi/L	15										5
Radium 228	pCi/L											
Radium 226	pCi/L	5										
Uranium	ug/L	30										1
Inorganic Compounds												
Antimony	mg/L	0.006				ND					ND	
Arsenic	mg/L	0.01				ND					ND	
Asbestos	million fibers/L (longer than 10 um)	7										
Barium	mg/L	2				0.0105					0.0089	
Beryllium	mg/L	0.004				ND					ND	
Cadmium	mg/L	0.005				ND					ND	
Chromium	mg/L	0.1				ND					ND	
Copper	mg/L					0.0257					ND	
Cyanide (as free cyanide)	mg/L	0.2										
Flouride	mg/L	4									1.8	
Lead	mg/L											
Mercury	mg/L	0.002				ND					ND	
Nickel	mg/L	0.1				ND					ND	
Nitrate (as N)	mg/L	10		ND	ND					ND		ND
Nitrite (as N)	mg/L	1		ND	ND					ND		ND
Total Nitrate + Nitrite	mg/L	10		ND	ND					ND		ND
Selenium	mg/L	0.05				ND					ND	
Silver	mg/L	0.1				ND					ND	
Thallium	mg/L	0.002				ND					ND	
Volatile Organic Compounds												
Benzene	mg/L	0.005										
Carbon tetrachloride	mg/L	0.005										
o-Dichlorobenzene (1,2-Dichlorobenzene)	mg/L	0.6										
para-Dichlorethane	mg/L	0.075										
1,2-Dichloroethane	mg/L	0.005										
1,1-Dichloroethylene	mg/L	0.007										
cis-1,2-Dichloroethylene	mg/L	0.07										
trans-1,2-Dichloroethylene	mg/L	0.1										
Dichloromethane (Methylene chloride)	mg/L	0.005										
1,2-Dichloropropane	mg/L	0.005										
Ethylbenzene	mg/L	0.7										
Methyl tertiary-butyl ether (MtBE)	mg/L	0.013										
Monochlorobenzene (chlorobenzene)	mg/L	0.1										
Styrene	mg/L	0.1										
Tetrachloroethylene	mg/L	0.005										
Toluene	mg/L	1										
1,2,4-Trichlorobenzene	mg/L	0.07										
1,1,1-Trichloroethane	mg/L	0.2										
1,1,2-Trichloroethane	mg/L	0.005										
Trichloroethylene	mg/L	0.005										
Vinyl Chloride	mg/L	0.002										
Xylene, Total	mg/L	10										
Disinfection Byproducts												
Acetone												
Total trihalomethanes (TTHM)	ug/l	RAA=80	ND					ND				
Haloacetic acids (HAA)	ug/l	RAA=60	ND					1				
Bromate	mg/L	0.01										
Chlorite	mg/L	1										
Bromodichloromethane	ug/L		ND									
Bromoform	ug/L		ND					ND				
Chloroform	mg/L		0.5					0.6				
Dibromoacetic Acid			ND					ND				
Dibromochloromethane	ug/L		ND					ND				
Dichloroacetic Acid	mg/L		ND					1				
Monobromoacetic Acid			ND					ND				
Monochlooracetic Acid	mg/L		ND					ND				
Trichloroacetic Acid	mg/L		ND					ND				
PFAS Contaminants												
Perfluorohexane sulfonic acid (PFHxS)	ug/L	18										
Perfluorononanoic acid (PFNA)	ug/L	11										
Perfluorooctane sulfonic acid (PFOS)	ug/L	15										
Perfluorooctanoic acid (PFOA)	ug/L	12										
Additional Testing												
Calcium	mg/l											
Chloride	mg/l	250										ND
Disolved Oxygen												
Hardness	mg CaCO3/L					30.7					49.8	
Hydrogen Sulfide	mg/l											
Iron	mg/l	0.3				1.38					0.601	
Magnesium	ug/l											
Manganese	mg/l	0.05				0.3001					0.0433	
pH		6.5-8.5				7.67					8.4	
Sodium	mg/l					9.91					8.63	
Sulfide	mg/l											
Specific Conductance	umhos/cm											
Sulfate	mg/l										9	
Total Alkalinity	CaCO3/L											
Turbidity												
Zinc	mg/l	5				8.13					ND	
Sulfate	mg/l											

PWS ID: **1844010**
System Name and Address:
CARROLL COUNTY COMPLEX 95 WATER VILLAGE RD OSSIPEE
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=Blend All Sources

Parameter	Units	MCL	505-DEP TAP/PUMPHOUSE/BLEND 005 009	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND 005 009	505-DEP TAP/PUMPHOUSE/BLEND 005 009	501-DUG WELL GROUP/IN PH AF TRTMT/001 002 003	O-1-MAINT BLDG JANITORS CLOSET	505-DEP TAP/PUMPHOUSE/BLEND 005 009	501-DUG WELL BLEND TAP/IN PH/001 002 003	DUG WELL BLEND TAP/IN PH/001 002 003	505-DEP TAP/PUMPHOUSE/BLEND WELLS 005 + 009
			9/3/15	12/18/14	9/16/14	9/16/14	10/25/13	9/16/13	9/16/13	12/11/12	12/11/12	8/10/12
Radionuclides												
Compliance Gross Alpha	pCi/L	15										
Radium 228	pCi/L		2.9									
Radium 226	pCi/L	5	0.4									
Uranium	ug/L	30										
Inorganic Compounds												
Antimony	mg/L	0.006				ND					ND	
Arsenic	mg/L	0.01				ND					ND	
Asbestos	million fibers/L (longer than 10 um)	7										
Barium	mg/L	2				0.0071					0.0071	
Beryllium	mg/L	0.004				ND					ND	
Cadmium	mg/L	0.005				ND					ND	
Chromium	mg/L	0.1				ND					ND	
Copper	mg/L					ND					ND	
Cyanide (as free cyanide)	mg/L	0.2										
Flouride	mg/L	4				1.8					1.8	
Lead	mg/L											
Mercury	mg/L	0.002				ND					ND	
Nickel	mg/L	0.1				ND					ND	
Nitrate (as N)	mg/L	10		0.05	ND				ND	ND		ND
Nitrite (as N)	mg/L	1		ND	ND				ND	ND		ND
Total Nitrate + Nitrite	mg/L	10		0.05	ND				ND	ND		ND
Selenium	mg/L	0.05				ND					ND	
Silver	mg/L	0.1				ND					ND	
Thallium	mg/L	0.002				ND					ND	
Volatile Organic Compounds												
Benzene	mg/L	0.005					ND					
Carbon tetrachloride	mg/L	0.005					ND					
o-Dichlorobenzene (1,2-Dichlorobenzene)	mg/L	0.6					ND					
para-Dichlorethane	mg/L	0.075										
1,2-Dichloroethane	mg/L	0.005					ND					
1,1-Dichloroethylene	mg/L	0.007										
cis-1,2-Dichloroethylene	mg/L	0.07					ND					
trans-1,2-Dichloroethylene	mg/L	0.1										
Dichloromethane (Methylene chloride)	mg/L	0.005					ND					
1,2-Dichloropropane	mg/L	0.005					ND					
Ethylbenzene	mg/L	0.7					ND					
Methyl tertiary-butyl ether (MtBE)	mg/L	0.013					ND					
Monochlorobenzene (chlorobenzene)	mg/L	0.1					ND					
Styrene	mg/L	0.1					ND					
Tetrachloroethylene	mg/L	0.005										
Toluene	mg/L	1					ND					
1,2,4-Trichlorobenzene	mg/L	0.07					ND					
1,1,1-Trichloroethane	mg/L	0.2					ND					
1,1,2-Trichloroethane	mg/L	0.005					ND					
Trichloroethylene	mg/L	0.005										
Vinyl Chloride	mg/L	0.002					ND					
Xylene, Total	mg/L	10										
Disinfection Byproducts												
Acetone								ND				
Total trihalomethanes (TTHM)	ug/l	RAA=80						1.2				
Haloacetic acids (HAA)	ug/l	RAA=60						ND				
Bromate	mg/L	0.01										
Chlorite	mg/L	1										
Bromodichloromethane	ug/L						ND	ND				
Bromoform	ug/L						ND	ND				
Chloroform	mg/L						1.3	ND				
Dibromoacetic Acid								ND				
Dibromochloromethane	ug/L						ND					
Dichloroacetic Acid	mg/L							ND				
Monobromoacetic Acid								ND				
Monochlooracetic Acid	mg/L							ND				
Trichloroacetic Acid	mg/L							ND				
PFAS Contaminants												
Perfluorohexane sulfonic acid (PFHxS)	ug/L	18										
Perfluorononanoic acid (PFNA)	ug/L	11										
Perfluorooctane sulfonic acid (PFOS)	ug/L	15										
Perfluorooctanoic acid (PFOA)	ug/L	12										
Additional Testing												
Calcium	mg/l											
Chloride	mg/l	250			ND						ND	
Disolved Oxygen												
Hardness	mg CaCO3/L				54.85						52.16	
Hydrogen Sulfide	mg/l											
Iron	mg/l	0.3			ND						ND	
Magnesium	ug/l											
Manganese	mg/l	0.05			0.038						0.0403	
pH		6.5-8.5			8.41						8.43	
Sodium	mg/l				10.3						9.55	
Sulfide	mg/l											
Specific Conductance	umhos/cm											
Sulfate	mg/l				9.1						9.1	
Total Alkalinity	CaCO3/L											
Turbidity												
Zinc	mg/l	5			ND						ND	
Sulfate	mg/l											

PWS ID: **1844010**
System Name and Address:
CARROLL COUNTY COMPLEX 95 WATER VILLAGE RD OSSIPEE
System Type: **COMMUNITY SYSTEM**
System Category: **SMALL CWS (<1000)**
Population Served: **258**
Service Connections: **53**

Source Key From One Stop GIS

Source 001 - Dug Well 1
Source 002 = Dug Well 2
Source 003 = Dug Well 3
Source 004 = Dug Well 4 (Inactive)
Source 005 = Bedrock Well 1
Source 006= Old spring (Inactive)
Source 007= Old spring (Inactive)
Source 008= Old spring (Inactive)
Source 009 = Bedrock Well 2
Source 010 = Dug Wells 1,2,3 Group

Sample Key

=Bedrock Well 2 (BW-2)
= Dug Well Group (W-1, W-2, W-3)
= Blend Bedrock Wells (BW-1, BW-2)
= Blend Bedrock Well 1, Dug Well Group
=Blend All Sources

Parameter	Units	MCL	DEP TAP/PUMPHOUSE/BLEND WELLS 005 + 009	505-DEP TAP/PUMPHOUSE/BLEND WELLS 005 + 009	Bedrock Well 2 (BW-2)			Dug Well Group (W-1, W-2, W-3)			Blend Bedrock Wells (BW-1, BW-2)			Blend Bedrock Well 1, Dug Well Group (BW-1, W-1, W-2, W-3)			Blend All Sources		
			8/15/11	8/15/11	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX
Radionuclides																			
Compliance Gross Alpha	pCi/L	15									5	5	5	7.49	7.49	7.49			
Radium 228	pCi/L										2.9	2.9	2.9	ND		ND			
Radium 226	pCi/L	5									0.4	0.8	1.2	0.3	0.3	0.3			
Uranium	ug/L	30									1	1	1	6	6.95	7.9			
Inorganic Compounds																			
Antimony	mg/L	0.006		ND				ND		ND	ND		ND						
Arsenic	mg/L	0.01		ND				ND		ND	ND		ND						
Asbestos	million fibers/L (longer than 10 um)	7																	
Barium	mg/L	2		0.0078	0.007	0.007	0.007	0.007	0.008	0.009	0.007	0.008	0.011						
Beryllium	mg/L	0.004		ND	ND		ND	ND		ND	ND		ND						
Cadmium	mg/L	0.005		ND	ND		ND	ND		ND	ND		ND						
Chromium	mg/L	0.1		ND	ND		ND	ND		ND	ND		ND						
Copper	mg/L			ND	ND		ND	ND	0.013	0.013	ND	0.026	0.026						
Cyanide (as free cyanide)	mg/L	0.2																	
Flouride	mg/L	4		1.8				1.8	1.8	1.8	1.8	1.8	1.8						
Lead	mg/L																		
Mercury	mg/L	0.002		ND				ND		ND	ND		ND						
Nickel	mg/L	0.1		ND				ND	0.006	0.006	ND		ND						
Nitrate (as N)	mg/L	10	ND		ND		ND	ND	0.05	0.05	ND		ND	ND		ND			
Nitrite (as N)	mg/L	1	ND		ND		ND	ND		ND	ND		ND						
Total Nitrate + Nitrite	mg/L	10	ND		ND		ND	0.05	0.05	0.05									
Selenium	mg/L	0.05		ND	ND		ND	ND		ND	ND		ND						
Silver	mg/L	0.1		ND	ND		ND	ND		ND	ND		ND						
Thallium	mg/L	0.002		ND	ND		ND	ND		ND	ND		ND						
Volatile Organic Compounds																			
Benzene	mg/L	0.005						ND	ND	ND									
Carbon tetrachloride	mg/L	0.005						ND	ND	ND									
o-Dichlorobenzene (1,2-Dichlorobenzene)	mg/L	0.6						ND	ND	ND									
para-Dichlorethane	mg/L	0.075																	
1,2-Dichloroethane	mg/L	0.005						ND	ND	ND									
1,1-Dichloroethylene	mg/L	0.007						ND	ND	ND									
cis-1,2-Dichloroethylene	mg/L	0.07						ND	ND	ND									
trans-1,2-Dichloroethylene	mg/L	0.1						ND	ND	ND									
Dichloromethane (Methylene chloride)	mg/L	0.005						ND	ND	ND									
1,2-Dichloropropane	mg/L	0.005						ND	ND	ND									
Ethylbenzene	mg/L	0.7						ND	ND	ND									
Methyl tertiary-butyl ether (MtBE)	mg/L	0.013						ND	ND	ND									
Monochlorobenzene (chlorobenzene)	mg/L	0.1						ND	ND	ND									
Styrene	mg/L	0.1						ND	ND	ND									
Tetrachloroethylene	mg/L	0.005						ND	ND	ND									
Toluene	mg/L	1						ND	ND	ND									
1,2,4-Trichlorobenzene	mg/L	0.07						ND	ND	ND									
1,1,1-Trichloroethane	mg/L	0.2						ND	ND	ND									
1,1,2-Trichloroethane	mg/L	0.005						ND	ND	ND	ND	ND	ND						
Trichloroethylene	mg/L	0.005						ND	ND	ND									
Vinyl Chloride	mg/L	0.002						ND	ND	ND									
Xylene, Total	mg/L	10						ND	ND	ND									
Disinfection Byproducts																			
Acetone																	ND		ND
Total trihalomethanes (TTHM)	ug/l	RAA=80															ND	1.2	1.2
Haloacetic acids (HAA)	ug/l	RAA=60															ND	1	1
Bromate	mg/L	0.01																	
Chlorite	mg/L	1																	
Bromodichloromethane	ug/L							ND		ND							ND		ND
Bromoform	ug/L							ND		ND							ND		ND
Chloroform	mg/L							0.6	0.95	1.3							ND	0.533	0.6
Dibromoacetic Acid																	ND		ND
Dibromochloromethane	ug/L							ND		ND							ND		ND
Dichloroacetic Acid	mg/L																ND	1	1
Monobromoacetic Acid																	ND		
Monochlooracetic Acid	mg/L																ND		
Trichloroacetic Acid	mg/L																ND		
PFAS Contaminants																			
Perfluorohexane sulfonic acid (PFHxS)	ug/L	18			ND	ND	ND							ND	ND	ND			
Perfluorononanoic acid (PFNA)	ug/L	11			ND	ND	ND							ND	ND	ND			
Perfluorooctane sulfonic acid (PFOS)	ug/L	15			ND	ND	ND							ND	ND	ND			
Perfluorooctanoic acid (PFOA)	ug/L	12			ND	ND	ND							ND	ND	ND			
Additional Testing																			
Calcium	mg/l																		
Chloride	mg/l	250		ND				ND	41	41	ND		ND						
Disolved Oxygen																			
Hardness	mg CaCO3/L			51.73	50.7	50.7	50.7	49.8	54.92	62.8	30.7	45.76	54.85						
Hydrogen Sulfide	mg/l																		
Iron	mg/l	0.3		ND				ND	0.601	0.601	ND	1.38	1.38						
Magnesium	ug/l																		
Manganese	mg/l	0.05		0.0421	0.04	0.04	0.04	0.008	0.03	0.043	0.038	0.127	0.3						
pH		6.5-8.5		8.37				8.4	8.573	8.89	7.67	8.15	8.41						
Sodium	mg/l			9.27	8.88	8.88	8.88	8.63	17.43	34.1	9.27	9.827	10.3						
Sulfide	mg/l																		
Specific Conductance	umhos/cm																		
Sulfate	mg/l			8.6	9.8	9.8	9.8	9	9.133	9.3	8.6	8.85	9.1						
Total Alkalinity	CaCO3/L																		
Turbidity																			
Zinc	mg/l	5		ND				ND	0.178	0.178	ND	8.13	8.13						
Sulfate	mg/l							9.3	9.3	9.3									

APPENDIX E

DETAILED COST OPINION

Carroll County
Engineer's Opinion of Probable Cost
Water System Improvements
Date: 11/8/2021; Revised 1/12/22 & 2/14/22

CAPITAL COSTS

Priority	Item	Unit	Unit Price	Quantity	Extended Total	Phase Total
	SOURCE					
	HYDROGEOLOGIC ASSESSEMENT OF WELLS					
	BR-1					
	Clear & construct access to BR-1	LS	$10,000	1	$10,000	
	Well drilling/pumping contractor to remove pump, inspect & install stilling tube	LS	$3,000	1	$3,000	
	Engineering coordination for pumping tests	LS	$5,000	1	$5,000	
	Evaluate water level and pump at BRW #1 to evaluate air issue, pump test (eval interference w/ BR-2)	LS	$20,000	1	$20,000	
	BR-1 Subtotal				***$38,000***	
	BR-2					
	Well drilling/pumping contractor to remove pump, inspect & install stilling tube	LS	$3,000	1	$3,000	
	Engineering coordination for pumping tests	LS	$5,000	1	$5,000	
	Pump test BR-2 to confirm safe yield	LS	$20,000	1	$20,000	
	W-2 Subtotal				***$28,000***	
	W-3					
	install stilling tube	LS	$3,000	1	$3,000	
	Engineering coordination for pumping tests	LS	$5,000	1	$5,000	
	Inspect 3 dug wells - Open covers; check water levels; document depth, pump test each	LS	$20,000	1	$20,000	
	W-1 Subtotal				***$28,000***	
	HYDROGEOLOGIC ASSESSEMENT OF WELLS					**$94,000**
	WELLS					
	Level Monitoring					
	Level transducers	EA	$3,000	3	$9,000	
	Conduits and wire between meter building and wells	LF	$45	1500	$67,500	
	Replace wooden backboard for junction box at W-1	LS	$1,200	1	$1,200	
	Install Junction boxes at each well	EA	$500	3	$1,500	
	Pull bedrock pumps, inspect & install stilling tubes; reset pumps	EA	$1,500	2	$3,000	
	Mount stilling tube in dug well for transducer	EA	$500	1	$500	
	Level Monitoring Subtotal				***$82,700***	
	Misc wells					
	Allowance for repairs to well pumps & other equip in wells	LS	$50,000	1	$50,000	
	Misc wells Subtotal				***$50,000***	
	New Source					
	Hydrogeologic Review of Available Groundwater Resources and Hydrogeologic Setting of the Selected Study Area – Project Site	LS	$30,000	1	$30,000	
	Specific Siting of Exploratory Test Wells within the Study Area – Conduct Geophysical Surveys	LS	$50,000	1	$50,000	
	Production Well Drilling -- Convert the Highest Yielding Exploratory Test Wells to Large Diameter Production Well(s	LS	$100,000	1	$100,000	
	Long-Term Pumping Tests on Highest Yielding Wells	LS	$100,000		$0	
	Preparation of Final Hydrogeological Report – Submittal to the NHDES for Public Water Supply Source Approval	LS	$45,000	1	$45,000	
	Road to new well	LF	$150	500	$75,000	
	Water main/power/signal to new well	LF	$200	500	$100,000	
	Pitless, pump, level transducer, drop pipe, etc.	LS	$50,000	1	$50,000	
	SCADA modifications for new well	LS	$8,000	1	$8,000	
	Water conservation plan (if need new well)	LS	$8,000	1	$8,000	
	New Source Subtotal				***$466,000***	

1	**WELLS SUBTOTAL**					**$598,700**
	METERING/ CHLORINATION BUILDING					
	Exterior					
	Clear trees for electrical service to station	LS	$1,500	1	$1,500	
	Exterior Subtotal				***$1,500***	
	Interior					
	Replace select areas of damaged walls (around chlorine area), scrape peeling paint	LS	$1,500	1	$1,500	
	Install new FRP panels on walls & ceiling	LS	$3,000	1	$3,000	
	Replace propane heater	EA	$2,500	1	$2,500	
	Paint existing piping	LS	$5,000	1	$5,000	
	Add continuous chlorine residual monitor & tie into SCADA (assume spare I/O exists)	LS	$12,000	1	$12,000	
	Programming associated with chlorine residual monitor	LS	$2,000	1	$2,000	
	Install drywell for analyzer discharge	LS	$5,000	1	$5,000	
	Replace rusted wireway	LS	$2,500	1	$2,500	
	Replace source and distribution meters	EA	$1,200	4	$4,800	
	Replace 4-20 mA signal from distribution meter to PLC	LS	$1,200	1	$1,200	
	capacity	LS	$5,000	1	$5,000	
	Additional software to view SCADA info from office	LS	$2,000	1	$2,000	
	Upgrades to SCADA panel	LS	$15,000	1	$15,000	
	Cellular modem upgrade for SCADA	LS	$5,000	1	$5,000	
	Interior Subtotal				***$66,500***	
2	**METERING/ CHLORINATION BUILDING SUBTOTAL**					**$68,000**
	GENERAL/ MISC.					
	Construction Subtotal					***$666,700***
	Bonds, Insurance, General Conditions				11.5%	*$76,671*
	Contractor Overhead & Profit				15%	*$100,005*
	2 yr escallation to construction (5% per year)				10%	*$66,670*
	Contingency				25%	*$133,000*
	Total Probable Construction Cost					***$1,040,000***
	Engineering - Preliminary Design, grant applications & permitting				3%	$4,000
	Engineering - Final Design and Construction				25%	$260,000
	Hydrogeological Phase					$94,000
	TOTAL RECOMMENDED SOURCE IMPROVEMENTS COST					***$1,398,000***
	STORAGE					
	STORAGE TANK					
	Exterior					
	Minimal surface excavation around tank to fully expose concrete surfaces to be repaired	LS	$5,000	1	$5,000	
	Remove aluminum strips & expansion rivets and roll back membrane roof to access concrete walls & roof joint	LS	$1,000	1	$1,000	
	Power tool clean exposed spalling concrete areas	LS	$5,000	1	$5,000	
	Repair spalled areas.	LS	$5,000	1	$5,000	
	Apply elastomeric sealant - ANSI/NSF 61 approved for potable water throughout the entire roof/wall joint to seal tank	LS	$10,000	1	$10,000	
	Coat exposed exterior walls w epoxy/polyurethane flexible coating to seal and protect exposed concrete	LS	$10,000	1	$10,000	
	Resecure rubber membrane	LS	$1,000	1	$1,000	
	Repair easternmost edge of rubber roof in area of failure.	LS	$1,000	1	$1,000	
	Excavate overflow pipe at tank, clean and coat	LS	$2,000	1	$2,000	
	Exterior Subtotal				***$40,000***	
	Interior					
	Power tool clean pipes inside the tank to remove corrosion and coat the metal pipe (one bottom and one on western side) ; fix hangar for 4" PVC pipe	LS	$10,000	1	$10,000	
	Repair 1/4" gap between walls and roof on eastern side of tank	LS	$10,000	1	$10,000	
	Repair joint between concrete ceiling planks	LS	$2,000	1	$2,000	
	Drain tank and Install temporary by-pass tank (while tank is off-line)?	LS	$20,000	1	$20,000	
	Interior Subtotal				***$42,000***	

	Restore fire pond capacity and functionality					
	Clean/excavate pond	LS	$5,000	1	$5,000	
	Repair piping for pumper connection	LS	$2,000	1	$2,000	
					$7,000	
3	**STORAGE TANK SUBTOTAL**					***$89,000***
	GENERAL/ MISC.					
	Construction Subtotal					***$89,000***
	Bonds, Insurance, General Conditions				11.5%	*$10,235*
	Contractor Overhead & Profit				15%	*$13,350*
	2 yr escallation to construction (5% per year)				10%	*$8,900*
	Contingency				25%	*$18,000*
	Total Probable Construction Cost					***$140,000***
	Engineering - Preliminary Design, grant applications & permitting				2%	$400
	Engineering - Final Design and Construction				25%	$35,000
	TOTAL RECOMMENDED STORAGE IMPROVEMENTS COST					***$175,000***
	TRANSMISSION & DISTRIBUTION					
	DISTRIBUTION					
	Hydrants					
	Shutdown & drain main 3x; night work; coordination	LS	$25,000	1	$25,000	
	new valves for hydrants	EA	$1,500	12	$18,000	
	Replace hydrants with new Aerican Darling B-24-B hydrants	EA	$4,500	12	$54,000	
4	***Hydrants Subtotal***				***$97,000***	
	Radio Read Meters					
	New Radios	EA	$209	50	$10,463	
	Contractor admin, scheduling, tracking, record documents	LS	$10,000	1	$10,000	
	Command link for ipad	EA	$650	1	$650	
	Sensus radio read software	LS	$4,275	1	$4,275	
	Installation, training & 1 year support	LS	$3,600	1	$3,600	
5	***Radio Read Meters Subtotal***				***$28,988***	
	Ossipee Meters					
	Replace residential meters (existing are 20 yrs old)	EA	$500	42	$21,000	
5	***Ossipee Meters Subtotal***				***$21,000***	
	County Complex Meters					
	Install meters in Complex buildings	EA	$4,860	7	$34,020	
	Repair or replace compound meter in the vault near the maintenance building	LS	$5,000	1	$5,000	
	Piping modifications req'd for new meters	EA	$1,200	7	$8,400	
6	***County Complex Meters***				***$47,420***	
	Water Mains					
	Replace 4” PVC main on Old Rte 28 with new 6” or 8” D.I. main	LF	$300	2300	$690,000	
	Replace services to curb stop	EA	$1,200	15	$18,000	
7	***Water Mains Subtotal***				***$708,000***	
	Site Work					
	Clear Water main corridor from tank to courthouse min 20 ft for access for repairs	LS	$5,000	1	$5,000	
	Clear access from pump house to wells (existing road), clear over pipeline from W-1 and W-2 to W-3	LS	$2,000	1	$2,000	
	Upgrade road to Wells & make drivable					
	Excavation	CY	$12	814	$9,768	
	Crushed gravel, 6", compacted	CY	$56	272	$15,232	
	Bank Run gravel, 12", compacted	CY	$47	543	$25,521	
8	***Site Work Subtotal***				***$57,521***	
	DISTRIBUTION SUBTOTAL					**$959,929**
	GENERAL/ MISC.					
	Construction Subtotal					***$959,929***
	Bonds, Insurance, General Conditions				11.5%	*$110,392*
	Contractor Overhead & Profit				15%	*$143,989*
	2 yr escallation to construction (5% per year)				10%	*$95,993*

Contingency	25%	*$192,000*
Total Probable Construction Cost		***$1,500,000***
Engineering - Preliminary Design, grant applications & permitting	3%	$5,800
Engineering - Final Design and Construction	25%	$375,000
New DPW Truck		*$50,000*
TOTAL RECOMMENDED TRANSMISSION & DISTRIBUTION IMPROVEMENTS COST		***$1,931,000***

TOTAL PROJECT COSTS ***$3,504,000***