

Water System Improvement Study

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CARROLL COUNTY WATER SYSTEM IMPROVEMENT STUDY

PRESENTED TO

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

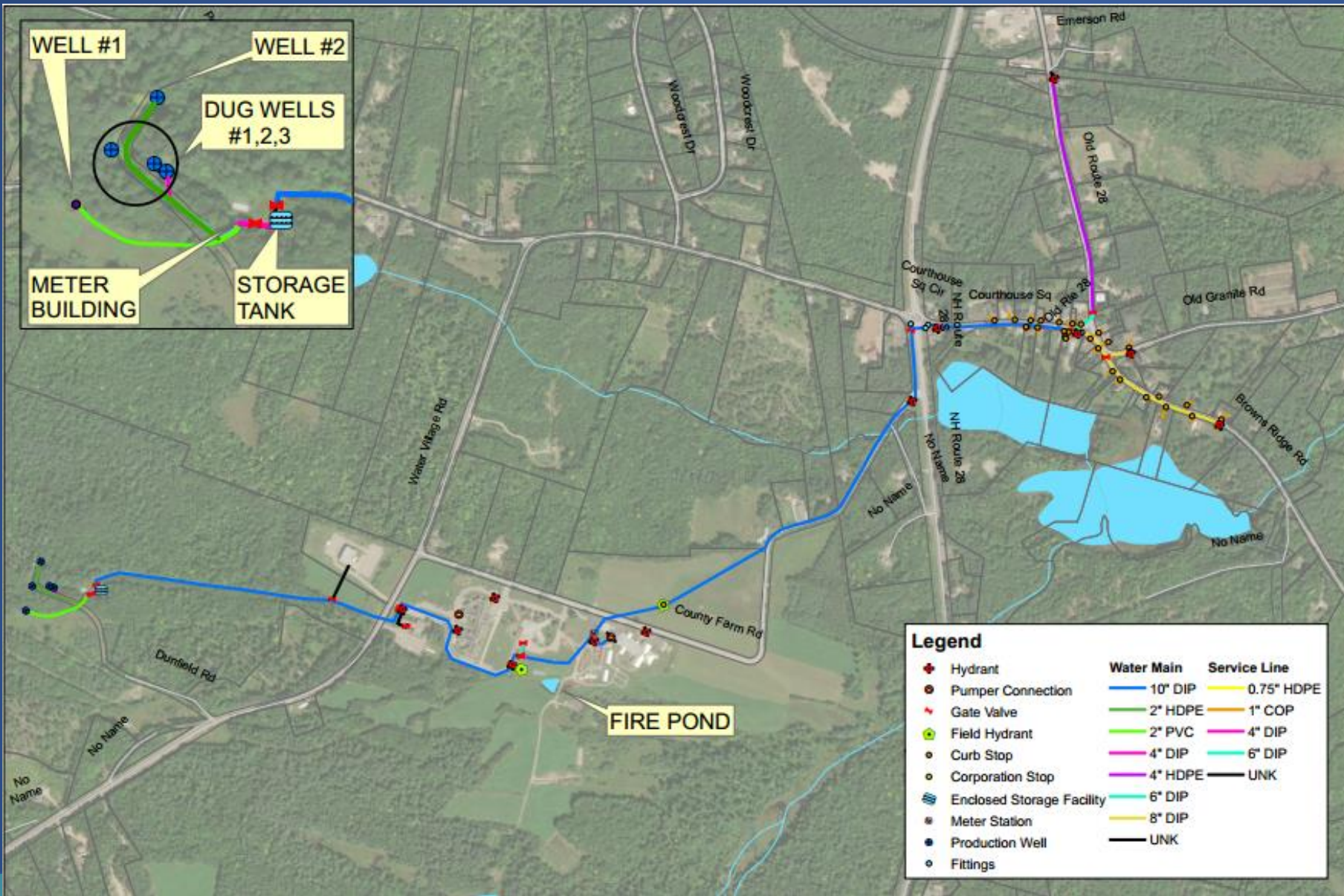
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DECEMBER 2021



Concord, New Hampshire
UE Job # 2718

Carroll County Water System



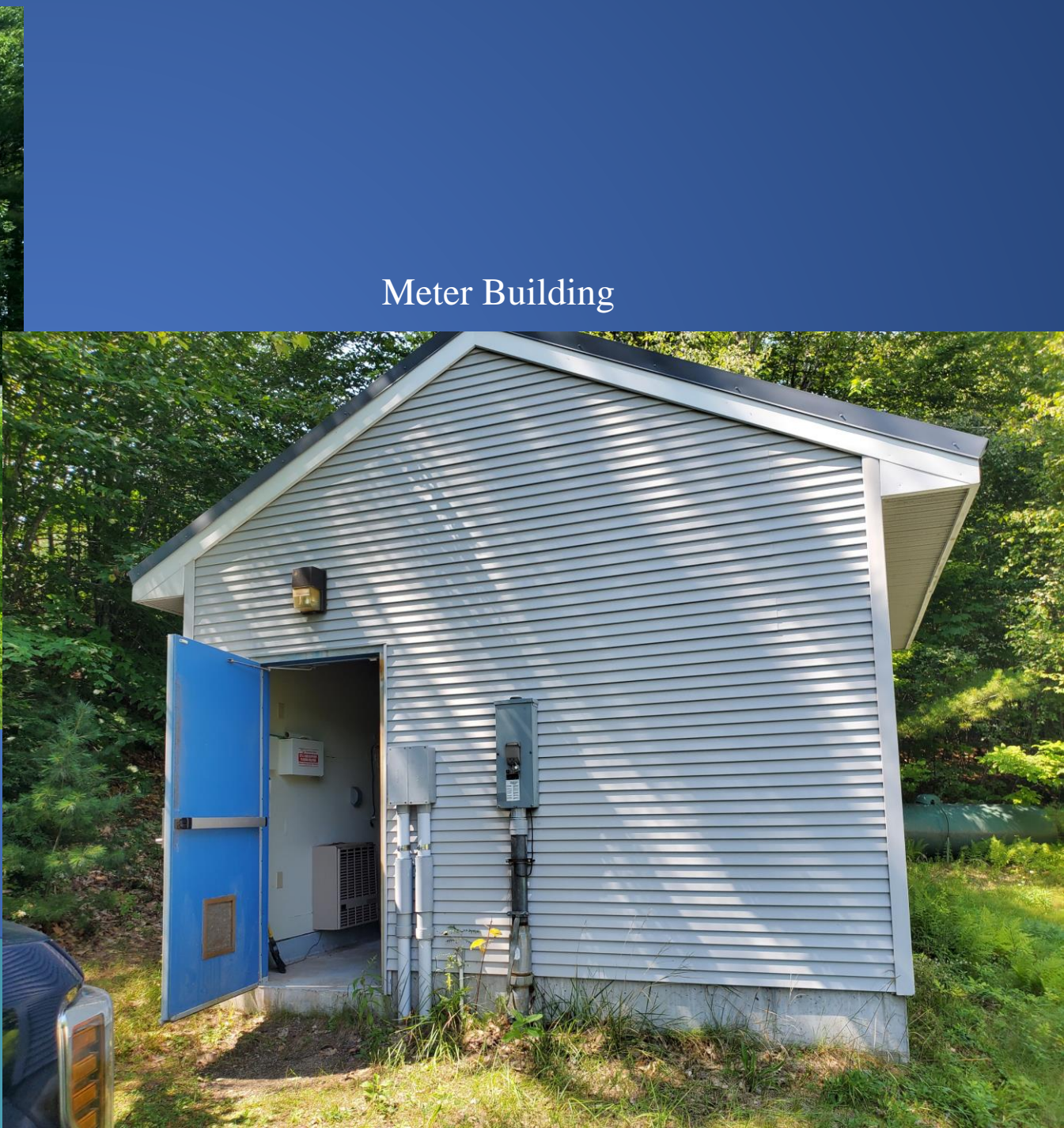
Carroll County Water System

- Dug Well(s) (W-2 and W-3 flow to W-1 by gravity; pumped W-1 to tank)
- 2 Bedrock Wells
- Meter building
 - 3 source meters
 - 1 distribution meter
 - Chlorine feed system
 - Controls
 - Standby Generator
- Storage Tank





Storage Tank



Meter Building

Meter Building



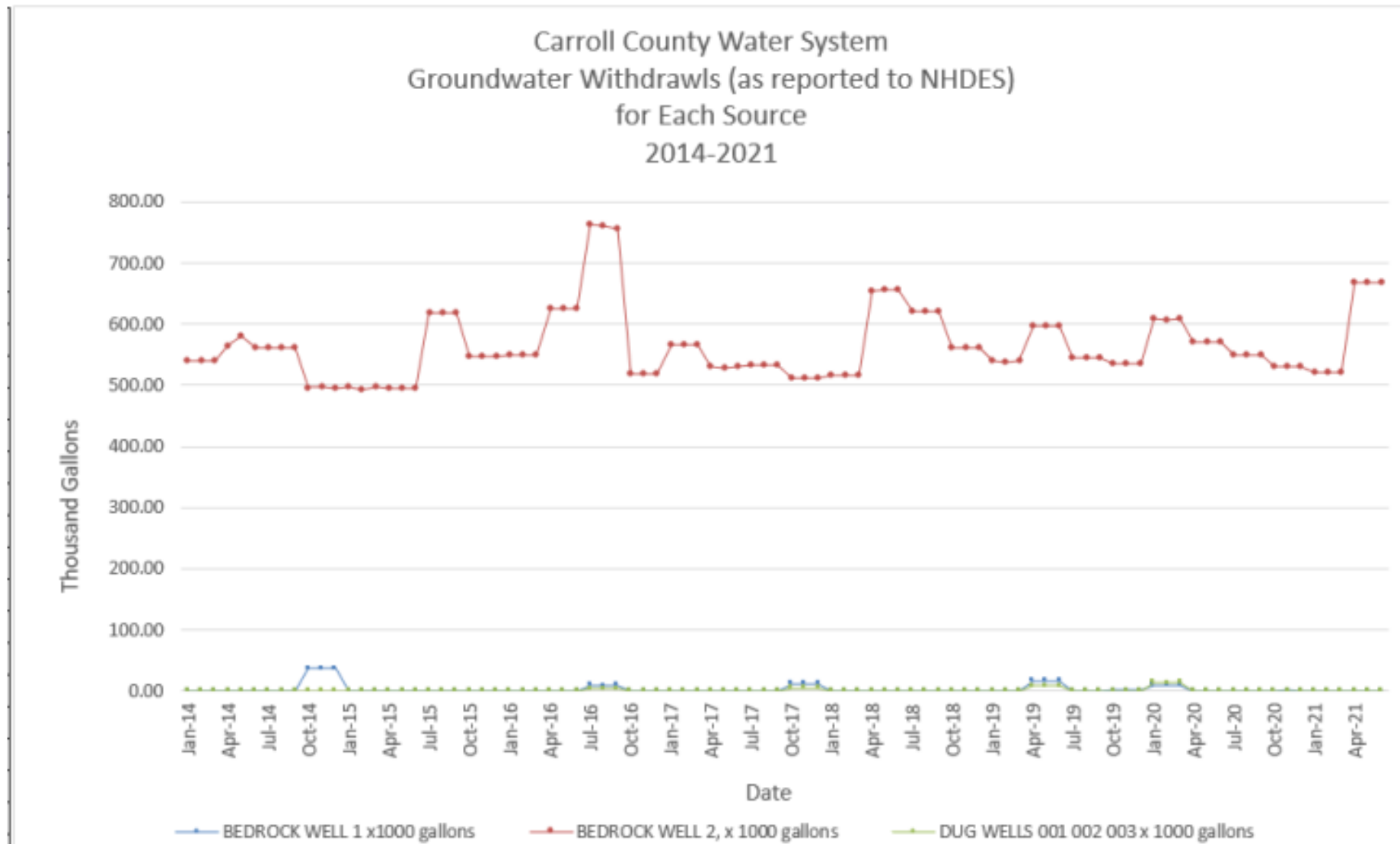
Supply and Demand

- Current Demand/Usage
 - Meters:
 - Source meters – read monthly
 - Village meters – read quarterly
 - No meters at County Buildings
 - Average day: 19,000 gpd
 - Average Maximum Day: 26,000 gpd+
 - 17-30% billed to village users (average 22%)
 - Remaining use on County Complex and unmetered usage

Supply and Demand

- Supply Capacity
 - Required Source Capacity:
 - Current: 76,000 gpd
 - Future: ?? 101,000 gpd assuming 50 new beds
 - Existing Source Capacity:
 - BW#1 ?? 15 gpm
 - BW#2 ?? 25 gpm
 - W-1 ?? 15 gpm
 - Assumed capacities above = 79,200 gpd

Figure 4-2 – Carroll County Groundwater Withdrawals Each Source



Storage

- Required Storage:
 - Equalization Storage: 12,360 gallons
 - Fire Flow Storage: 300,000 gallons
 - Emergency Storage: 38,000 gallons (2 days @ average flow)
 - Available Storage :
 - Storage Tank - Total Volume 200,000 gallons
 - Current usable volume 164,000 gallons
 - Fire Pond 170,000 gallons
- 350,360 gallons
- 334,000 gallons

Storage

- Adequate storage for potable system in the tank
- Need fire pond and tank for fire flow storage
- Best to keep excess fire storage separate to preserve water quality in the potable system.

Fire Flows

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

Required Fire Flow:

- 2,500 gpm at Nursing home for 2 hours

Available Fire Flow:

- 1,500 gpm at 20 psi at hydrants in the County Complex
- 1,800-2,000 gpm at 20 psi at hydrants in the village

Rates

- Village usage averages 22% of water produced
- Usage averages 4,200 gallons/month
- Current rate: \$100 per quarter plus \$0.40 per 100 gallons
- Comparisons:
 - State average \$587.35 annually based on 71,996 gallons (state average use)
 - Carroll County cost \$687.98 for 71,996 gallons => above state average
 - Of 126 communities in NHDES table of rate structures for FY 20-21, Carroll County was 27th most expensive.
 - Revenue generated appeared proportional to Water Dept Budget

Recommendations

1. Sources

- a. Study to evaluate long term safe yield of each source
- b. New source, if needed
- c. Improvements
 1. Well Level Transducers
 2. Minor repairs and upgrades

2. Storage

- a. Concrete repairs to storage tank
- b. Clean and repair fire pond

Recommendations

3. Metering Building

- a. Interior building repairs – walls, ceiling, heater
- b. Replace meters
- c. Upgrade control system
- d. Add chlorine analyzer

4. Distribution System

- a. Replace main on Old Rte 28
- b. Replace system hydrants
- c. Replace meters in village; Install meters at County Complex
- d. Radio read system for reading meters

Cost/Funding

1. Preliminary Cost Opinion - \$3.51 Million
 - a. Includes development of a new source (currently unknown)
2. Funding
 - a. Asset Management Grant – Applications due Jan 7; 100% grant up to \$100,000
 - b. Strategic Planning Grant – Applications due Jan 7; 100% grant up to \$50,000; could cover source evaluation work, preliminary design, etc.
 - c. County ARPA funds – Coronavirus State & Local Fiscal Recovery Funds – require obligation by end of 2024; spent by end of 2026; allowed uses include water, wastewater & broadband
 - d. Other Funding options