Hooksett Village Water Precinct Budget Committee Presentation – Jan. 16, 2020

- Wells & Vertical Turbine Pumps (4)
- Treatment Plants (3)
- Ground Storage Tanks (3)
- Booster Pumps (5)
- High Pressure Distribution System
- Low Pressure
HVWP Water Sources

4 Large Gravel Wells

1980s (2) and 2000s (2)

Total Flow ~ 1,200 GPM
HVWP Water Treatment

Chemical Feed Systems

Disinfection (microbiological) - NaOCl

Corrosion Control (pH adjustment and sequestration) – Na$_2$CO$_3$ and PO$_4$

Iron/Manganese (color) Control – PO$_4$
HVWP Water Storage

Three Water Storage Tanks

1MG Glass-Fused Steel - 2019
1MG Prestressed Concrete - 2007
250K Welded Steel – 1950
Basic Components:

30+ Miles of Water Main & Valves
189 Fire Hydrants & Valves
One Booster Pump Station
67+ Fire Sprinkler Systems
>1,100 Service Lines, Valves & Meters
One Emergency Interconnection
316 Backflow Protection Devices
2019 Improvements: South Station

Before:

After:
2019 Improvements: Hydrant Program

Flow Testing:

Repair & Replacement:

Marking, Flagging & Inventory:
2019 Improvements: New Tank
2019 Improvements: Recognition

**NHWWA:**

Supplying Power to a New Water Storage Facility in Hooksett, NH

When Utility Power is not an Option

Bruce W. Lewis, P.E.

Lewis Engineering, PLLC – Litchfield, NH

A recent observation relative to a familiar and well recognized term “water works facilities design” is that part of the opportunity from time to time often includes the need to be able to provide reasonable solutions to specific areas of difficulty that arise within a current project design.

**NEWWA:**

Location, Location, Location

A water tank often becomes the symbol of a municipality, towering above the community on a hill or pedestal. Securing available land for new water storage tanks can be a challenge from word “go” but as we all know, location is everything. Several factors come into play when choosing where your new tank will call home. Site availability and access for both initial construction and future maintenance/inspections on the tank is a good place to start. Distance from a water transmission line, the nature of the pump systems and water age also play important roles. Though certain parallels can be drawn project to project, each project is unique.

For the Hooksett Village Water Precinct in New Hampshire, the project began as a need to address the deteriorating conditions associated with the Precinct’s rapidly aging 200,000 gallon 1950’s water storage tank. The Precinct was formed in the 1940s and now serves over 3,000 people including a number of critical community facilities as well as the Exit 11 Rest Area off the Everett Turnpike. A new one million gallon tank would address a significant storage deficiency and provide increased system efficiency by reducing source well pump cycling.

Over a two year period, nearly a dozen potential tank sites in the Precinct were identified and discarded. One because the associated development project fell through, another because the hydraulics simply wouldn’t work in the end. Seeking out a high point in the hilly terrain of Hooksett was made a priority and at last, a formerly active portion of the large active quarry in town presented itself as a great option. The scope of the project not only accommodated the water storage required to support future uses, it also included the installation of a new, dependable water main adjacent to an incredibly developable area. The potential for the area is so strong that a local builder and two landowners partnered with the Precinct to secure a critical project easement at no cost. This tank location also made storage available on the west side of the Merrimack River for protection in the event of a catastrophic failure. The innovative and publically beneficial re-use of an environmentally degraded property for the new glass fused to steel water storage tank proved to be just what the Precinct needed.

The contract was awarded to Statewide Aquastore in July of 2018. Construction began in early December and the tank was brought on line in April of this year. The new tank has helped alleviate serious capacity limitations, met the demand for rapidly growing domestic water use and bolstered fire protection that was previously lacking. The incredible and tireless dedication of the entire Hooksett Village Water Precinct staff to bettering not only their water system, but the health of their community as a whole is commendable to say the least.

While countless factors contribute to the success of a water storage tank construction project, if the tank’s location is poorly chosen, the project may as well
2019 Improvements: Backflow

Before:

After:
2019 Improvements: Metering

**Communication Health**
- 98.7% Status OK
- 7 Not Reporting
- 7 No Recent Endpoint Communication

**Flow Health**
- Breakdown of flow anomalies: 112 No Recent Flow, 11 Leak Detected, 9 Backflow, 2 Continuous Flow

**System Water Usage**
- Weekly Usage (Gallons/Week): This Week 346,666 Gallons, Last Week 352,251 Gallons

**Graphs**
- Thursday, September 12, 2019
- Daily for December 2019

*This metric is calculated from networked meters only.*
2019 Improvements: SCADA
2019 Improvements: SCADA
2019 Improvements: GIS
2019 Improvements: Web Site

"Essential. Reliable. Invaluable. Water - it's the thread that weaves together our daily lives. It keeps our community healthy, our town running, and our economy growing." *The Value of Water Campaign*

WWW.HOOKSETTVILLAGEWATER.ORG
2020 Activities

- Asset Management Plan
- North Well Station Rehab
- Bow Interconnection Study
- RT3A Improvements Design
- Meter Replacements
- New Source Research
- GIS Improvements/Sharing
- Hydrant Repairs/Replacements
- RT3A Grant Application (Phase 2)
- Old Tank Evaluation
- Comprehensive Leak Survey
- Non-Compliant Services
- Triennial State Inspection
- Booster Pump Rebuild

... and all the “regular stuff”...
<table>
<thead>
<tr>
<th>Long-Term Project Description</th>
<th>Years of Last Purchase</th>
<th>Years of Next Purchase</th>
<th>FY2020</th>
<th>FY2021</th>
<th>FY2022</th>
<th>FY2023</th>
<th>FY2024</th>
<th>FY2025</th>
<th>FY2026</th>
<th>FY2027</th>
<th>FY2028</th>
<th>FY2029</th>
<th>10-Year Project Cost</th>
<th>25-Year Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanks: (a) Installation of new correctly sized tank for Low Pressure Zone (LPZ) via $1.8M loan in 2019-20</td>
<td>2019</td>
<td>...</td>
<td>$110,119</td>
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<td>$110,119</td>
<td>$1,101,195</td>
<td>$2,299,833</td>
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<tr>
<td>(b) Repair/re-purposing of old LPZ tank</td>
<td>1950-2021</td>
<td></td>
<td>$0</td>
<td>$200,000</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>(c) Repair/upgrade High PZ (HPZ) tank</td>
<td>2007-2022</td>
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<td>$0</td>
<td>$0</td>
<td>$60,000</td>
<td>$0</td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$60,000</td>
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<tr>
<td>New Source Installation: For drought-contamination protection and growth (estimated $1M loan in 2024)</td>
<td>2007-2023-24</td>
<td></td>
<td>$25,000</td>
<td>$25,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$510,000</td>
<td>$1,350,000</td>
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</tr>
<tr>
<td>Main Replacement/Improvement: 30 miles pipe @ 1,000/yr x $250/ft x $25K engr = $275K/yr (160-yr life cycle)</td>
<td>0-70 yrs</td>
<td>Annual</td>
<td>$150,000</td>
<td>$0</td>
<td>$150,000</td>
<td>$240,000</td>
<td>$220,000</td>
<td>$255,000</td>
<td>$245,000</td>
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<td>$1,885,000</td>
<td>$5,380,000</td>
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<td>Emergency Interconnection: Backup for west LPZ (estimated $1M loan in 2022)</td>
<td>1965</td>
<td>2021-22</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$60,000</td>
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<td>$530,000</td>
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<td>Meters/Transmitters: Routine upgrades/replacements (10-20 year cycle)</td>
<td>0-68 yrs</td>
<td>2020-23</td>
<td>$60,000</td>
<td>$60,000</td>
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<td>$60,000</td>
<td>$40,000</td>
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<td>$720,000</td>
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<td>Pump Stations: Improvements for efficiency/safety/damage prev./SCADA</td>
<td>10-35 yrs</td>
<td>2020</td>
<td>$65,000</td>
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<td>Vehicles: Routine replacement before major repairs (12-year cycle)</td>
<td>1-12 yrs</td>
<td>2021</td>
<td>$0</td>
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</table>

**Projected CIP totals:**

<table>
<thead>
<tr>
<th>Year</th>
<th>FY2020</th>
<th>FY2021</th>
<th>FY2022</th>
<th>FY2023</th>
<th>FY2024</th>
<th>FY2025</th>
<th>FY2026</th>
<th>FY2027</th>
<th>FY2028</th>
<th>FY2029</th>
<th>Total</th>
</tr>
</thead>
</table>

**Breakdown of CIP Sources:**

- Trust funds: $101,000
- Prior year surplus: $0
- Tax: $0
- Rates & fees: $245,289

**Projected Budget ▲ due to CIP:** $1,185,289

**Breakdown of Budget Needs:**

- CIP ▲: $1,185,289
- + Routine O&M (inflation) ▲: $15,000
- + Planned trust fund deposit: $9
- + Water usage factor: $2,350
- Appro. add’l. revenue needs ▲: $169,896

Future Improvements