

# WATER SYSTEM IMPROVEMENTS

## PETERBOROUGH, NEW HAMPSHIRE



***Existing unlined cast iron water main with significant scale buildup.***



***Water Flowing from Water Main During the Cleaning Process.***

Dufresne Group (DG) provided the design and engineering services during construction for the cleaning and lining of over 5,000 lf of existing 10-inch and 12-inch unlined cast iron water main and the installation of 1,000 linear feet of new 12-inch ductile iron water main on various streets including Route 101.

The 12-inch cast iron main on Pine Street provided the connection to one of three water storage tanks in Town. The temporary loss of this connection during cleaning and lining required reconfiguration of the Town's pressure zones. Dufresne Group had developed a computer model and the model was used for the system reconfiguration.

At the intersection of the water tank water main to the high pressure water main there were 9 valves within a 25 foot radius with no documentation of valve connections. By the end of the project, 7 valves were eliminated and the piping was reconfigured. The intersection now has fewer valves clearly documented and in the record drawings and the tie sheets. Replacement of the valve as crucial. The Peterborough Water Department had struggled to get efficient shut-downs at this intersection during emergency situations and now can easily isolate various sections of the system.

### KEY FEATURES

- Reuse of the existing water main at about 30% of the cost of new main.
- Replacement of valves and interconnections.
- Temporary water allowed cleaning and lining without disruption of service to affected customers.
- Hydraulic characteristics of the system were modeled to facilitate temporary loss of transmission main.