# Water monitoring and control system cuts power costs

**Utility - Water/Wastewater**
**City of Grand Rapids Water Dept.**

**UNITED STATES**

Transparent FACTORY™ Open for Business

## The existing installation

The City of Grand Rapids water department is the largest water supplier for the western half of Michigan. The current control and monitoring system involves the control of several large water pumps and associated valving. Equipment is located remotely and is connected via radio and dial-up data lines. In an effort to cut power costs and increase system capacity, it was decided to upgrade the current system.

*Pump-PAK™ controllers installed at the City of Grand Rapids Water Department*

## The objective

To meet its objective of reduced power costs, facility management must select the proper combination of pumps to run at any given time to meet demand, thus the need for more complete operational information. The use of remote power metering combined with remote control will provide this capability. Remote PLC communication on the same network as power metering allows real-time measurement of dollars/gallon of water pumped, a necessary objective in cutting utility costs.

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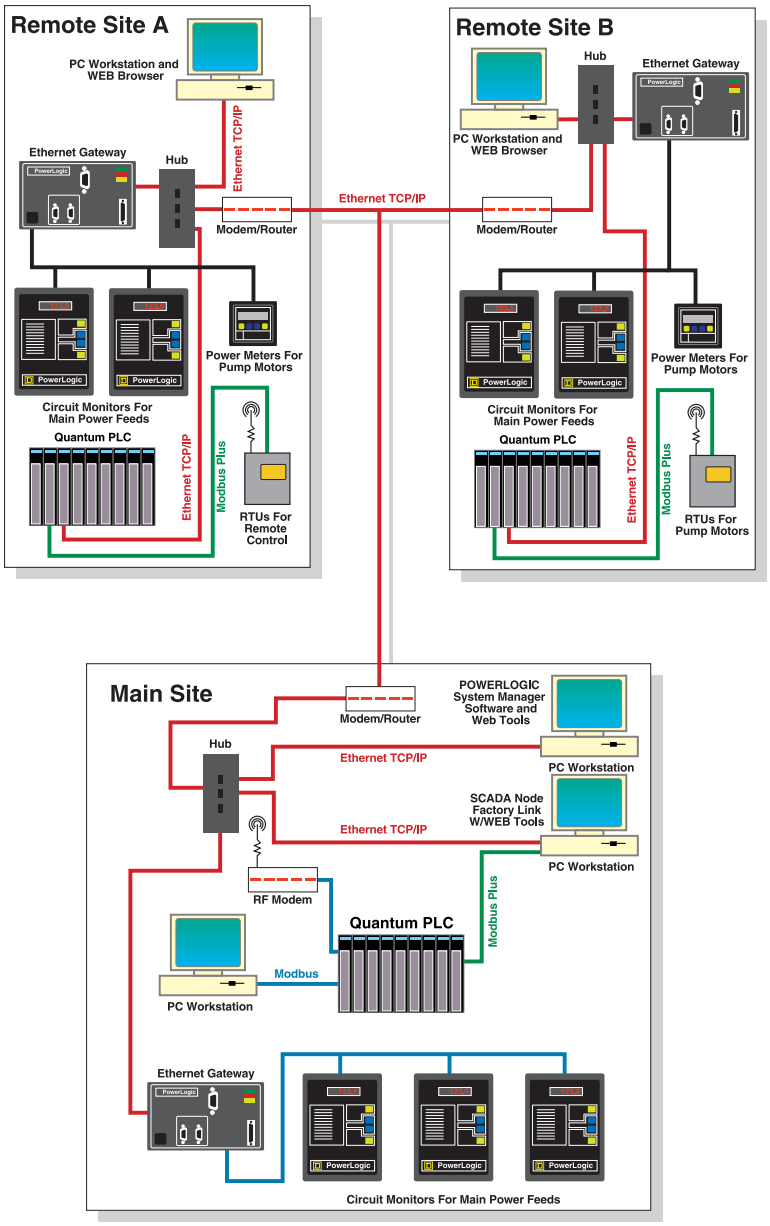
## The solution

Designed by Fishbeck, Thompson, Carr & Huber (FTC&H), a Grand Rapids engineering firm, the new system includes Modicon® Quantum™ PLCs, Concept™ software, and Modbus Ethernet TCP/IP. Also included is Square D® Powerlogic® power monitoring equipment and Pump-PAK™ solution, with Magelis™ operator display.

A new electrical power service powers several new 400-600 HP pumps at a remodeled pumping station. Designed, built and programmed by Schneider Electric's Industrial Applications Group, the Pump-PAKs contain Quantum PLCs to control motors and valves and a PowerMeter to measure real-time electricity usage. Both power data and process data are sent via dial-up Modbus Ethernet TCP/IP (with Modbus back-up via radio connectivity) to a central control station, where an Intellution SCADA system is employed. The power data is also displayed and logged via Square D System Manager™ software.

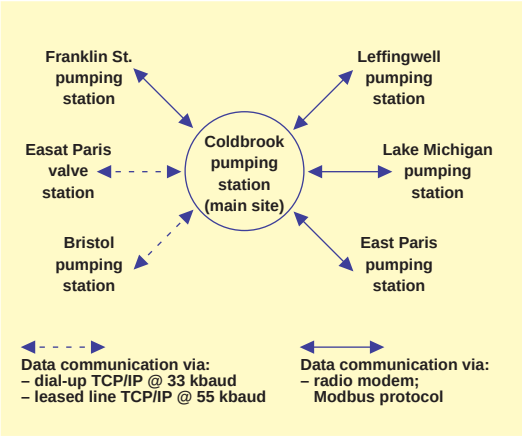
The new system was installed while the facility was in operation, as an addition to existing capacity.




## Customer benefits

- Reduced electricity costs: The new system provides the information needed to choose the most efficient pump combination.
- Less downtime: Concept software facititates troubleshooting and provides the ability to connect to the PLC from any remote site via TCP/IP. Using information from local Magelis terminals, mechanics can quickly debug valve faults.
- Ease of upgrade: The new system will readily accept installation of faster TCP/IP technologies when they become available, i.e., a future city-wide fiber system.
- Environmental benefits: Less pollution is created because less electricity is required to pump the same amount of water.

*One of several Pump-PAK™ cabinets housing motor controls and PLC components.*

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