

SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM, AND-TRO WATER AUTHORITY PERRY COUNTY, INDIANA

Summary

- Installation of a Supervisory Control and Data Acquisition (SCADA) System to improve remote monitoring and control the system components from a central or remote location.
- Estimated Loan Amount: \$186,000.00
- **Estimated Energy Efficiency Savings (Green) portion of the loan based on bid pricing is \$176,361 (\$158,302 for construction and \$18,059 for planning and design).**

Background

- Although the system has sufficient capacity to meet the average daily demand, technological advances have surpassed the capabilities of the Utility's existing monitoring and control system. The existing controls and monitoring capability of the system does not provide the standard alarms and monitoring required for a system of this size. The lack of reliable system monitoring, control, and alarm notification requires additional maintenance and reduces the overall reliability and efficiency of the system.

Results

- The new SCADA System with high speed data radios will allow the Utility to monitor and operate the following linked sites:
 - o **MCU 1** -at existing And-Tro Water Office
 - o **RTU2** -at existing Booster Station #1
 - o **RTU3** -at existing 400,000 gallon elevated water storage tank #4
 - o **RTU4** -at existing 75,000 gallon standpipe tank #2
 - o **RTU5** -at existing Booster Station #2
 - o **RTU6** -at existing 67,700 gallon and 150,000 gallon standpipe tank #1 & #3
 - o **RTU7** -at existing Booster Station #3
 - o **RTU8** -at existing master meter pit to Branchville Correctional Facilities
 - o **RTU9** -at existing 100,000 gallon elevated water storage tank #5
 - o **RTU 10**-at existing master meter pit to Patoka Lake Regional Water and Sewer District
- The SCADA System will allow the Utility to operate and monitor their tanks and pump stations seven (7) days a week and twenty-four (24) hours a day.
- The SCADA System will allow the Utility to operate their entire system from a remote location (Utility office or from a remote computer) and will save time and mileage resulting in labor and energy savings. It takes approximately 1.5 hours a day and 46 miles round trip to check the three (3) pump stations and two (2) master meters. The Utility also checks their stations on weekends and holidays, which is overtime. Based on the hourly wages for a weekday, 1.5 hours

- @ \$22.00 per hour the cost of labor is \$33 per day or about \$12,045 per year.
- Mileage savings are based on assuming one round trip from each location is avoided per day (46 miles per day) and company vehicles get 15 miles per gallon, then approximately 1,119 gallons of gasoline are saved annually. Assuming a gasoline cost of \$2.80/gallon, the estimated savings will be \$3,134 per year. This reduces the overall operation and maintenance costs for the Utility, reduces the carbon footprint of the water system, and maximizes the Utility personnel's time.
 - The SCADA System will also save energy when the tanks overflow there will be an alarm letting the Utility know and will save on the cost of electricity and water.

Conclusions

- By installing a SCADA system, the Utility will be able to save approximately 1,119 gallons of fuel per year, reduce wear and tear on Utility vehicles, and reduce the required labor by approximately 548 hours per year.
- The estimated cost savings of the project total \$15,179 per year based on \$3,134 per year in gasoline savings and \$12,045 per year in labor savings.

Reference

Supervisory Control and Data Acquisition (SCADA) System Green Project Reserve Business Case for And-Tro Water Authority Perry County, Indiana, prepared by Midwestern Engineers, Inc. January 4, 2011