


VILLAGE OF LOMBARD
REQUEST FOR BOARD OF TRUSTEES ACTION
For Inclusion on Board Agenda
Bids and Proposals

TO : President and Village Board of Trustees
FROM : Scott Neihaus, Village Manager
DATE : February 10, 2015 Agenda Date February 19, 2015
TITLE : Waiver of Bids - Energenecs, Inc
SUBMITTED BY: Brian M. Jack, Utilities Superintendent 

RESULTS:

Date Bids Were Published _____ Bidding Closed _____
Total Number of Bids Received _____
Total Number of Bidders Meeting Specifications _____
Bid Security Required _____ Yes _____ No
Performance Bond Required _____ Yes _____ No
Were Any Bids Withdrawn _____ Yes _____ No
Explanation:
Waiver of Bids Requested? _____ X _____ Yes _____ No
If yes, explain: Purchase is directly from manufacturer.
Award Recommended to Lowest _____ Yes _____ No
Responsible Bidder?
If no, explain:

FISCAL IMPACT:

Engineer's estimate/budget estimate \$50,000.00
Amount of Award \$32,000.00 Water & Sewer Capital Reserve Fund RM PROG 30
520.790.715.75420

BACKGROUND/RECOMMENDATION:

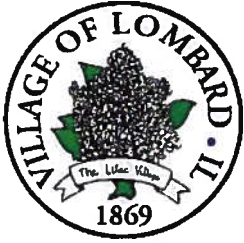
Waive bids and award a contract to Energenecs, Inc for the water, sewer, and storm water remote station Supervisory Control & Data Acquisition (SCADA) radios in an amount not to exceed \$32,000.00.

Has Recommended Bidder Worked for Village Previously X Yes _____ No
If yes, was quality of work acceptable X Yes _____ No
Was item bid in accordance with Public Act 85-1295? _____ Yes X No
Waiver of bids - Public Act 85-1295 does not apply X Yes

REVIEW (as needed):

Village Attorney XX _____ Date _____
Finance Director XX _____ Date _____
Village Manager XX _____ Date _____

NOTE: All materials must be submitted to and approved by the Village Manager's Office by 4:30 pm, Wednesday, prior to the Board Agenda distribution.

**MEMORANDUM**

To: Scott Niehaus, Village Manager
From: Brian M. Jack, Utilities Superintendent
Through: Carl S. Goldsmith, Director of Public Works
Date: February 9, 2015
Subject: **Waiver of Bids - Energenecs Inc.**
SCADA System Radio Upgrades

Background

The Village of Lombard Water Treatment & Wastewater Pumping (WTWWP) Division operates a highly sophisticated Supervisory Control & Data Acquisition (SCADA) system. The WTWWP Division began operating the SCADA system in 1982 when Continental Cable negotiated a cable TV franchise agreement with the Village of Lombard. Back then, the SCADA system monitored the well and water pump stations and transmitted the data to the Civic Center Reservoir Facility (CCRF) over cable TV lines. The system collected, displayed and archived the data and signaled alarm conditions on the computer at the CCRF but operators were unable to remotely control any functions. Cable TV communications had become increasingly unreliable over the years so the Village could no longer rely on the SCADA system for complete information.

As technology progressed and newer equipment became available, the Village of Lombard WTWWP Division decided to implement a phased approach to upgrade their antiquated SCADA system and radio equipment starting in 1998. Burns & McDonnell Engineers completed a Control System Upgrade Master Plan that evaluated the Village's water and sewer systems and provided recommendations for communications, equipment, implementation and phasing of the project. The first phase of the SCADA system project began in 1999, Phase 2 awarded in 2001, Phase 3 awarded in 2002, and Phase 4 awarded in 2003. With the implementation of wireless radio communication systems it enabled the WTWWP staff to decrease their response time to operational problems, use the historical data to adjust and troubleshoot pumping operations and closely monitor the water, sewer, and storm water stations during storms, power outages, and large water main breaks.

The status of the Village's SCADA system as of 2015 remains positive and there are no underlying issues to report. However, due to trends in the industry, certain hardware and software components are becoming obsolete and no longer supported by the manufacturer. The 2016 Capital Improvements Plan programs for a SCADA system

software upgrade. This upgrade will bring the Village's software up to current industry standards, ensuring that the critical infrastructure continues to be monitored. The critical infrastructure currently consists of six water stations, sixteen sanitary lift stations, and seven storm water stations situated within the Village. WTWWP Divisional staff continually monitors these stations daily and responds to emergencies as they arise.

In the process of bringing the software up to current technology, there are several hardware components which must be installed prior to the implementation of the new SCADA system software in 2016. The remote sites in question have a mixture of licensed and unlicensed radios. The radios basically transmit data captured off of the programmable logic controller (PLC) at one of the 29 remote sites and send it back to the Civic Center Reservoir Facility (CCRF) master data radio collector. From there, WTWWP staff can make informed decisions about the water, sewer, and storm water pumping stations. Most of the radios range in age anywhere from 10-17 years old and are becoming obsolete. The SCADA industry has settled on new radio technology that communicates through Ethernet and not the older forms of serial and multi-drop communications. All current Village radios at the 29 stations utilize the older forms of serial and multi-drop communications. Many computers coming on the market will no longer have serial ports, only USB or Ethernet ports making integration and connectivity difficult. Ethernet communication is the new industry standard since it can communicate peer to peer to multiple devices over a single Ethernet port. In the Village's case, this relates to communication to the SCADA computer, the current Allen Bradley PLC's and touch-screen terminals at the 29 stations. The current radios are no longer supported and firm ware updates are no longer available. Firm ware updates provide security to the radios and prevent intentional or unintentional access to the SCADA system. It is recommended that the radios be upgraded prior to the implementation and roll out of the new SCADA system software upgrade in 2016 to prevent any security, communication or integration issues.

Discussion

The current Village SCADA system programmer and integrator is Energenecs, Inc. The Village has used Energenecs, Inc (previously Kamp Synergy) of Cedarburg, Wisconsin as their primary SCADA system integrator since 2002. All computer system programming, panel modifications, SCADA system upgrades, and radio/telemetry work has been completed by Energenecs. Prior to 2002, the Village had used several different integrators; one being Tri-R Systems of Dekalb Illinois and the other being Deadline, Inc of Johnsburg, Illinois. Both of those firms failed to understand the complexity and full scope of the WTWWP Divisions SCADA system. To expand further, on May 15, 2002, the Village decided to terminate a contract with Deadline, Inc because of their inability to finish Phase II of the SCADA system upgrades. A new request for proposals was developed to finish Phase II and complete Phase III. Energenecs submitted a bid and was awarded the contract. Energenecs understood the

Village's needs, corrected the deficiencies of the previous two integrators and has continued to be the Village's main SCADA integrator for the last 13 years. There is tremendous value in having a solid relationship with a SCADA system integrator, which is not uncommon in this market. They have integrated the Village's entire SCADA system infrastructure, they are responsive, and they have competent and reliable staff that is easy to work with and understand our vision and current needs.

Waiver of Bids

The Public Works Department requests authorization to waive the formal bidding process in order to expedite the SCADA System Radio Upgrades. Staff discussed the project with Energenecs and came to a consensus on what direction the Village should be headed with the SCADA system. All proposed radio hardware for this upgrade is current with industry standards and there are no immediate signs of hardware obsolescence.

The following ONE (1) firm submitted the following proposal:

SUPPLIER	SCADA RADIO UPGRADES	TOTAL
Energenecs, Inc of Cedarburg, WI	29 SITES	\$32,000.00

The proposal includes three phases of SCADA system upgrades. Phase 1 is the SCADA Radio Upgrades in which the proposal was checked to ensure that the supplier was providing the needed and necessary equipment. The lowest responsible proposal for the items requested is Energenecs, Inc. of Cedarburg, WI. The firm has performed radio system upgrades for the Village in the past and has done so for numerous Villages' throughout the Chicagoland area and Wisconsin. Reference checks and client follow up were performed. There are no issues to report. Energenecs, Inc. is considered a reliable, responsive vendor.

Recommendations:

Please request the Board of Trustees to waive the formal bidding process and accept the lowest, responsible proposal for the SCADA System Radio Upgrades as submitted by Energenecs, Inc of Cedarburg, WI and authorize an agreement in an amount not to exceed \$32,000.00 at the February 19, 2015 meeting. Sufficient funds for this procurement exist in the current budget.

Please execute signature on the attached contract and return two copies to the Water Treatment and Wastewater Pumping Division for further processing.

VILLAGE OF LOMBARD

Contract for SCADA System Radio Upgrades

This agreement is made this 19th day of February, 2015, by and between, and shall be binding upon, the Village of Lombard, an Illinois municipal Corporation hereinafter referred to as (the "Village") and (_____) hereinafter referred to as (the "Contractor").

Witnesseth That in consideration of the mutual promises of the parties delineated in the Contract Documents, the Contractor agrees to sell and the Village agrees to pay for the following described items as set forth in the Contract Documents:

SCADA System Radio Upgrades in an amount not to exceed \$32,000.00

1. This Contract shall embrace and include all of the applicable Contract Documents listed below as if attached hereto or repeated herein:
 - a. The Contractor's Proposal dated October 7, 2014
 - b. Required Certificate of Insurance, Indemnification, Venue, Other Contractor Responsibilities
2. The Village agrees to pay, and the Contractor agrees to accept as full payment for the items which are the subject matter of this Contract the total sum of \$32,000.00 paid in accordance with the provisions of the Local Government Prompt Payment Act and the provisions of the Contract Documents.
3. Risk of loss, destruction or damage of or to goods under this Contract shall be on contractor until delivery of the goods to the Village and acceptance of the goods by the Village.
4. The Contractor agrees to perform the terms of this Contract according to the following schedule set forth in their quotation after the Notice to Proceed has been delivered. Time is of the essence of this Contract.

IN WITNESS WHEREOF, the Village of Lombard, Illinois by Village President, and the Contractor have hereunto set their hands this 19th day of February, 2015.

If an individual or partnership, all individual names of each partner shall be signed or if a corporation, an officer duly authorized shall sign here:

Accepted this __ day of _____, 20__.

Individual or Partnership _____ Corporation _____

By _____ Position/Title

By _____ Position/Title

Print Company Name

THE VILLAGE OF LOMBARD, ILLINOIS

Accepted this 19th day of February, 2015.

Keith T. Giagnorio
Village President

Attest:

Sharon Kuderna
Village Clerk

**VILLAGE OF LOMBARD
CONTRACTOR'S CERTIFICATION**

_____, having been first duly sworn, depose and states as follows:

(Officer or Owner of Company)

I am the _____ for _____
(Title) (Name of Company)

(the "Contractor"), which has submitted a proposal for SCADA System Radio Upgrades to the Village of Lombard and, having personal knowledge of the matters certified to herein, and being authorized by the Contractor to make the certifications set forth herein, hereby certifies that said Contractor:

1. has a written sexual harassment policy in place, in full compliance with 775 ILCS 5/2-105(A) (4);
2. is not delinquent in the payment of any tax administered by the Illinois Department of Revenue, or if it is:
 - a. it is contesting its liability for the tax or the amount of tax in accordance with procedures established by the appropriate revenue Act; or
 - b. it has entered into an agreement with the Department of Revenue for payment of all taxes due and is currently in compliance with that agreement;
3. is in full compliance with the Federal Highway Administration Rules on Controlled Substances and Alcohol Use and Testing, 49 CFR Parts 40 and 382, and that

(Name of employee/ driver or "all employee drivers")

is/are currently participating in a drug and alcohol testing program pursuant to the aforementioned rules; and

4. is not barred from contracting with any unit of state or local government as a result of a violation of either Section 33E-3 or 33E-4 of Article 33E of the Illinois Criminal Code of 1961.

By: _____
Authorized Agent of Contractor

Subscribed and sworn to
before me this _____
day of _____, 2015.

Notary Public



energenecs

PROPOSAL

Date: 10/7/2014

Project Name: Village of Lombard
2015 SCADA System Budget

To: Lukas Sharp

Phone: (630) 620-5707

Hi Luke-

Since a number of hardware items within your Water SCADA System are considered to be obsoleted in the near future, we would like to offer some thoughts on how you may upgrade your system in an orderly fashion in stages. This is above and beyond what we have been discussing with the software conversion from GE iFix to Wonderware. In the process of bringing the hardware up to current technology, we would like to maintain a standardized template at the remote sites, especially the stormwater and sewer lift station sites.

The direction that the SCADA industry is moving towards is hardware that communicates through Ethernet and not older forms of serial and multi-drop communications. One example is that many computers will not have serial ports, but only USB ports. Some of the higher end PLCs (programmable controllers) that are used on the front end also will not have serial ports, but only Ethernet ports. Ethernet communications is the new standard since it can communicate peer to peer to multiple devices over a single Ethernet port. In your case, this relates to communications to the SCADA computer, Allen-Bradley PLCs and touchscreen terminals. At present, you are using serial unlicensed radios to communicate from the Master PLC at the Civic Center to remote sites.

In addition, there is hardware that is old and should be upgraded to current. Some of the items that we would recommend replacing would be:

1. PLCs-Basically, all the remote PLCs (except for some more recent sites) use Allen-Bradley SLC-500 PLCs with associated parts. Many of the PLCs were in place prior to 2002 when we started working with you. These are considered to be legacy items by Allen-Bradley, which are still available, but recommended to be replaced. Allen-Bradley has a guide that allows you to view the status of each product, which I have attached for the 1747-L532 PLCs you are using. All related I/O cards and power supplies are affected as well. While they say they still support them, they also do not provide any firmware improvements and increase the pricing so that it becomes prohibitive to buy them. The price for the SLC processor went up 21% in the last two years. Allen-Bradley has newer Micrologix and Compactlogix PLCs that are current and fit this application.
2. Many of the touchscreen terminals at the stormwater and sewer lift station sites communicate through a form of multi-drop DH-485 communications. These should be upgraded to newer units that use Ethernet. Maple Systems makes a small 4.3" color touchscreen terminal that has both serial and Ethernet ports and fits into the same cutout as the older Proface unit.
3. Your unlicensed Freewave Technology radios are serial and not Ethernet. They have recently come out with a new model that has both the serial communications along with Ethernet. Both serial and Ethernet can operate at the same time, which could allow us to upgrade communications in stages.



Recommended Phases

Below is a recommended order for making the upgrades so that you can do them in stages along with a summary of budget costs based on today's pricing.

1. Upgrade Radios to Ethernet:

- a. It would be our recommendation to upgrade the unlicensed radio system first to the new FGR2-PE radios that have both serial and Ethernet communications. They are similar to your existing FGR2-CU radios and would use the same repeaters and antennas.
- b. Once the radios are converted, you can upgrade the PLCs and touchscreen terminals site by site. In this way, some sites would communicate with the existing serial PLCs with converted sites using Ethernet radio communications.
- c. The cost to upgrade the radios to the Freewave FGR-PE radios would be \$39,000.00 for an enclosed version of radio (I have included a cut-sheet of these). These are enclosed radios that would be DIN rail mounted. You can also use the FGR2-P board level version for \$32,000.00.

2. Upgrade the PLCs and Touchscreen Terminals at each Remote Site:

- a. We have created a template for the storm/sewer lift stations using the Allen-Bradley Micrologix 1400 PLC. This was used for the Highland lift station and Terrance View stormwater sites. The ports on the PLC would connect to the new Ethernet radio, touchscreen terminal and existing Modbus power monitor. The existing SLC PLC would be replaced with the Micrologix 1400 PLC with associated I/O.
- b. The existing Proface serial touchscreen terminal would be replaced with new Maple Systems HMI5043L color Ethernet terminals that fit in the same cutout.
- c. Since the station SCADA panel would be down for rewiring, we would upgrade the DC battery backup system similar to that at Highland Estates and LAW lift stations at the same time.
- d. Pricing varies somewhat from site to site and is listed below.
- e. The water stations would use similar Micrologix 1400 PLC and replace the SLC rack mounted PLC in-place. The 10" Maple Systems touchscreen terminals were upgraded back in 2010 to the newer model that has both serial and Ethernet ports. Presently, they communicate through the serial port but would be reused to communicate to the new PLC over Ethernet. The water sites have more physical I/O and the programs are more complicated and therefore require more time and cost to upgrade. The cost varies from site to site as listed below.

3. Upgrade the PLCs at the Civic Center Pump House:

- a. Once all the remote sites are converted to the new PLCs and radios, the last step is to convert the two PLCs at the Civic Center Master site. These are different from the other sites and required added attention.
- b. **SCADA Master Polling PLC**
 - i. This PLC is the heart of the SCADA system. It initiates the communication to all remote sites and passes data on to the SCADA computer.
 - ii. All central water control originates from this PLC.
 - iii. This PLC requires more memory and function than the other PLCs and would use the Allen-Bradley CompactLogix PLC in lieu of MicroLogix. This higher end PLC does not have a serial port, but is dependent upon using the Ethernet port.
 - iv. The programming language is different than what is used for the SLC PLCs and the Micrologix PLCs and therefore requires added programming time. Data passed to the computer is also addressed differently.
 - v. Because of this, the cost to upgrade the Master PLC would be \$35,000.00.
- c. **Civic Center Pump Station PLC**
 - i. This PLC requires the most I/O of all water sites and is locally connected to the Master Polling PLC at the site over Ethernet. This larger amount of I/O exceeds



- the amount the Micrologix 1400 PLCs can handle, therefore, we would use the larger CompactLogix PLC here.
- ii. The cost to upgrade this PLC would be \$28,6000.00 and should be done at the same time the Master PLC is done.

At this point, the SCADA hardware and software should be current.

Summary of Costs:

	Total
1 Upgrade radios to FGR2-PE enclosed radios (Optional board level radios-\$32,000.00)	<u>39,000</u>
2 Upgrade remote PLCs	
108 Storm	4,500
48 Storm	7,500
53 Storm	7,500
Cambria LS	7,500
Charles Lane LS	7,500
Crescent Pond	7,500
Elizabeth	7,500
Fairview LS	7,500
Finley Rd	7,500
Garfield LS	800
Glen Oak-river	7,500
Grace & Central	7,500
Highlands of Lombard	7,500
Highland Estates LS	0
Kenilworth LS	7,500
Law LS	6,700
Olde Towne	7,500
Prairie Lalonde	7,500
Sunset Knolls (Harrison/Rt 53)	7,500
Terrace View Stormwater	800
Vista Pond	7,500
Westmore LS	7,500
Yorktown LS	7,500
Total for Storm/Lift Stations	<u>147,800</u>
Central Station Water	14,200
Highland Ave PAS and South Tower	13,500
Main St Booster	13,500
North PAS and standpipe	13,600



South Booster-New	14,000
Total for Water Remotes	<u>68,800</u>

3 Upgrade Civic Center PLCs	
Civic Center Master SCADA panel	35,000
Civic Center FLO-LO panel	28,600
Total for Civic Center	<u>63,600</u>

I have included some literature on the equipment listed above. If you have any questions or any other thoughts on this, please contact me directly.

Sincerely,

Bill Treloar
Energenecs, Inc./Kamp-Synergy