



Memorandum

To: Mayor Nelson and Members of the City Council

From: Terry Randall, Public Works Director

Date: July 13, 2021

Subject: Authorization to Replace SCADA System

I am seeking authorization to replace the SCADA System. The system was last upgraded in 2003 when the water treatment plants were built. The SCADA System controls all of the wells, water treatments plants, water towers and the lift stations.

We have been experiencing problems with the computers that control the system. The hard drive has failed once and the company said there is no hard drive left because of the age. All of the PLCs are old and cannot be replaced without an upgrade. The hardware and software are obsolete. The issues we are experiencing make it difficult to communicate between City Hall, where the main computer is located, and the Arthur Street Water Plant, because the radios are old. All of the new systems will run by Ethernet Radios.

The new system will have redundancy, which will eliminate problems that other communities have had in the past. After speaking to our vendor, I was told we could do it in Phases or all at once. The City Council expressed its preference to complete the project all at once. I have attached the quote. The contractor for this project is one we have been using since the water plants were built.

The funds for this purchase will be paid from the Utility Renewal and Replacement Fund.

If you should have any questions please contact me at 763-360-4973.

All in one.



AUTOMATIC SYSTEMS CO.

Tuesday, November 24, 2020

Mr. Terry Randall
City of Spring Lake Park
1301 Eighty First Avenue Northeast
Spring Lake Park, MN 55432

Reference: Control Panel SCADA Computer Replacement
Water Treatment Plant

Dear Terry:

In accordance with our recent conversations and discussions with Ryan Willis, we reviewed and discussed the failing and obsolescence of components utilized in the existing control system for the City's Water System with the exception of the Arthur Street Water Treatment Plant which is currently under a separate contract to be upgraded to the latest technology.

Due to obsolescence and non-support of existing components within the control system, including the Programmable Logic Controllers (PLCs), Operator Interface Module (OIMs), SCADA Computers hardware/software and Radios, the system is in dire need of an upgrade.

The existing control systems PLC network consists of Allen-Bradley SLC family of PLCs, power supplies, processors, and input/output modules which are no longer supported, nor available, since they are considered obsolete from the factory. The existing MDS Radios are a mix of serial and Ethernet Radios, all of which need to be upgraded to MDS Orbit Ethernet Wide Band Radios. The new PLCs and new Radios will provide all PLCs & SCADA Computers to be on the same Ethernet communications platform and provide a much needed, better, and faster transfer of data between all sites.

A summary of proposed upgrades includes the following:

- **City Hall:** Upgrade SCADA Computer Hardware/Software, PLC and Ethernet Radio
- **Terrace Park Water Treatment Plant:** Upgrade SCADA Computer hardware/software, PLC and Ethernet Radio
- **Well 4:** Upgrade PLC, Ethernet Radio and Antenna
- **Well 5:** Upgrade PLC, Ethernet Radio and Antenna
- **Abel Elevated Tank:** Upgrade PLC, Ethernet Radio and Antenna
- **Lift Station No. 1:** Upgrade Radio to Ethernet Radio and Antenna

MANUFACTURERS REPRESENTATIVES

- MAIN OFFICE:** P.O. BOX 120359
- BRANCH OFFICE:** P.O. BOX 787
- BRANCH OFFICE:**

CONTROLS

- ST. PAUL, MINNESOTA 55112
- AMES, IOWA 50010
- CHICAGO, ILLINOIS

MECHANICAL EQUIPMENT

- PHONE 651-631-9005 (FAX) 651-631-0027
- PHONE 515-232-4770 (FAX) 515-232-0795
- PHONE 815-927-3386 (FAX) 651-631-0027

➤ **Lift Station No. 2: Upgrade Radio to Ethernet Radio and Antenna**

We are pleased to offer the following:

CITY HALL

- A One (1) **SCADA Computer Workstation**, DELL, Intel Core i9-9900 3.1 GHz processor, 32GB memory, one (1) 512GB Solid-State hard drive, keyboard, mouse, speakers, 22" Flat Panel Monitor, Windows 10 Professional, Microsoft Office Professional & AVG Antivirus for installation in place of the existing SCADA Computer Workstation. Proposed computer shall be complete including:
- **Rockwell FactoryTalk Industrial Software License Upgrade**, compatible with Windows 10 installed in place of the existing license on the computer, including all configuration services.
 - **WIN911 Alarm Dialing Software License Upgrade** to the latest Version compatible with Windows 10 including new Grand Stream Ethernet/phone modem, configuration, and setup including all configuration services.
- B One (1) **Supervisory Control Panel PLC & Radio Upgrade including:** labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHz Radios.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley CompactLogic Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

TERRACE PARK WATER TREATMENT PLANT

- C One (1) **SCADA Computer Workstation**, DELL, Intel Core i9-9900 3.1 GHz processor, 32GB memory, one (1) 512GB Solid-State hard drive, keyboard, mouse, speakers, 22" Flat Panel Monitor, Windows 10 Professional, Microsoft Office Professional

& AVG Antivirus for installation in place of the existing SCADA Computer Workstation. Proposed computer shall be complete including:

- **Rockwell FactoryTalk Industrial Software License Upgrade**, compatible with Windows 10 installed in place of the existing license on the computer, including all configuration services.

- D One (1) **Supervisory Control Panel PLC & Radio Upgrade including:** labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHz Radios.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley CompactLogic Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

WELL 4

- E One (1) **Supervisory Control Panel PLC & Radio Upgrade including:** labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

WELL 5

- F One (1) **Supervisory Control Panel PLC & Radio Upgrade including:** labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

ABEL ELEVATED TANK

- G One (1) **Supervisory Control Panel PLC & Radio Upgrade including:** labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHz Radios.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

LIFT STATION NO. 1

- H One (1) **Supervisory Control Panel Radio Upgrade including:** labor and materials as required to include removal of the existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a new MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

Thank you for the opportunity of providing you with this proposal. Should you have any questions or wish to get together to discuss in greater detail please do not hesitate to give Ryan or me a call.

Best personal regards,



Bruce Wirth, President
Automatic Systems Company

Items A through I
Accepted by: _____ Date: _____

Please add... <u>\$13,200.00</u> to the above price for the addition of new daily/monthly/yearly reports in Excel format.
Accepted by: _____ Date: _____

Please add... <u>\$6,886.00</u> to the above price for the addition of one (1) IPAD or Tablet with WIFI/Cellular and protection case, configured for Remote Access. Price does not include Internet Access Provider Fees.
Accepted by: _____ Date: _____

cc: Mr. Ryan Willis, ASC

LIFT STATION NO. 2

- I One (1) **Supervisory Control Panel Radio Upgrade including:** labor and materials as required to include removal of the existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a new MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

Your net price for Items A through I, FOB factory with freight allowed to jobsite including one (1) year warranty and three sets of updated drawings for insertion in your existing Operation and Maintenance Manuals.....\$166,167.00 Not taxable with ST3 Form on file.

Please add...\$13,200.00 to the above price for the addition of new daily/monthly/yearly reports in Excel format.

Please add...\$6,886.00 to the above price for the addition of one (1) IPAD or Tablet with WIFI/Cellular and protection case, configured for Remote Access. Does not include Internet Access Provider Fees.

Please note the following:

- Existing surge protection, power supplies, printers, Uninterruptible Power Supplies (UPS), & terminals are in good condition, are not obsolete & replacements are available within 24 hours, therefore, these components will remain and reused.
- Existing SCADA graphics and reports will be reused on Windows 10 operating system.
- Personal Laptop Computer is not included.

If you wish to proceed with an order simply sign on the space(s) provided below and return a copy to this office, upon receipt we will immediately proceed with equipment release and scheduling installation.



Phases

AUTOMATIC SYSTEMS CO.

Tuesday, November 24, 2020

Mr. Terry Randall
City of Spring Lake Park
1301 Eighty First Avenue Northeast
Spring Lake Park, MN 55432

Reference: Control Panel SCADA Computer Replacement
Water Treatment Plant (Revised May 27, 2021)

Dear Terry:

Per our conversation Monday with Ryan Willis, we are pleased to provide our revised proposal to provide the required upgrade in Phases with Phase I as the most significant Phase. Remaining Phases can be performed at any time in consecutive order.

In accordance with our recent conversations and discussions with Ryan Willis, we reviewed and discussed the failing and obsolescence of components utilized in the existing control system for the City's Water System with the exception of the Arthur Street Water Treatment Plant which is currently under a separate contract to be upgraded to the latest technology.

Due to obsolescence and non-support of existing components within the control system, including the Programmable Logic Controllers (PLCs), Operator Interface Module (OIMs), SCADA Computers hardware/software and Radios, the system is in dire need of an upgrade.

The existing control systems PLC network consists of Allen-Bradley SLC family of PLCs, power supplies, processors, and input/output modules which are no longer supported, nor available, since they are considered obsolete from the factory. The existing MDS Radios are a mix of serial and Ethernet Radios, all of which need to be upgraded to MDS Orbit Ethernet Wide Band Radios. The new PLCs and new Radios will provide all PLCs & SCADA Computers to be on the same Ethernet communications platform and provide a much needed, better, and faster transfer of data between all sites.

A summary of proposed upgrades includes the following:

- **City Hall:** Upgrade SCADA Computer Hardware/Software, PLC and Ethernet Radio
- **Terrace Park Water Treatment Plant:** Upgrade SCADA Computer hardware/software, PLC and Ethernet Radio
- **Well 4:** Upgrade PLC, Ethernet Radio and Antenna
- **Well 5:** Upgrade PLC, Ethernet Radio and Antenna

MANUFACTURERS REPRESENTATIVES	•	CONTROLS	•	MECHANICAL EQUIPMENT
<input checked="" type="checkbox"/> MAIN OFFICE:	P.O. BOX 120359	ST. PAUL, MINNESOTA 55112	PHONE 651-631-9005	(FAX) 651-631-0027
<input type="checkbox"/> BRANCH OFFICE:	P.O. BOX 787	AMES, IOWA 50010	PHONE 515-232-4770	(FAX) 515-232-0795
<input type="checkbox"/> BRANCH OFFICE:		CHICAGO, ILLINOIS	PHONE 815-927-3386	(FAX) 651-631-0027

- **Abel Elevated Tank:** Upgrade PLC, Ethernet Radio and Antenna
- **Lift Station No. 1:** Upgrade Radio to Ethernet Radio and Antenna
- **Lift Station No. 2:** Upgrade Radio to Ethernet Radio and Antenna

We are pleased to offer the following for phasing in the system upgrade:

PHASE I - CITY HALL COMPUTER HARDWARE/SOFTWARE UPGRADE

SCADA Computer Workstation, DELL, Intel Core i9-9900 3.1 GHz processor, 32GB memory, one (1) 512GB Solid-State hard drive, keyboard, mouse, speakers, 22” Flat Panel Monitor, Windows 10 Professional, Microsoft Office Professional & AVG Antivirus for installation in place of the existing SCADA Computer Workstation. Proposed computer shall be complete including:

- **Rockwell FactoryTalk Industrial Software License Upgrade**, compatible with Windows 10 installed in place of the existing license on the computer, including all configuration services.
- **WIN911 Alarm Dialing Software License Upgrade** to the latest Version compatible with Windows 10 including new Grand Stream Ethernet/phone modem, configuration, and setup including all configuration services.

PHASE I - TERRACE PARK WTP – COMPUTER HARDWARE/SOFTWARE UPGRADE

SCADA Computer Workstation, DELL, Intel Core i9-9900 3.1 GHz processor, 32GB memory, one (1) 512GB Solid-State hard drive, keyboard, mouse, speakers, 22” Flat Panel Monitor, Windows 10 Professional, Microsoft Office Professional & AVG Antivirus for installation in place of the existing SCADA Computer Workstation. Proposed computer shall be complete including:

- **Rockwell FactoryTalk Industrial Software License Upgrade**, compatible with Windows 10 installed in place of the existing license on the computer, including all configuration services.

<p>PHASE I CITY HALL AND TERRACE PARK COMPUTER HARDWARE & SOFTWARE UPGRADES</p> <p>Your net price for PHASE I is.....\$41,784.00</p>
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PHASE II - TERRACE PARK – WTP PLC & RADIO UPGRADE

Supervisory Control Panel PLC & Radio Upgrade including labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHZ Radios.

Proposed upgrade includes installation and wiring of a Rockwell Allen-Bradley CompactLogic Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

<p>PHASE II TERRACE PARK - PLC & RADIO UPGRADE</p>
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<p>Your net price for PHASE II is.....\$49,212.00.</p>

PHASE III - WELL 4 - PLC & RADIO UPGRADE

Supervisory Control Panel PLC & Radio Upgrade including labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

**PHASE III
WELL 4 - PLC & RADIO UPGRADE**

Your net price for PHASE III is.....\$11,559.00.

PHASE IV - WELL 5 - PLC & RADIO UPGRADE

Supervisory Control Panel PLC & Radio Upgrade including labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

**PHASE IV
WELL 5 - PLC & RADIO UPGRADE**

Your net price for PHASE IV is.....\$11,559.00.

PHASE V - ABEL ELEVATED TANK

Supervisory Control Panel PLC & Radio Upgrade including labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHz Radios.

Proposed upgrade includes installation and wiring of a Rockwell Allen-Bradley MicroLogic 1400 Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all

existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

**PHASE V
ABEL ELEVATED TANK - PLC & RADIO UPGRADE**

Your net price for PHASE V is.....\$8,325.00.

PHASE VI - LIFT STATION NO. 1

Supervisory Control Panel Radio Upgrade including labor and materials as required to include removal of the existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a new MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

**PHASE VI
LIFT STATION NO. 1 - PLC & RADIO UPGRADE**

Your net price for PHASE VI is.....\$6,036.00.

PHASE VII - LIFT STATION NO. 2

Supervisory Control Panel Radio Upgrade including labor and materials as required to include removal of the existing MDS UHF Radio.

Proposed upgrade includes installation and wiring of a new MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna will be replaced with a new 900MHZ Antenna for the new Ethernet Radio.

**PHASE VII
LIFT STATION NO. 2 - PLC & RADIO UPGRADE**

Your net price for PHASE VII is.....\$6,036.00.

PHASE VIII - CITY HALL – PLC & RADIO UPGRADE

Supervisory Control Panel PLC & Radio Upgrade including labor and materials as required to include removal of the existing SLC PLC processor, power supplies, input/output modules and existing MDS UHF and 900MHz Radios.

Proposed upgrade includes installation and wiring of an Rockwell Allen-Bradley CompactLogic Programmable Logic Controller with memory module & input/output modules as required, Ethernet Switch, power supplies and accessories as required in place of the existing PLC to accommodate all existing inputs and outputs of the existing control system including new a MDS Orbit Wide Band Ethernet Radio.

Please note, existing UHF Antenna system will be abandoned in place. The existing 900MHZ Antenna will remain in place and reused for the new Ethernet Radio.

**PHASE VIII
CITY HALL - PLC & RADIO UPGRADE**

Your net price for PHASE VIII is.....\$27,794.00.

Your net price for PHASE I through PHASE VIII, FOB factory with freight allowed to jobsite including one (1) year warranty and electronic set of updated drawings for insertion in your existing Operation and Maintenance Manuals is\$163,305.00 Not taxable with ST3 Form on file.

OPTIONAL ADDER – NEW REPORTING DATA BASE

to the above price for the addition of new daily/monthly/yearly reports in Excel format.

Your net price adder is.....\$13,200.00

OPTIONAL ADDER – SCADA REMOTE ACCESS

to the above price for the addition of one (1) IPAD or Tablet with WIFI/Cellular and protection case, configured for Remote Access. Does not include Internet Access Provider Fees.

Your net price adder is.....\$6,886.00

Please note the following:

- Existing surge protection, power supplies, printers, Uninterruptible Power Supplies (UPS), & terminals are in good condition, are not obsolete & replacements are available within 24 hours, therefore, these components will remain and reused.
- Existing SCADA graphics and reports will be reused on Windows 10 operating system.
- Personal Laptop Computer is not included.

If you wish to proceed with an order simply sign on the space(s) provided below and return a copy to this office, upon receipt we will immediately proceed with equipment release and scheduling installation.

Thank you for the opportunity of providing you with this proposal. Should you have any questions or wish to get together to discuss in greater detail please do not hesitate to give Ryan or me a call.

Best personal regards,



Bruce Wirth, President
Automatic Systems Company

**PHASE I
CITY HALL AND TERRACE PARK
COMPUTER HARDWARE & SOFTWARE UPGRADES**

Your net price for PHASE I is.....\$39,784.00

ACCEPTED BY: _____ DATE: _____

**PHASE II
TERRACE PARK - PLC & RADIO UPGRADE**

Your net price for PHASE II is.....\$49,212.00.

ACCEPTED BY: _____ DATE: _____

**PHASE III
WELL 4 - PLC & RADIO UPGRADE**

Your net price for PHASE III is.....\$11,559.00.

ACCEPTED BY: _____ DATE: _____

**PHASE IV
WELL 5 - PLC & RADIO UPGRADE**

Your net price for PHASE IV is.....\$11,559.00.

ACCEPTED BY: _____ DATE: _____

PHASE V
ABEL ELEVATED TANK - PLC & RADIO UPGRADE

Your net price for PHASE V is.....\$8,325.00.

ACCEPTED BY: _____ DATE: _____

PHASE VI
LIFT STATION NO. 1 - PLC & RADIO UPGRADE

Your net price for PHASE VI is.....\$6,536.00.

ACCEPTED BY: _____ DATE: _____

PHASE VII
LIFT STATION NO. 2 - PLC & RADIO UPGRADE

Your net price for PHASE VII is.....\$6,536.00.

ACCEPTED BY: _____ DATE: _____

PHASE VIII
CITY HALL - PLC & RADIO UPGRADE

Your net price for PHASE VIII is.....\$27,794.00.

ACCEPTED BY: _____ DATE: _____

OPTIONAL ADDER – NEW REPORTING DATA BASE

Please add...\$13,200.00 to the above price for the addition of new daily/monthly/yearly reports in Excel format.

Accepted by: _____ Date: _____

OPTIONAL ADDER – SCADA REMOTE ACCESS

Please add...\$6,886.00 to the above price for the addition of one (1) IPAD or Tablet with WIFI/Cellular and protection case, configured for Remote Access. Price does not include Internet Access Provider Fees.

Accepted by: _____ Date: _____

cc: Mr. Ryan Willis, ASC