

**VILLAGE OF DOWNERS GROVE**  
**Report for the Village Council Meeting**  
**6/6/2017**

<b>SUBJECT:</b>	<b>SUBMITTED BY:</b>
SCADA System Improvements	Nan Newlon Director of Public Works

**SYNOPSIS**

A resolution has been prepared authorizing the execution of a contract for SCADA System Improvements with Baxter & Woodman Control Systems Integration (BWCSI) of Crystal Lake, Illinois in the amount of \$87,610.

**STRATEGIC PLAN ALIGNMENT**

The goals for 2015-2017 include *Top Quality Infrastructure*.

**FISCAL IMPACT**

The approved FY17 budget includes \$88,000 in the Water Fund (Page 4-35, Line 21) for this project.

**RECOMMENDATION**

Approval on the June 6, 2017 consent agenda.

**BACKGROUND**

*Project Description*

This work involves upgrading critical components of the Village's Supervisory Control and Data Acquisition (SCADA) system. SCADA refers to an industrial control system which is a computer system monitoring and controlling process. In Downers Grove, the SCADA system is used to monitor, record and control the operations of the water system. This project will keep the system running efficiently and implement new technology that will provide time savings and better process information, making it a more useful tool for managing Village infrastructure. Specifically, the proposed work under this contract for 2017 can be broken down as follows:

- Replace and upgrade the SCADA server – The existing server is over five years old and no longer carries the original warranty. The failure of key components would require the Village to pay out of pocket for parts and labor to make repairs. There is also no guarantee that parts would be available given the age of the server. In addition to replacing the server, improvements to the design of the server architecture will be made in order to improve security and reliability. In the new design, a SCADA workstation would be provided in addition to the new server. Operators will interact with SCADA on the workstation instead of directly on the server. By changing the design so that end users do not work directly on the SCADA server, this new buffer computer will provide an increased level of security and redundancy.

- Replace the existing chlorine analyzers with reagent-less models – All six rate control stations currently have a reagent-based in-line chlorine analyzer. These analyzers have worked well for many years, however, they require frequent replacement of the reagent used in the chlorine analysis. Ordering and replacing reagent is time consuming and the reagent is expensive, costing about \$4,000 annually.

The chlorine residual analysis process will be made more efficient and reliable by replacing the existing chlorine analyzers with reagent-less models. Reagent-less analyzers are a proven technology that produces reliable readings. In addition, the reagent-less analyzers are able to monitor pH and temperature. As part of this project, BWCSI would provide the new chlorine analyzer hardware, install it, and then pull the additional pH and temperature values into SCADA to be readily available for viewing by staff.

#### Vendor Selection

Staff has worked with BWCSI on a variety of SCADA projects as well as ongoing non-contract service and support since 2007. Within that time frame, BWCSI has provided consistently superior service and highly trained staff to the Village. It is common practice for communities to use the same integrator for extended periods of time because there are significant benefits to doing so. The longer an integrator has worked with a system, the more familiar they are with the system, which results in better designs, more efficient troubleshooting, and elimination of the need for an expensive learning curve by switching integrators. Using the same integrator results in net lower costs to the community. Among the unique aspects of BWCSI are:

- 1) They are experts in the critical technologies that are used in Downers Grove including, but not limited to GE iFix, Rockwell (Allen Bradley) PLCs, and Microsoft operating systems and software. BWCSI is a GE/Intellution Solution Provider, a Rockwell (Allen Bradley) Recognized Systems Integrator (factory authorized), as well as a Microsoft Certified Partner.
- 2) Guarantee their 24 hour/day x7 days/week responsiveness (response within 30 minutes).
- 3) Uniquely skilled and qualified in industrial cyber security. Recognizing the sensitivity of water utility data, BWCSI employs a “Certified Information System Security Professional” (CISSP) that is responsible for the security and network architecture of our SCADA system. This is important because SCADA systems are increasingly seen as extremely vulnerable to cyberterrorism attacks. BWCSI is currently the SCADA and related cyber security consulting firm working for the City of Chicago.
- 4) They are the largest Water/Wastewater Systems Integrator in the area, with staff that is available when needed.

The contract being presented is the result of a multi-step process involving the proposed consultant and Village staff from the Public Works and Information Technology Departments. As tasks for the project were identified, an evaluation was completed to determine whether Village staff may be able to assist or supply materials for implementation to reduce costs. Through this process, staff and the consultant identified savings in excess of \$15,000.

#### **ATTACHMENTS**

Contract Documents

**RESOLUTION NO. \_\_\_\_****A RESOLUTION AUTHORIZING EXECUTION OF AN  
AGREEMENT BETWEEN THE VILLAGE OF DOWNERS GROVE  
AND B&W CONTROL SYSTEMS INTEGRATION, LLC**

BE IT RESOLVED by the Village Council of the Village of Downers Grove, DuPage County, Illinois, as follows:

1. That the form and substance of a certain Agreement (the "Agreement"), between the Village of Downers Grove (the "Village") and B&W Control System Integration, LLC (the "Consultant"), for improvements to the supervisory control and data acquisition (SCADA) system associated with the Village's water distribution remote facilities, as set forth in the form of the Agreement submitted to this meeting with the recommendation of the Village Manager, is hereby approved.

2. That the Village Manager and Village Clerk are hereby respectively authorized and directed for and on behalf of the Village to execute, attest, seal and deliver the Agreement, substantially in the form approved in the foregoing paragraph of this Resolution, together with such changes as the Manager shall deem necessary.

3. That the proper officials, agents and employees of the Village are hereby authorized and directed to take such further action as they may deem necessary or appropriate to perform all obligations and commitments of the Village in accordance with the provisions of the Agreement.

4. That all resolutions or parts of resolutions in conflict with the provisions of this Resolution are hereby repealed.

5. That this Resolution shall be in full force and effect from and after its passage as provided by law.

\_\_\_\_\_  
Mayor

Passed:

Attest: \_\_\_\_\_

Village Clerk

## AGREEMENT

This Agreement is made this \_\_\_\_ day of \_\_\_\_\_ 2017 by and between B&W Control Systems Integration, LLC ("Consultant") and the Village of Downers Grove, Illinois, an Illinois municipal corporation with offices at 801 Burlington Avenue, Downers Grove, Illinois 60515, ("Village").

WHEREAS, the Village wishes to retain the services of the Consultant to perform SCADA improvements; and

WHEREAS, the Consultant is willing to perform these services for compensation and in accordance with the terms and conditions described in this Agreement.

NOW, THEREFORE, in consideration of the mutual benefits that will result to the parties in carrying out the terms of this Agreement, it is agreed as follows:

### **I. Scope of Services**

See attached Proposal dated April 18, 2017 attached hereto and incorporated herein by reference as Exhibit B.

### **II. Term of Agreement**

The term of this Agreement shall be until December 31, 2018 or until the services as set forth in Exhibit B have been completed, whichever shall occur first.

### **III. Compensation**

#### **A. Basic Fees:**

Fees for these services shall not exceed \$87,610.00. Any additional work performed that will increase the agreement price in excess of this amount must be approved in writing by both parties.

#### **B. Consultant Invoices:**

The Consultant shall prepare invoices that contain a reference number, the billing period, the classifications and/or names of staff, numbers of hours billed to the project (with clear itemization for hours spent), all reimbursable expenses and a total reimbursable amount for the billing period including receipts therefor, amounts billed to date, and amounts received to date.

#### **C. Prompt Payment Act:**

The Village will comply with the Local Government Prompt Payment Act, 50 ILCS 505/1 et seq., in that any bill approved for payment must be paid or the payment issued to the Consultant within 60 days of receipt of a proper bill or invoice. If payment is not issued to the Consultant within this 60 day period, an interest penalty

any amount approved and unpaid shall be added for each month or fraction thereof after the end of this 60 day period, until final payment is made.

The Village shall review in a timely manner each bill or invoice after its receipt. If the Village determines that the bill or invoice contains a defect making it unable to process the payment request, the Village shall notify the Consultant requesting payment as soon as possible after discovering the defect pursuant to rules promulgated under 50 ILCS 505/1 et seq. The notice shall identify the defect and any additional information necessary to correct the defect.

#### **IV. General Terms and Conditions**

##### **A. Relationship Between the Consultant and the Village**

The relationship between the Village and the Consultant is that of a buyer and seller of professional services and it is understood that the parties have not entered into any joint venture or partnership with the other.

##### **B. Equal Employment Opportunity**

In the event of the Consultant's non-compliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Rules and Regulations of the Illinois Department of Human Rights ("Department"), the Consultant may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation. During the performance of this Agreement, the Consultant agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
2. That, if it hires additional employees in order to perform this Agreement or any portion thereof, it will determine the availability (in accordance with the Department's Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
3. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, marital status, national origin or ancestry, age, physical or mental handicap unrelated to ability, or an unfavorable discharge from military service.

4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the consultant's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the consultant in its efforts to comply with such Act and Rules and Regulations, the consultant will promptly so notify the Department and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
5. That it will submit reports as required by the Department's Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.
6. That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Department for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.
7. That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that such provisions will be binding upon such subconsultant. In the same manner as with other provisions of this Agreement, the consultant will be liable for compliance with applicable provisions of this clause by such subconsultants; and further it will promptly notify the contracting agency and the Department in the event any subconsultant fails or refuses to comply therewith. In addition, the Consultant will not utilize any subconsultant declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivision or municipal corporations.

#### **C. Sexual Harassment**

Consultant, as a party to a public contract, has a written sexual harassment policy that:

1. Notes the illegality of sexual harassment;
2. Sets forth the State law definition of sexual harassment;
3. Describes sexual harassment utilizing examples;
4. Describes the Consultant or supplier's internal complaint process including penalties;
5. Describes the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and how to contact these entities, and;
6. Describes the protection against retaliation afforded under the Illinois Human Rights Act.

#### **D. Drug Free Work Place**

Consultant, as party to a public contract, certifies and agrees that it will provide a drug free workplace by:

1. Publishing a statement: (1) Notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance, including cannabis, is prohibited in the grantee's or Consultant's workplace. (2) Specifying the actions that will be taken against employees for violations of such prohibition. (3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will: abide by the terms of the statement; and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.
2. Establishing a drug free awareness program to inform employees about: (1) the dangers of drug abuse in the workplace; (2) the grantee's or consultant's policy of maintaining a drug free workplace; (3) any available drug counseling, rehabilitation, and employee assistance programs; (4) the penalties that may be imposed upon employees for drug violations.
3. Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.
4. Notifying the contracting or granting agency within ten (10) days after receiving notice of a criminal drug statute conviction from an employee or otherwise receiving actual notice of such conviction.
5. Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by, any employee who is so convicted as required by Section 5 of the Drug Free Workplace Act.
6. Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.
7. Making a good faith effort to continue to maintain a drug free workplace through implementation of the Drug Free Workplace Act.

#### **E. Non-Discrimination**

Consultant, its employees and subconsultants, agree not to commit unlawful discrimination and agree to comply with applicable provisions of the Illinois Human Rights Act, the Public Works Employment Discrimination Act, the U.S. Civil Rights Act and Section 504 of the Federal Rehabilitation Act, and rules applicable to each. The equal opportunity clause of the Department of Human Rights rules is specifically incorporated herein.

The Americans with Disabilities Act (42 U.S.C. 12101) and the regulations thereunder (28 CFR 35.130)(ADA) prohibit discrimination against persons with disabilities by the State, whether directly or through contractual arrangements, in the provision of any aid, benefit or service. As a condition of receiving this Agreement, the undersigned vendor certifies that services, programs and activities provided under this Agreement are and will continue to be in compliance with the ADA.

**F. Campaign Disclosure Certificate**

The Consultant shall comply with the Campaign Disclosure Certificate attached hereto and incorporated herein by reference as Exhibit A.

**G. Patriot Act Compliance**

The Consultant represents and warrants to the Village that neither it nor any of its principals, shareholders, members, partners, or affiliates, as applicable, is a person or entity named as a Specially Designated National and Blocked Person (as defined in Presidential Executive Order 13224) and that it is not acting, directly or indirectly, for or on behalf of a Specially Designated National and Blocked Person. The Consultant further represents and warrants to the Village that the Consultant and its principals, shareholders, members, partners, or affiliates, as applicable are not, directly or indirectly, engaged in, and are not facilitating, the transactions contemplated by this Agreement on behalf of any person or entity named as a Specially Designated National and Blocked Person. The Consultant hereby agrees to defend, indemnify and hold harmless the Village, and its elected or appointed officers, employees, agents, representatives, engineers and attorneys, from and against any and all claims, damages, losses, risks, liabilities and expenses(including reasonable attorney's fees and costs) arising from or related to any breach of the foregoing representations and warranties.

**H. Cooperation with FOIA Compliance**

Consultant acknowledges that the Freedom of Information Act may apply to public records in possession of the Consultant. Consultant shall cooperate with the Village in its efforts to comply with the Freedom of Information Act. 5 ILCS 140/1 et.seq.

**I. Copyright or Patent Infringement**

The Consultant agrees to indemnify, defend, and hold harmless the Village against any suit, claim, or proceeding brought against the Village for alleged use of any equipment, systems, or services provided by the Consultant that constitutes a misuse of any proprietary or trade secret information or an infringement of any patent or copyright.

**J. Standard of Care**

Services performed by Consultant under this Agreement will be conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representations express or implied, and no warranty or guarantee is included or intended in this Agreement, or in any report, opinions, and documents or otherwise.

If the Consultant fails to meet the foregoing standard, Consultant will perform at its own cost, and without reimbursement from the Village, the professional services necessary to correct errors and omissions caused by Consultant's failure to comply with the above standard and reported to Consultant within one (1) year from the completion of Consultant's services for the Project.

## V. Insurance and Indemnification of the Village

### A. Insurance

The Consultant shall be required to obtain, from a company or companies lawfully authorized to do business in the jurisdiction in which the project is located, such general liability insurance which, at a minimum, will protect the Consultant from the types of claims set forth below which may arise out of or result from the Consultant's operations under this Contract and for which the Consultant may legally liable:

Claims under workers compensation, disability benefit and other similar employee benefit acts which are applicable to the operation to be performed;

Claims for damages resulting from bodily injury, occupational sickness or disease, or death of the Consultant's employees;

Claims for damages resulting from bodily injury, sickness or disease, or death of any person other than the Consultant's employees;

Claims for damages insured by the usual personal injury liability coverage which are sustained: (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Consultant, or (2) by another person;

Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

Claims for damages as a result of professional or any other type of negligent action by the Consultant or failure to properly perform services under the scope of the agreement between the Consultant and the Village.

The Consultant shall demonstrate having insurance coverage for a minimum of \$2 million for professional liability (errors and omissions).

As evidence of said coverages, Consultant shall provide the Village with certificates of insurance naming the Village of Downers Grove as an additional insured and include a provision for cancellation only upon at least 30 days prior notice to the Village.

**B. Indemnification**

The Consultant will indemnify and hold harmless the Village and its officers, employees and agents from any and all liability, losses or damages the Village may suffer as a result of claims, demands, suits, actions or proceedings of any kind or nature in any way resulting from or arising out of negligent action on the part of the Consultant under this Agreement. This indemnification does not apply to liability caused by the Village's own negligence. The paragraph survives the termination/expiration of this Agreement.

**VI. Miscellaneous Provisions**

**A. Termination**

In the event of the Consultant's nonperformance, breach of the terms of the Agreement, or for any other reason, including that sufficient funds to complete this Agreement are not appropriated by the Village, the Agreement may be canceled, in whole or in part, upon the Village's written notice to the Consultant. The Village will pay the Consultant's costs actually incurred as of the date of receipt of notice of termination. Upon termination, the Consultant will deliver all documents and products of whatever kind, and their reproducible originals related to the project, which have been produced to the date of the notice of termination.

**B. Governing Law**

This Agreement will be governed by and construed in accordance with the laws of the State of Illinois. Venue is proper only in the County of DuPage.

**C. Successors and Assigns**

The terms of this Agreement will be binding upon and inure to the benefit of the parties and their respective successors and assigns; provided, however, that neither party will assign this Agreement in whole or in part without the prior written approval of the other.

**D. Waiver of Contract Breach**

The waiver by one party of any breach of this Agreement or the failure of one party to enforce at any time, or for any period of time, any of the provisions hereof will be limited to the particular instance and will not operate or be deemed to waive any future breaches of this Agreement and will not be construed to be a waiver of any provision except for the particular instance.

**E. Amendment**

This Agreement will not be subject to amendment unless made in writing and signed by all parties.

**F. Severability of Invalid Provisions**

If any provisions of this Agreement are held to contravene or be invalid under the laws of any state, country or jurisdiction, contravention will not invalidate the entire Agreement, but it will be construed as if not containing the invalid provision and the rights or obligations of the parties will be construed and enforced accordingly.

**G. Assignment**

The Consultant will not assign or subcontract any portion of this Agreement, unless the Village agrees to the assignment or subcontract in writing. Any assignment will not relieve the Consultant from its obligations or change the terms of this Agreement.

**H. Notice**

Any notice will be in writing and will be deemed to be effectively served when deposited in the mail with sufficient first class postage affixed, and addressed to the party at the party's place of business. Notices shall be addressed to designated representatives of both parties as follows:

**Village Manager  
Village of Downers Grove  
801 Burlington Ave.  
Downers Grove, IL 60515**

B&W Control Systems Integration, LLC  
8678 Ridgefield Road  
Crystal Lake, IL 60012

**I. Village Ordinances**

The Consultant will strictly comply with all ordinances of the Village of Downers Grove and laws of the State of Illinois.

**J. Use of Village's Name**

The Consultant is specifically denied the right of using in any form or medium the name of the Village for public advertising unless express permission is granted by the Village.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date indicated above.

**B&W Control Systems Integration, LLC**  
Christopher T. Sosnowski

**Village of Downers Grove**

By: Christopher T. Sosnowski

By: \_\_\_\_\_

Title: President

Title: \_\_\_\_\_

Date: April 28, 2017

Date: \_\_\_\_\_

**Exhibit A**  
**Campaign Disclosure Certificate**

The Campaign Disclosure Certificate is required pursuant to the Village of Downers Grove Council Policy on Ethical Standards and is applicable to those campaign contributions made to any member of the Village Council.

Said Campaign Disclosure Certificate requires any individual or entity bidding to disclose campaign contributions, as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4), made to current members of the Village Council within the five (5) year period preceding the date of the bid or proposal release.

By signing this Agreement, Consultant agrees to refrain from making any campaign contributions as defined in Section 9-1.4 of the Election Code (10 ILCS 5/9-1.4) to any Village Council member and any challengers seeking to serve as a member of the Downers Grove Village Council.

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Under penalty of perjury, I declare:

Consultant has not contributed to any elected Village position within the last five (5) years.

*Christopher T. Sosnowski*  
Signature

Christopher T. Sosnowski  
Print Name

Consultant has contributed a campaign contribution to a current member of the Village Council within the last five (5) years.

Print the following information:

Name of Contributor: \_\_\_\_\_  
(company or individual)

To whom contribution was made: \_\_\_\_\_

Year contribution made: \_\_\_\_\_ Amount: \$ \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name



B&W Control Systems Integration  
8678 Ridgfield Road · Crystal Lake, IL 60012  
815.788.3600 office · 815.455.0450 fax · [www.bwcsi.com](http://www.bwcsi.com)

Exhibit B

April 28, 2017

Mr. Stan Balicki  
Assistant Director of Public Works  
Village of Downers Grove  
5101 Walnut Avenue  
Downers Grove, IL 60515-4074

**Subject: 2017 SCADA Improvements  
BWCSI Job Number 161202.50 - Rev1**

Dear Mr. Balicki:

In order to keep a water system running efficiently, certain components need to be replaced on a regular basis. New technologies should also be implemented if and when they provide significant value, such as time savings or providing better process information to operators. Downers Grove prides itself on running an excellent water system in an efficient manner and has identified two key improvements that can be made to keep the water system running at a high level.

The first improvement involves upgrading the Supervisory Control and Data Acquisition (SCADA) server. The existing SCADA server is over 5 years old and no longer carries the original warranty from Dell. If key components were to fail within the system, Downers Grove would need to pay out of pocket for the components and labor to make the repairs. There would also be no guarantee that parts would be available given the age of the server. For this reason, B&W Control Systems Integration (BWCSI) recommends replacing the SCADA server with new hardware. While performing the upgrade, we also recommend improving on the design of the SCADA server architecture in order to improve the security and reliability of the system. In the new design, Downers Grove would purchase and install a SCADA workstation in addition to a new server. Operators would interact with SCADA on the workstation instead of directly on the server. Any time human beings interact directly with a computer, the likelihood of that computer contracting a virus or experiencing other problems increases dramatically. By changing the design so that end users do not work directly on the SCADA server, Downers Grove will essentially have a “buffer” computer that will allow SCADA to continue to function even if something bad happens to the workstation.

The second improvement involves replacing the existing in-line chlorine analyzers. Currently, all six water sites at Downers Grove have a reagent based in-line chlorine analyzer. While these analyzers have worked well for many years, they require frequent replacement of the reagent used in the chlorine analysis. Ordering and replacing reagent is both inconvenient and time consuming for operators. Reagent is also expensive, costing the Village several thousand dollars annually. Furthermore, the existing analyzers are susceptible to chemical buildup and scale accumulation. This leads to less than reliable



chlorine readings and the operators often choose to test chlorine residual manually because they do not trust the data coming from the analyzers.

The chlorine residual analysis process could be made much more efficient by replacing the existing chlorine analyzers with reagent-less models. Reagent-less chlorine analyzers are a proven technology that would produce readings the operators would trust. This means they could stop manually testing the chlorine residual and thereby save time. The new analyzers would also save money on chemicals, as reagent would no longer be required.

Lastly, the current reagent-based analyzers only have the ability to monitor residual chlorine. The reagent-less analyzers are able to monitor pH and temperature in addition to chlorine residual (which allows operators to improve the application of chlorine to the water). As part of this Project, BWCSI would provide the new chlorine analyzer hardware, install it, and then pull the additional pH and temperature values into iFIX so the operators can readily view them.

## Scope of Services

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### *Equipment*

#### Hardware

- Six (6) Swan Analytical AMI Trides Compact analyzers (includes optional pH electrode and third signal output)
- One (1) Dell PowerEdge R330 Rackmount Server (SCADA server)
  - Includes license to run Windows Server 2016 Standard (or below) and 15 User CALS
- One (1) Dell OptiPlex 7040 Desktop (SCADA workstation)
- One (1) 4-Port Dialogic D/4PCIUFEQ PCI Express or equal voice card for alarming
- Miscellaneous supplies to complete installation

#### Software

- One (1) GE iFIX 5.8 Client license for installation on OptiPlex 7040 SCADA workstation
  - Includes GE GlobalCare through December 17, 2017
- One (1) WIN-911 software upgrade to latest version
- NOTE: Existing GE iFIX licenses currently owned by the Village are already renewed through December 17, 2017.



## **Labor**

### Project Management

- Plan, schedule, and coordinate the activities that must be performed to complete the Project.

### Installation

- At each of the six rate stations, BWCSI will terminate control wiring at both the analyzer and at the Programmable Logic Controller (PLC).
- Configure the analyzer settings to ensure that it is properly configured to obtain correct readings.
- NOTE: See “BWCSI Assumptions / Owner Responsibilities” section for installation requirements to be performed by the Village.

### PLC Programming

- Configure the existing control signal (chlorine residual) and new incoming control signals (pH, Water Temp) in the PLC at each of the six rate stations.
  - Scale the new incoming signals to proper engineering units and ranges.
  - Modify the master polling PLC program at Public Works to read additional data.
  - No new alarms will be created for pH or water temperature.

### Operator Interface Terminal (OIT) Programming

- Add pH and water temperature to local screens at Lemont and 35<sup>th</sup> St. rate stations. These are the only two locations that currently have operator interface terminals.

### SCADA Software Development

- Add pH and water temperature data to iFIX classic historical data collection.
- Migrate iFIX software to new SCADA server.
- Install iFIX software on SCADA workstation and configure to communicate with new SCADA server.

### Server Setup

- Physically install Dell PowerEdge R330 server into existing rack at Public Works.
- Configure (2) two new virtual servers using VMWare Vsphere Essentials. The first server will serve as the SCADA server and will have the following specifications:



- Windows Server 2012 R2 Standard
  - 2 virtual processor cores
  - 8 GB RAM
  - 500 GB Hard Drive Space
- The second server will serve as a Remote Desktop (RDS) server and will have the following specifications:
    - Windows Server 2012 R2 Standard
    - 2 virtual processor cores
    - 16 GB RAM
    - 500 GB Hard Drive Space
  - Physically install SCADA workstation computer.
    - Install Dialogic card into the SCADA workstation to provide alarming capability.
  - Add both the SCADA server and the SCADA workstation to the Downers Grove Active Directory domain.
  - VMWare licensing and Microsoft RDS Client Access Licenses (CALs) will be provided by Downers Grove and are not included in the scope of this project.

### Reporting Migration

- Install SQL Server Express 2014 on the new SCADA server.
- Migrate existing reporting database, reports, and front end reporting software from the old SCADA server to the new SCADA server.
- Re-establish data connectivity to SCADA historian. Ensure that data that previously routed automatically from SCADA into reporting continues to properly route automatically from SCADA into SQL.
- Changes to existing reports or data collection screens are not included in the scope of this project.

### Software Alarm Configuration

- Migrate WIN-911 to SCADA workstation.
  - Test alarming and confirm it is functioning properly.

### Start-Up

- Review installation to verify proper functionality of SCADA server, SCADA workstation, and chlorine analyzers.
- Confirm project satisfaction with Downers Grove.



### Network Diagram Update

- Update network diagram to include new server/workstation architecture and provide PDF copy to Downers Grove.
- Provide copies of modified PLC and OIT programs to Downers Grove.
- Mark up existing control panel drawings.

### BWCSI Assumptions / Owner Responsibilities

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- Owner will provide site access for installation, programming, and startup on normal business days between 7:00 am and 3:30 pm. Work past 3:30 pm can be agreed upon as needed, provided BWCSI can secure the site(s) upon departure.
- Owner understands that all existing equipment to remain is assumed to be in good, working order. In the event that any other equipment does not perform as expected, BWCSI will work with the Owner to repair, as needed, under a separate contract.
- Owner will physically install Swan Analytical AMI Trides Compact analyzers at each of the six (6) rate stations. BWCSI will wait for this onsite work to be completed before scheduling our installation visits.
- Owner will provide all electrical work such as, but not limited to, conduit and cabling for additional control signals between the Swan Analytical AMI Trides Compact analyzer and PLC control cabinet at each of the six (6) rate stations. BWCSI will wait for this onsite work to be completed before scheduling our installation visits.
- Owner will dispose of/recycle any removed equipment.
- Owner IT to also provide access to the Owner's Active Directory during installation, so that the new SCADA server and SCADA workstation can act as a part of the Owner's domain.
- Owner IT will be responsible for ongoing maintenance (checking event logs, applying Windows Updates, etc.) of the Microsoft Windows environments created as part of this project.
- Owner IT will be responsible for providing and maintaining anti-virus and backups for the Microsoft Windows environments created as part of this project. BWCSI will assist Owner IT in identifying items requiring backup.

### Annual Support

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This Project will add additional hardware and software to the Owner, some of which has support or maintenance associated with it. BWCSI recommends the Owner maintain any applicable support agreements once the initial support/warranty periods expire. On this Project, we have included the following support agreements, that all begin approximately at



the date the product is shipped (not necessarily the date it is onsite) and last for periods varying from one year to three years.

Following is the recommended support and estimated amounts for renewals each year (this is provided solely for budgetary purposes and will need to be quoted at the time of renewal):

Description	2017-18	2018-19	2019-20	2020-21
Dell SCADA Client Computer	Included	Included	Included	\$350
Dell SCADA Virtual Host Server	Included	Included	Included	\$775
WIN-911	Included	\$575	\$610	\$650
GE iFIX GlobalCare	Included	\$510	\$535	\$565
<b>Total</b>		<b>\$2,245</b>	<b>\$2,365</b>	<b>\$3,630</b>

## Project Schedule

BWCSI is available to begin work upon notice to proceed.

The estimated project schedule will be jointly agreed upon with Downers Grove at the kickoff meeting.

## Warranty

BWCSI warrants that the services provided for under this Agreement will be completed in a good and workmanlike manner in accordance with applicable codes, ordinances, regulations or other legal requirement. For a period of one (1) year after the OWNER receives beneficial use of the installation, BWCSI will provide a limited warranty to the OWNER for any defect due to improper materials or workmanship supplied by BWCSI. Any such warranty provided to OWNER shall be provided by BWCSI without expense to the OWNER for the one (1) year period described herein. BWCSI'S WARRANTY IS A LIMITED WARRANTY FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF BENEFICIAL USE OF THE INSTALLATION. This warranty is limited to only defects in material and workmanship on products purchased and fully installed by BWCSI and excludes defects caused by improper use, abuse, accident, acts-of-God (including but not limited to lightning), alteration, or other conditions beyond BWCSI's control, as determined by BWCSI, and all manufacturer's products or workmanship as covered by their respective warranties. For manufacturer's products or workmanship, BWCSI will deliver to OWNER all manufacturers' warranties of products. IN CONSIDERATION OF THE LIMITED WARRANTY CONTAINED HEREIN THE OWNER AGREES AND ACKNOWLEDGES THAT SUCH WARRANTY REPLACES ALL OTHER WARRANTIES EITHER EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. BWCSI's warranty is limited to repair or replacement of a defective product without cost to the OWNER. OWNER WAIVES ALL CLAIMS TO INCIDENTAL OR CONSEQUENTIAL DAMAGES. This limited warranty extends only to the OWNER and not to subsequent buyers/owners. OWNER must give written notice of a defect within the one (1) year warranty period described above. In the event of any



dispute between the OWNER and BWCSI, such dispute shall be resolved in accordance with these Standard Terms & Conditions and the Agreement.

## Fee

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Our fee for the above scope is a lump sum of \$87,610.

This agreement is valid for 90 days from the date of this proposal.

Sincerely,

B&W CONTROL SYSTEMS  
INTEGRATION, LLC

Handwritten signature of Michael D. Klein in black ink.

Michael D. Klein, PE  
Automation Department Manager  
MDK

Handwritten signature of Christopher T. Sosnowski in black ink.

Christopher T. Sosnowski, PE  
President