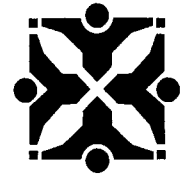


City of Columbia

701 East Broadway, Columbia, Missouri 65201



Agenda Item Number: R 223-14

Department Source: Water & Light

To: City Council

From: City Manager & Staff

Council Meeting Date: December 1, 2014

Re: Engineering Services Agreement - Amendment No. 1
Structure Consulting Group, LLC

Documents Included With This Agenda Item

Council memo, Resolution/Ordinance, Contract Amendment No.1

Supporting documentation includes:

Executive Summary

Staff has prepared for Council consideration a resolution authorizing the City Manager to execute Amendment No. 1 of the professional services agreement with Structure Consulting Group, LLC. Water & Light worked through a competitive process to contract with the Structure Consulting Group for design assistance to replace the existing Supervisory Control and Data Acquisition (SCADA) and Automatic Generation Control (AGC) systems. This amendment will included providing technical assistance in contract negotiations and help establishing performance specifications for the contract deliverable to be included in their scope of work. The total not to exceed cost of this amendment is \$58,000.

Discussion

Through a competitive process the Structure Consulting Group, LLC was selected to conduct an Energy Management System (EMS) Study to evaluate Columbia Water and Light's current Supervisory Control and Data Acquisition (SCADA) and Automatic Generation Control (AGC) systems and advise the city on how to best take advantage of current technology for the replacement of these systems. This study was intended to assist the Department in bringing the current systems into compliance with pending North American Electric Reliability Corporation's (NERC) critical infrastructure protection requirements and align the Utility with established industry best practices while providing integration with the new Customer Information Systems (CIS) and Utility Billing systems of the proposed COFERS enterprise system.

The Structure Group was retained by Water and Light to provide technical assistance for the Request for Proposals process to replace our EMS. Water and Light would like to retain the services of the Structure Group to include providing technical assistance in contract negotiations and helping establish performance specifications for the contract deliverables. The total not to exceed cost of \$58,000 would provide the additional work defined in Amendment No. 1 and retain the Structure Group's services throughout the procurement phase, providing expert consultation to ensure the city acquires the best EMS for our future needs.

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Fiscal Impact

Short-Term Impact: Amendment No. 1 of this professional services agreement is for a not to exceed amount of \$58,000, bringing the total contract amount to \$173,280. Funding for this project is from \$1,000,000 already appropriated to project EL0187 in the current Capital Improvement Program.

Long-Term Impact: None

Vision, Strategic & Comprehensive Plan Impact

Vision Impact: Not Applicable

Strategic Plan Impact: Not Applicable

Comprehensive Plan Impact: Not Applicable

Suggested Council Action

Approval of this resolution authorizing the City Manager to execute Amendment No. 1 to the professional services agreement with the Structure Group, LLC.

Legislative History

November 4, 2013 – Council Approval authorizing professional services contract with Structure Group, LLC


Department Approved


City Manager Approved

Introduced by _____ Council Bill No. R 223-14

A RESOLUTION

authorizing a first amendment to the agreement for professional engineering services with Structure Consulting Group, LLC for design assistance to replace existing Supervisory Control and Data Acquisition (SCADA) and Automatic Generation Control (AGC) systems as it relates to the City's energy management needs.

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. The City Manager is hereby authorized to execute a first amendment to the agreement for professional engineering services with Structure Consulting Group, LLC for design assistance to replace existing Supervisory Control and Data Acquisition (SCADA) and Automatic Generation Control (AGC) systems as it relates to the City's energy management needs. The form and content of the first amendment to agreement shall be substantially as set forth in "Exhibit A" attached hereto and made a part hereof.

ADOPTED this _____ day of _____, 2014.

ATTEST:

City Clerk

Mayor and Presiding Officer

APPROVED AS TO FORM:

City Counselor

FIRST AMENDMENT TO THE AGREEMENT
FOR PROFESSIONAL ENGINEERING SERVICES
BETWEEN
THE CITY OF COLUMBIA, MISSOURI
AND
STRUCTURE CONSULTING GROUP, LLC

This FIRST AMENDMENT (hereinafter "First Amendment") to the September 30, 2013 Agreement for Professional Engineering Services (hereinafter "Original Agreement") between Structure Consulting Group, LLC, a California limited liability corporation with authority to transact business within the State of Missouri (hereinafter "ENGINEER") and the City of Columbia, Missouri, a municipal corporation (hereinafter "City") is entered into on the date of the last signatory noted below.

WHEREAS, on September 30, 2013, the Parties entered into an Agreement for professional engineering services related to development of specifications for a request for proposals for the replacement of Supervisory Control and Data Acquisition and Automatic Generation Control Software programs; and

WHEREAS, the Parties hereto desire to formally amend this Original Agreement and desire to be bound by the terms contained in the Original Agreement and contained in this First Amendment.

NOW, THEREFORE, it is agreed that the said Original Agreement shall be amended as follows:

1. AMENDED SECTIONS: Sections 2.1.1, 6.1.1.1 and 6.1.2 of the Original Agreement are hereby removed and replaced with the following:

"2.1.1 Perform professional engineering services as set forth in the attached revised Attachment A – "Scope of Basic Services," dated October 24, 2014."

"6.1.1.1 For time spent by personnel, payment at the hourly rates indicated in the "Schedule of Hourly Labor Billing Rates" dated October 24, 2014, which is attached to this First Amendment, as Attachment B."

"6.1.2 Total payment for the Scope of Services and all other expenses and costs to the City under this agreement and described herein shall not exceed one hundred seventy three thousand two hundred and eighty dollars (\$173,280.00).

...

2. ORIGINAL AGREEMENT: Except as otherwise modified, amended, or supplemented by this First Amendment, all other terms of the Original Agreement entered into between the Parties shall remain in full force and effect.

IN WITNESS WHEREOF, the Parties have entered into this First Amendment on the date written above.

STRUCTURE CONSULTING GROUP, LLC

By: 

Date: 11/3/14

ATTEST:

Date: _____

CITY OF COLUMBIA, MISSOURI

By: _____

Date: _____

Mike Matthes, City Manager

ATTEST:

Date: _____

Sheela Amin, City Clerk

APPROVED AS TO FORM:

Date: _____

Nancy Thompson, City Counselor

CERTIFICATION: I, hereby certify that this contract is within the purpose of the appropriation to which it is to be charged, Account Number _____, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

John Blattel, Director of Finance

Date

**ATTACHEMENT A – SCOPE OF SERVICES
OCTOBER 24, 2014**

Energy Management System Engineering Study

Project Understanding

The City of Columbia Water and Light Department (“CWL”) is replacing its Supervisory Control and Data Acquisition (SCADA) and Automatic Generation Control (AGC) system. CWL has initiated a project to perform an engineering study to analyze their needs for the mentioned system and to prepare a suitable technical specification for it while taking into consideration the best practices common to electric utilities. The scope of this engineering study will be the following:

- Education - Full Day training session covering:
 - SCADA Concepts, functionality, cost,
 - Water production SCADA systems
 - Overview of the current SCADA/AGC market and the vendor landscape
 - Cyber Security (NERC CIP)
 - Smart Grid roadmap
- System Design:
 - Assessment of the existing SCADA/AGC system and infrastructure
 - Gathering of requirements for a replacement system including considerations for its integration with the existing system wide Energy Management System (EMS) environment and compliance with CIP standards and requirements
 - Development of a solution design for the new SCADA/AGC system
 - Development of an estimated cost
- Preparation of the technical specification

Phase 1 - Project Planning Phase

This project phase will focus on finalizing the scope of work and the project schedule. A project kick-off meeting will be used to review the project scope, identify stakeholders and their roles & responsibilities, introduce the project team and set expectations. This meeting will be organized as follows:

- Part I (Project Team, Stakeholders, Project Sponsors)
 - Introduce project team, stakeholders and project sponsors
 - Review project objectives
 - Review risks
 - Review roles and responsibilities
- Part II (Project Team)
 - Review and clarify project tasks and deliverables
 - Review and clarify the SOW
 - Review project schedule

- Discuss logistics
- Confirm in detail the initial project task(s) and steps to get started
- Discuss policies and procedures governing execution of the project

Phase 2 - Instructional Workshop

Structure will conduct a whole day workshop with the following curriculum:

1. SCADA concepts and functionality
2. Use of shared versus independent SCADAs: Generation/Transmission/Distribution
3. SCADA for Water operations
4. System design concepts
 - a. Control Centers
 - b. Communications infrastructure
 - c. Security, redundancy and performance
5. Implementing a new SCADA
 - a. Advantages
 - b. Considerations and risks
 - c. Schedule and cost
6. Substation Automation
7. Smart Grid
 - a. Overview
 - b. Applications
 - c. Road map
8. SCADA vendors landscape
9. Open forum for questions and discussion

This workshop will be performed in the CWL facilities. Structure will prepare the material to be presented as well as facilitate, with its experts, the discussions and open forum at the end.

Phase 3 - Assessment Phase

This project phase will focus on conducting an assessment of the existing systems, gathering requirements and priorities for a replacement SCADA system considering the current SCADA/AGC market and best practices for this type of solutions.

1. Assessment of the CWL infrastructure and existing SCADA/AGC System

This task will focus on assessing the existing SCADA/AGC system and infrastructure. The task will involve a site visit by Structure to review the existing SCADA/AGC capabilities; evaluate CWL infrastructure, gather and review relevant system documentation. An important part of the information gathering will be interview sessions with CWL's SMEs and Business Owners to develop an understanding of the system and the processes around it. In particular, this task will serve to review all components of the system including:

- Hardware Platform
- Network and Telecommunications Infrastructure
- Operating System
- Third Party Software

- Architecture
- Database and Display Sizing
- SCADA Applications
- AGC Applications
- Security
- Compliance
- Current Version of Vendor Products
- Processes and Procedures
- Organization
- Fault Tolerance
- Enterprise Integration and Interfaces
- Operational Maintenance
- System Maintenance (e.g. long term support contract)
- Known Issues and Functional Gaps
- Disaster Recovery
- Supportability
- Cyber Security

2. Gather Requirements and Priorities

This task will focus on conducting data gathering sessions with the CWL's SMEs and Business Owners to collect and discuss requirements, priorities and the future state vision for a system that will satisfy CWL's needs. These sessions will be aimed at developing requirements in all the functional areas of the system as defined by CWL and Structure during the project's planning phase. As a minimum the following areas will be covered during this task execution:

- System Architecture and General System Requirements
 - System architecture and environment options
 - Hardware, operating systems and network architecture.
 - System configuration and control
 - Network time synchronization, daylight savings time adjustments and time zones
 - Initial database and display development
 - Cyber security requirements
 - Sizing, system performance and availability
 - Support for database type object oriented options and service oriented architecture.
 - Others
- Business and Functional Requirements
 - SCADA
 - Database Management including Source Data Base Editor, support for Common
 - Information Model (CIM), online database editing, etc.
 - Data Acquisition
 - Data Processing
 - Supervisory Control
 - ICCP

- Load Shed & Restore including Rotating Load Shed
- Limit Manager including temperature based limit sets
- Disturbance Data Collection
- Alarm and Event Processing
- Real-Time Periodic Calculations
- Others
- User Interface:
 - Graphical User Interface
 - Remote User Interface System
 - Trending
 - Display Management (Display Editor)
- AGC Applications:
 - Automatic Generation Control (AGC)
 - Economic Dispatch
 - Ancillary Services Monitoring
 - Others
- Dispatcher Training Simulator
 - Requirements for training System Operators
 - Information Storage & Retrieval:
 - Analog/Digital/Status Data Storage
 - Event/Alarm Data Storage
 - Data Archival and Retrieval
 - Displays, Trending, and Reporting
 - Historical Information System (Historian)
 - Historical Data Playback
 - Others
- External Interfaces
 - MISO
 - TEA
 - Map Interface
 - Outage Management System (OMS)
 - Future Smart Grid/DA
 - Corporate systems/applications
 - Others
- Regulatory/Compliance Requirements
 - Cyber Security, Backup Control Functionality, etc.

Phase 4 - Develop a Recommended Design for the Replacement System

This phase will focus on developing a solution design and technical specification for a replacement SCADA/AGC system that meets CWL's requirements. The task will also develop a high-level cost estimate for the implementation of the system.

1. Solution Design Development

This task will focus on developing a functional design for a solution that will satisfy CWL's requirements for the SCADA/AGC system replacement. The solution design process will take into consideration:

- CWL's requirements, priorities and future state vision including:
 - System Architecture and General System Requirements
 - Functional and Business requirements
 - Compliance and Regulatory Requirements

2. Evaluation current SCADA/AGC market and best practices

This task will focus on conducting an evaluation of the current SCADA/AGC market and best practices in order to identify the possible solutions for CWL. Structure will also present CWL with viable options to implement a good solution considering the Vendors offerings.

The evaluation will identify the gaps between CWL's requirements and priorities and the capability of the vendor products currently available. This will help identify functional areas which may require customizations and therefore more detailed definition in the technical specification.

Structure will conduct a workshop to discuss industry best practices and emerging trends in relation to the requirements and needs of CWL. The workshop will be focused on ensuring that the CWL's SMEs and Business Owners have a good understanding of the current possible solutions with their corresponding strengths and weaknesses. The information analyzed as part of this task will provide a preliminary list of vendor recommendations for CWL to consider. This workshop will be based on Structure's experience with these systems and CWL requirements and needs. Its purpose is primarily to help CWL to narrow the field of vendors to evaluate in more detail. At a minimum, Structure anticipates discussing the following vendors during this workshop:

- Alstom Grid
- EFACEC ACS
- GE Energy
- Open Systems International (OSI)
- Schneider/Telvent
- Siemens
- Ventyx/ABB

Structure's personnel will develop a set of alternatives for consideration based on the CWL's requirements, priorities and future state vision previously gathered and its knowledge and understanding of the current vendor landscape. Structure's personnel will then facilitate sessions with CWL's SMEs and Business Owners to discuss these alternatives.

This task will result in a deliverable summarizing the recommendation of viable vendor that can provide a solution for CWL.

3. Technical Specification Development

This task will focus on preparing a Technical Specification for the new SCADA/AGC system. Structure's personnel will develop an initial draft of the technical specification based on the gathered functional and technical requirements and priorities; the solution design, the review of

the vendor landscape and Structure's SCADA/EMS specification collateral that can be leveraged.

The initial draft of the Technical Specification will be provided to the CWL project team for review and meetings will be scheduled to review and discuss content with Structure's team. The technical specification will be updated appropriately with the outcome of the review sessions. Review meetings will be conducted until the Technical Specification is finalized.

4. Development of Implementation Cost Estimate

This task will focus on developing a high-level cost estimate for the implementation of the replacement SCADA/AGC system. Structure will use its knowledge of the market costs for similar systems, its experience with SCADA/AGC projects' implementation effort, and if necessary requested budgetary quotation from vendors for a replacement system, in order to develop and fine tune this estimate.

Phase 5 - Vendor Evaluation and Selection

This task consists of several sub-tasks associated with the evaluation of the EMS vendor proposals and the selection of one of them based on a predefined evaluation and selection criteria.

Evaluate Vendor Proposals

This sub-task will consist of facilitating and participating in the evaluation of the proposals received in response to the RFP using the set of evaluation criteria defined previously and compiling the evaluation results into a Vendor Evaluation Scoring Matrix.

The City's SMEs and Business Owners will perform the proposal evaluation and scoring; Structure will also participate in the evaluation and scoring process at The City's request. Once all evaluations have been completed, Structure will compile individual scores for each vendor from each evaluator and will facilitate consensus building among evaluators as to which score the team agrees.

Once the consensus scores are entered in the scoring matrix for each section, Structure will calculate an overall score for each vendor, providing a preliminary ranking of vendors.

Conduct Vendor Demonstrations

This sub-task will consist of facilitating and conducting vendor demonstrations, wherein vendors present their proposed solutions. Vendor demonstrations will provide The City with the opportunity to pursue the following key areas with the vendor.

- See a demonstration of the proposed system using The City's data/displays

- Ask specific clarifications questions to vendors in order to complete the evaluation of the proposals
- Meet the Vendor's Team.

Structure will perform the following activities as part of this sub-task:

- **Prepare a Demonstration Schedule and Agenda**
Structure will assist The City in finalizing the demonstration schedule with the vendors and in defining a demonstration agenda. The agenda will include specific use cases that the vendors will demonstrate. Structure will define the use cases with The City and use real data/displays from current systems. The agenda will also include specific topics for which the evaluation team needs clarification from the EMS vendor.
- **Finalize Demonstration Evaluation Criteria**
At the same time that the agenda will be finalized, Structure will assist The City in finalizing the evaluation criteria for the demonstration. Each criterion will be assigned a relative weight and incorporated into the Vendor Evaluation Scoring Matrix.
- **Facilitate the Demonstrations**
The City will arrange for rooms and logistics when the demonstrations will take place at its facilities and for SMEs and Business Owners to be available. Required Structure personnel will be made available to participate in the demonstrations
- **Facilitate Evaluation of the Vendors' Demonstrations**
Once the demonstrations are completed, Structure will facilitate the scoring of the demonstrations by The City's SMEs and business owners. The scores will be entered into the Vendor Evaluation Scoring Matrix.

Check Vendor References

This sub-task will consist of validating the reference Clients provided by the vendors in their proposals. To make the reference check process as efficient as possible and to make the best use of the Reference Client's time, Structure will prepare a list of validation questions to be reviewed by The City. The list of questions will be sent to the Reference Client and a conference call will be scheduled to go over the questions and answers with the Reference Client.

The reference check questions will at least cover the following topics and questions:

- **Vendor Information:** Vendors considered; why did they select the vendor?
- **System Information:** System size (points, stations, Remote Terminal Units (RTUs), etc.), number of operator consoles, number of users, vendor software version currently being run, platform (hardware, operating system, etc.)
- **System Functionality review:** Functions included, satisfaction of functional expectations, satisfaction of user expectations, satisfaction of performance expectations, major benefits, strong points, major limitations, weak points
- **System Delivery:** Project Schedule, vendor performance, unexpected problems, quality of the vendor's delivery team, quality of the vendor's project management
- **Training and Documentation:** Quality of Trainer, quality of training material, quality of documentation

- Support and Maintenance: Responsiveness during warranty, during maintenance, quality of technical support, ease of updates and upgrades, quality of user community
- 20/20 Hindsight: Would you choose the same vendor? What would you do differently? Lessons learned? Strongest and weakest points of vendor / client interaction? If system was a replacement, compare vendor with prior system vendor. Other suggestions or recommendations.
- Energy Management System (EMS) application-specific questions

Structure will assist The City in finalizing the evaluation criteria for the vendor Reference Checks. Each criterion will be assigned a relative weight and incorporated into the Reference Check Question Matrix. The questions and answers or observations from site visits/vendor answers will be tabulated in this Reference Check Question Matrix.

Facilitate Vendor Selection

This sub-task will consist of compiling and analyzing all the evaluation results from the previous tasks to determine a final ranking of vendors. This is accomplished by completing the Vendor Evaluation Scoring Matrix to ensure that it contains, for each Vendor, the results of:

- The evaluation of the Vendor technical proposals
 - Conformance to requirements
 - Delivery schedule
 - Quality of the solution
 - Other criteria as defined with The City
- The evaluation of the demonstrations
- The evaluation of the non-technical part of the proposal
 - Vendor experience
 - Vendor reputation
 - Vendor financial strength
 - Other criteria as defined with The City
- Pricing

Structure will facilitate a discussion on the scoring matrix results and on the results of the vendor Reference Checks with the Client to identify:

- Pros and cons of each solution
- Strong points and weak points of each solution
- Potential delivery risks for each solution
- Benefits of each solutions

After weighting all the above factors, Structure facilitate and support The City SMEs and business owners in identifying the vendor with the best solution for meeting The City's requirements (technical, budget, schedule, priorities, etc.) and with whom it is recommended to enter into contract negotiation.

Structure will then collaborate with The City SMEs and business owners to prepare a final report and presentation to support the resulting recommendation to management. The report will contain the following elements:

- Overview of the RFP process presenting the steps taken to reach a decision

- Summary of evaluation criteria
- Overview of each solution (architecture, products, price, schedule, etc.)
- Comparison of the evaluation results of the solutions
- Pros and cons of each solution
- Strong points and weak points of each solution
- Benefits of each solutions
- Potential risks associated with the selected vendor and solution
- Recommended vendor

Develop Vendor SOW and Support Contract Negotiations

This task will focus on developing a Statement of Work (SOW) for the selected vendor and supporting The City's Procurement personnel with contract negotiations with the selected vendor.

Structure assumes that The City's Procurement personnel will lead contract negotiations according to The City's procurement policies and procedures. Structure personnel will primarily focus on the development of the SOW during this phase and will support vendor contract negotiations as required by The City's Procurement personnel.

During this Phase, Structure will provide expert support during drafting, negotiating, and executing contractual documentation with the selected vendor. This includes assisting in the development of a draft SOW or Scope of Work and providing feedback regarding the terms of the software license, implementation services contract, and maintenance and support agreements.

The draft SOW will describe and define the products and services to be provided by the vendor, and form the baseline for negotiations with the vendor. Since the Project Team is typically the most knowledgeable group regarding the comprehensive set of Customer requirements that need to be met, their development of the SOW typically reduces the risk of overlooking needed functionality. Likewise, the Project Team's prior implementation experiences will be leveraged in determining a realistic delivery schedule.

Deliverables

- Instructional Workshop
- Summary of Requirements, Priorities and Future State Vision
- Vendor Landscape Summary Report
- SCADA/AGC System Solution Design
- Technical Specification
- Implementation Cost Estimate
- Evaluation Matrix for Proposal Scoring

**ATTACHEMENT B – SCHEDULE OF HOURLY BILLING RATES
OCTOBER 24, 2014**

Energy Management System Engineering Study

<u>Classification</u>	<u>Hourly Billing Rate</u>
Executive	\$ 285
PA SME	\$ 250
Sr. Manager	\$ 225
Manager	\$ 200
Sr. Consultant	\$ 165
Consultant	\$ 130
Technician	\$ 100
Clerical	\$ 65

Expenses will be invoiced as actuals and will include coach class airfare, lodging for overnight stays, parking, and meal and incidental expenses. Meals and incidentals will be invoiced as per diems at rates shown on the www.gsa.gov website.