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**To:** Chair and Members  
Lambton Area Water Supply System Joint Board of Management

**From:** Clinton Harper  
General Manager

**Subject:** Scope of Work- Supervisor Control and Data Acquisition  
(SCADA) Master Plan

## Recommendation

That the LAWSS Joint Board of Management **ENDORSE** the scope of work for a Supervisor Control and Data Acquisition (SCADA) Master Plan

## Evaluation Process:

Staff will use a Qualification-Based Selection process utilizing a “two (2) step method” procurement process in which bids are received and evaluated in two (2) separate phases.

The first step (Phase 1) consists of technical and qualitative information and is opened and evaluated first. The second step (Phase 2) consists of cost and price information which may be opened and evaluated only after the information in Phase 1 has been evaluated in accordance with the requirements of the RFP document.

Technical proposal Submissions will be assessed and scored based on the evaluation criteria, but not limited to, the following:

Criteria	Weighting
Project Manager Qualifications and Experience on Directly Related Projects	15
Technical and Support Staff Qualifications and Experience on Directly Related Projects	25
Understanding of Project Goals, Methodology, and Approach	25
Implementation Strategy, Schedule of Key Activities, and Commitment to Maintaining Timeline and Deliverables	25
Innovation and Recommendations	10

The Technical Proposal must receive a score of seventy (70) points or greater, based on the technical evaluation criteria to be considered for the Cost Proposal phase. Proposals that do not achieve this score will not be considered further.

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## Description of Work:

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The work includes development of a SCADA Master Plan that includes the following four components:

1. Evaluate the existing SCADA system to determine any deficiencies.
2. Identify LAWSS operational requirements and information/control needs.
3. Evaluate communication path performance.
4. Develop a Master Plan to upgrade to existing SCADA/PLC components to maximize reliability, responsiveness, cost effectiveness, security, and scalability.

Providing recommendations for system-wide software and communication hardware that will be utilized at all LAWSS facilities, in order to ensure all systems are compatible.

Successful proponent will provide equipment, materials, and labour to complete the Scope of Work, and to prepare interim technical memoranda as documentation of the project elements. LAWSS will provide successful proponent with access to staff for interviews as needed throughout the project. Technical memoranda shall be prepared as a draft for LAWSS review, followed by final revision that incorporates comments received. It is expected that the Master Plan report will be based upon the interim technical memoranda, and will outline a planned approach and schedule to implement recommended changes or upgrades. Planning level cost estimates for each modification shall be included.

## Scope of Work:

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The objective of this Scope of Work is to provide a framework for the development of a SCADA Master Plan to achieve a flexible, reliable, and comprehensive SCADA environment. The Master Plan shall include specific recommendations with budgetary cost estimates and schedule for the next five to ten years. The Scope of Work anticipates four steps to developing the Master Plan: Assess Current Environment; Identify Goals and Metrics; Assess existing Communication Path; and Prepare SCADA Master Plan report. Deliverables will include one electronic copy (.pdf) for each element of each deliverable.

### Element 1: Assess Current Environment

For this element the successful proponent will provide an inventory and detailed written and graphical description of the current environment that will enable effective analysis and recommendations.

The assessment shall accomplish the following tasks:

1. Review and inventory the existing SCADA system.

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2. Document how the current SCADA system is used by operations staff
3. Provide recommendations regarding capabilities that should be considered based on the observed operational practices
4. Review and document current SCADA system deficiencies or needed upgrades.

The assessment report will include graphical presentations of each component in sufficient detail to analyze performance improving opportunities. The report will document details of each component, including:

1. Hardware (brand name, model, CPU type, speed, memory, age of equipment, etc.)
2. Software (application vendor, product name, version, number of users, etc.)
3. Network (network diagram showing media, number of channels/pairs, and protocols, list of network equipment with brand name, model, age, etc.)
4. Databases (conceptual data model showing key indices, applications, interfaces and attributes)
5. Functions (brief description of the function and necessary components)

### Element 2: Identify Goals and Metrics

In this step the successful proponent will establish a programming and operational narrative that will be implemented throughout LAWSS SCADA in all future projects.

In addition to the establishment of a programming and operational narrative, the successful proponent will establish SCADA system performance goals and metrics designed to meet LAWSS needs. Examples of performance goals include:

- Capital cost
- Communication
- Cost for implementation
- Backup
- Resiliency
- Redundancy/disaster recovery
- Reliability
- Security
- Flexibility
- Functionality
- Hardware
- Software
- Support
- Expandability
- Maintenance
- Ease of use
- Operator interface (cloud-based, local, central, etc.)

### Element 3: Assess existing Communication Path

LAWSS has recently transitioned away from the radio-based communication system to a software defined wide area network at all sites. In this element the successful proponent will provide a third-party assessment of the new communication network. The assessment should identify any deficiencies or issues with the new system. The assessment will explore how the new communication network can be expanded.

During the Goals and Metrics and Communication Path meeting with LAWSS, the successful proponent shall solicit feedback from LAWSS on goals for the SCADA system

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and future system upgrades. The successful proponent shall discuss options and alternatives with LAWSS, compile LAWSS goals and requirements, and document OCWA's understanding, along with alternatives and recommendations to meet the identified requirements. The outcome of the Goals and Metrics and Communication Path Task shall provide successful proponent with sufficient information to develop the recommendations of the Master Plan. The successful proponent shall prepare a draft and final Technical Memoranda (TM) summarizing the understanding of LAWSS needs and goals. The TM shall include a thorough discussion of solutions to be carried forward in the Master Plan.

#### Element #4: Master Plan Report

Following review and incorporation of LAWSS comments in all previous tasks, the successful proponent shall incorporate all deliverables produced, and prepare a SCADA Master Plan Report and executive summary. The executive summary will include a summary description and a Gantt chart showing all action items for a five to ten-year implementation program.

This task shall include an evaluation of a variety of systems, a ranking and discussion of recommended solutions, and shall provide a thorough discussion of final recommendations.

The Master Plan Report shall include:

- Recommendations for replacement SCADA systems.
- Information developed in interim Technical Memoranda.
- Recommendations that meet Best Management Practices in Ontario.
- Written Disaster Recovery Plan.
- Written programming and control narrative.
- Recommendations for redundancy requirements (e.g. hot standby for primary PLCs)
- Recommendations that all packaged control systems utilize standardized PLCs recommended for all LAWSS facilities.
- Recommendations for Factory Performance Testing (FAT) requirements during construction.
- Cost estimates for implementation.
- Ongoing system maintenance requirements (e.g. staffing needs, licensing, associated cost estimates).
- Estimated system life cycle and strategies to maximize the system life.
- Remote site instrumentation and PLC I/O lists.
- Communication recommendations.
- Recommended Historian and reporting additions.
- Timeline for 5-year to 10-year implementation.

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## Tendering:

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The Tender/Proposal Process, as outlined in the LAWSS Procurement Bylaw will be used to secure prices for this work. Every effort will be made to secure three competitive bids. The results of the Tender/Proposal Process will be used to establish a recommendation in a future report to the Board.

## Financial Implications:

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The LAWSS Board budgeted \$150,000 for this work in 2020.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s):