

REQUEST FOR PROPOSALS

Professional Services:

FY 2007/08

*Water Treatment and Source of Supply
Equipment and Operations Assessment*

CITY OF SHERIDAN, WYOMING
PUBLIC WORKS DEPARTMENT
February 4, 2008

Background

The City of Sheridan is located in Sheridan County, Wyoming. The City of Sheridan (City) operates two surface water treatment plants which supply water to approximately 8,000 customers (Population – 21,000). These water treatment plants are jointly owned by the City and the Sheridan Area Water Supply –Joint Powers Board (SAWS/JPB).

During peak days of the year these plants are responsible for supplying over 10 MGD of potable water to customers with a combined capacity of 18.5 MGD. The Sheridan Water Treatment Plant (SWTP) was originally constructed in the mid 1960's and upgraded in the early 1990's to increase its treatment capacity to 14 MGD. The City is currently constructing a \$3.8 Million capital project to replace the existing chlorine disinfection system with the on-site generation of sodium hypochlorite. Within this project, coagulation improvements have also been incorporated into a new building to house the components.

Also in the early 1990's, the Big Goose Water Treatment Plant (BGWTP) was constructed as part of the regional SAWS project. The BGWTP has not received significant upgrades since its original construction. The treatment capacity of the BGWTP is 4.5 MGD. Currently, the BGWTP appears to have adequate treatment capacity for the current service area.

Each of the water treatment plants consists of systems and components that vary in condition and age. Due to the varied usage of each component, it is anticipated that some of the equipment may require replacement within the next few years. In addition to this, it is anticipated that the replacement of each component within the system will vary significantly in cost and may have an alternative to replacement, should enhancements be made.

30-Inch and 20-Inch raw water transmission mains (RWTM's) provide water from the raw water intake to the Sheridan Water Treatment Plant (SWTP). The 30-inch RWTM pipe is steel and was laid in the mid 1990's. This pipe is in great shape. The 30-Inch pipe is capable of supplying nearly 30 MGD to the SWTP. The 20-inch RWTM pipe is ductile iron pipe, which was laid in the late 1960's. The 20-inch pipe is believed to be in poor condition. The 20-inch pipe is only used as a back-up (redundant) raw water supply for the SWTP, in the event that the 30-inch is unavailable.

The Sheridan Intake facilities are located on Big Goose Creek at the edge of the Big Horn Mountains approximately twelve miles west of Sheridan. These facilities divert all water that is used at the Sheridan water treatment plants, the Veterans Affairs water treatment plant, and the City's municipal golf course for irrigation. The intake facility was upgraded in the spring of 2004 to increase its capacity and improve upon pretreatment of raw water.

Twin Lakes reservoir is located in the Bighorn Mountains upstream of the raw water diversion and intake. The reservoir has the capability to make releases to accommodate water demands for the City and SAWS. The outlet works of the reservoir is capable of releasing up to 85 cfs during normal operations. The reservoir has an estimated capacity of 3,400 acre-feet. Of this capacity, the City owns 3,000 acre-feet and SAWS owns 400 acre-feet. The City maintains records that indicate the condition of the embankment and outlet works of this facility.

With stricter drinking water standards expected to be handed down by Region 8 of the Environmental Protection Agency (EPA), it is anticipated that the two treatment plants will require upgrades in order to meet more stringent standards. The City wishes to establish a plan and schedule for replacing and upgrading assets in order to minimize operational cost while complying with anticipated drinking water standards.

Purpose

The purpose of this Request for Proposals is to solicit the services of a qualified project team to provide the City of Sheridan with an *Equipment and Operations Assessment* associated with raw water source of supply facilities and water treatment facilities.

*****The project budget for this study is \$200,000*****

The City wishes to hire a project team to identify assets, assign a valuation of assets, evaluate current operations, and provide a replacement and upgrade plan for the system.

Schedule

The City of Sheridan wishes to have a draft report complete by December 31, 2008. The report should be finalized by February 28, 2009. Meetings should be planned and scheduled according to the criteria set forth in the "Proposal Content and Evaluating Criteria" section of this RFP.

Project Objectives

The City has three objectives identified for this study, they are as follows:

- Objective 1 – Assess Current Assets
- Objective 2 – Assess Current Operations
- Objective 3 – Establish a Replacement and Upgrade Plan

Objective 1: Assess Current Assets

This portion of the project should assess the current assets held by the City (either partially or wholly) associated with the source of supply and equipment involved in the process of supplying potable water. Objective 1 consists of three main tasks:

- 1-A.) Asset Inventory,
- 1-B.) Evaluation of Assets, and
- 1-C.) Projection of Remaining Useful Life of Assets

Task 1-A: Asset Inventory

The City has identified five asset classes in which individual processes are to be identified. The five asset classes are as follows:

- *Reservoirs and Water Rights*
- *Big Goose Creek Diversion and Intake Facility*
- *Raw Water Transmission System*
- *Sheridan Water Treatment Plant (SWTP), and*
- *Big Goose Water Treatment Plant (BGWTP).*

Assets within each class should be broken down according to process.

Most of the assets listed in the classes described above are jointly owned by the City and SAWS. In addition to identifying the assets within the five classes listed above, the City wishes to have a clear understanding of who owns what percentage of the assets. The City will provide the agreements, grants, and loans on record to the project team in order to assist in this task.

Task 1-B: Evaluation of Assets

Based upon the five asset classes identified above, the City desires to evaluate each asset based on several criteria.

The criteria shall include, but not be limited to:

- Date of Origin,
- Power Consumption Estimates,
- Annual Operating Cost Estimates,
- Condition of Asset,
- Priority Components, and
- Replacement Cost Estimates

The City is defining priority components as equipment or structures that are expected to need replacement or upgrades in the near future. The project team shall have extended knowledge in establishing values for water system assets.

Task 1-C: Projection of Remaining Useful Life of Assets

In this portion of the project, the project team will be assigned to estimate the useful life remaining for components within the five asset classes. City staff will aid in providing information pertaining to past upgrade and construction projects related to the five asset classes. The City also has conducted several studies to assess various major components within the five asset classes. **Copies of the study reports will be made available upon request.**

Objective 2: Assess Current Operations

This portion of the project will assess the current operations and processes associated with the transmission and treatment of raw water. Objective 2 consists of three main tasks:

- 2-A.) Process Assessment,
- 2-B.) Personnel Assessment, and
- 2-C.) Future Compliance

Task 2-A: Process Assessment

Within this study, the City wishes to identify the primary process path used at each facility. The process path shall be presented in a process breakdown fashion for the overall system and shall be identified within the proposal. **Proposals submitted shall identify how this information will be conveyed (i.e. flow charts, diagrams, P&I drawings etc.)**

In addition to the process breakdown, the City wishes to identify the components involved within the processes defined from the breakdown. The individual components could then be used in proposed upgrades should alternative processes be identified from Objective 3. Proposals submitted shall address how the project team will approach this.

The processes involved with the current supply of potable water implements standard water treatment practices. The City has records and drawings for most of the equipment and structures involved with the treatment and transmission processes. The selected project team will have access to these items and assistance obtaining information from City staff.

Task 2-B: Personnel Assessment

Currently the City hosts 8 full-time positions and 2 part-time positions within the water treatment division. All of these positions are held by individuals who are certified at various levels by the WDEQ operators program. The City wishes to assess the current staffing levels and technical personnel resources. In completing this task, it is anticipated that an assessment of the organizational structure will need to occur.

The city would like to research the potential to diversify staffing in order to accommodate the complexities and various facets involved with operating the water treatment plants and raw water transmission systems (i.e. The need for mechanics, electricians, plumbers, welders, etc.). **Proposals shall provide the methodology to be used for completing this task.**

Task 2-C: Future Compliance

The City wishes to identify the levels of treatment that DEQ and EPA will require for public water supply systems in the future. In addition to this, the City wishes to analyze whether, or not, the current operations of the water supply systems are capable of meeting these anticipated standards. The project team will have access to records maintained by the treatment plants in order to evaluate the effectiveness of the City's treatment processes. Records include flow data, SDWA compliance monitoring, and sample results.

In completing this task, the selected team will need to establish industry standards for the upcoming effluent limits (i.e. What are other cities with surface water treatment plants doing to address the upcoming standards?). Establishing this may require correspondence and meetings with other municipalities. Doing so should provide insight as to how to approach the upcoming limits. **Proposals shall identify how the project team will approach this task.**

Redundancy is a requirement imposed by the regulatory permitting agencies in order to maintain adequate treatment in the event that a component, or process, is shut down due to failure or scheduled maintenance. In addition to evaluating the treatment capabilities of the systems, the City wishes to evaluate the redundancy of each treatment plant. The selected project team will need to look at the remaining life of assets in determining redundancy.

Objective 3: Establishing a Replacement and Upgrade Plan

This portion of the project will aid in identifying priority projects that the City will need to pursue in the near future. Objective 3 consists of two main tasks:

- 3-A.) Development of a Rating System, and
- 3-B.) Identification of Upgrade Projects

Task 3-A: Development of a Rating System

The City wishes to establish a replacement and upgrade plan in order to start budgeting and securing funding for costly repairs which will be required in the future. The City wishes for the

selected project team to implement a rating system for replacements which will be required for the system. Doing so will provide a means to prioritize projects in the future when establishing fiscal budgets. The rating system developed shall be easy to incorporate changes and upgrades upon completion. **Proposals shall include the approach that will be used to establish such a rating system.**

Task 3-B: Identification of Upgrade Projects

In addition to establishing an equipment replacement approach through the development of a rating system, the selected project team shall identify upgrade projects which may be required to meet the future treatment standards, optimize operations, increase treatment capacity, and enhance processes. There are several conceptual projects that have been identified by the City and shall be included in the evaluation of future projects.

Upon identifying the upgrade projects, the selected team should identify the power upgrades which may be required for enhancing or streamlining the treatment process. Power is currently limited at all of the facilities.

Conceptual projects which have been briefly discussed by the City are:

SWTP and BGWTP Sludge Dewatering

Sludge dewatering has recently become a besetment at the water treatment plants. The City wishes to incorporate investigating various approaches to help solve this problem during this study. Some ideas that have been considered are private hauling to the City's WWTP for future processing, construction of a roof over drying beds, and/or incorporating a centrifuge or belt press to aid in dewatering.

Taste and Odor Treatment

During the last summer, water customers experienced a foul taste and odor problem which resulted from warmer late season temperatures and reduced storage within reservoirs. As a result, older carbon feeders were used to help neutralize this problem. Upon starting the carbon feeders, it became apparent that they were in poor condition. The process did not completely address the taste and odor problems. The City would like to investigate the potential to incorporate taste and odor enhancing processes into the upgrade projects. Some conceptual solutions that City staff has considered include the introduction of sodium permanganate and the introduction of potassium permanganate.

Telemetry Upgrades

Telemetry and SCADA systems and interfaces currently being used to monitor transmission and treatment processes are outdated, but functional. Upon the upgrading of physical systems, the City would like to incorporate telemetry upgrades to help streamline operations. The City would like the selected team to investigate the potential to upgrade these systems. Currently the city employs a Control Systems Specialist who can aid in this task.

Hydropower & Power Audit

In October 2002, the City evaluated the feasibility of incorporating a hydropower generator into the piping systems in order to offset the power consumption costs incurred at the plants. At that point, it was determined not to be feasible, due to various economic factors evaluated.

Since that time, the power costs and increased minimum flows have changed the economic environment and could deem this alternative feasible to pursue for not only usage, but also a revenue source. The City would like to revisit this option to determine the current feasibility.

Additionally, power is limited and may become the primary constraint in upgrading or enlarging the facilities in the future. The City wishes to identify the power available at each facility in order to address this concern for future projects. The City would like the selected team to include an evaluation of power and the potential for upgrading power supplies to the facilities.

Disinfection Improvements

With more stringent Cryptosporidium removal requirements forthcoming, additional disinfection above and beyond the current methods will be required. EPA personnel indicated in 2007 that the City will be required to establish treatment processes to achieve at least 5.5 Log removal of cryptosporidium by the year 2013. The City would like, as part of this study, to evaluate alternatives that will achieve the cryptosporidium removal at the SWTP and BGWTP.

Deliverables

Deliverables for this project include a draft report, final report, meetings, and presentations. 10 copies of each report shall be delivered to the City upon completion. The final report should be accompanied with an executive summary of findings and recommendations. The final report should also include appendices of pertinent information. All submittals should also be made available electronically. 10 CD's containing complete reports should be provided with the submittal of the draft and final report.

At a minimum, arrangements should be made to accommodate the following:

- Project Kick-Off Meeting
- Interim Progress Meetings (3 Meetings)
- City Council Workshops (2 – One Hour Presentations)

Proposal Content and Evaluating Criteria

Individual project proposals are limited to a maximum of 20 - 8.5" x 11" pages (single sided with reasonable font). Project team brochures and cover letters can supplement the proposal. However, only the first 20 pages will be considered for the project team selection.

Proposals should discuss the firm's capability to perform all aspects of the project including approach to and experience with previous, similar projects. Identify the project team including the project manager, project engineers, project technicians, support staff, and any sub-consultants. Résumés may be included as supplemental information to the proposal. The success of this study depends on close coordination with the City's Utility Maintenance, Engineering, and Water Treatment Sections.

Identify current and projected workload and discuss how this project would affect other City of Sheridan projects currently under contract. Also consider how this project might affect forthcoming City projects that your firm would likely pursue. Indicate the firm's capability to meet schedules and deadlines. Proposals shall include a preliminary schedule for completing the proposed work. Include a professional hourly rate/fee structure for accomplishing the work. Include an estimate for the total anticipated fee necessary to complete the work.

The following criteria, in no particular order, will be used in the evaluation:

- ✓ Approach to project
- ✓ Past experience with projects of similar size and complexity
- ✓ Past experience with projects entailing financial/economic analyses
- ✓ Quality and performance on previously undertaken projects
- ✓ Project team experience and qualifications
- ✓ Current and projected workloads
- ✓ Familiarity with water treatment operations and technology; EPA Requirements, Wyoming DEQ Rules and Regulations; City of Sheridan and SAWS utility assets; and other local, state and federal requirements.
- ✓ Capability to complete project within budget and a reasonable timeframe
- ✓ Demonstration of acceptable professional rate/fee structure

Pertinent Information

Five copies of the proposal must be submitted to the Public Works Department, 3rd Floor of City Hall, 55 Grinnell Plaza / P.O. Box 848, Sheridan, WY 82801, by 5:00 p.m., March 7, 2008. Please contact Chris Knodel at 307-674-6483 ext. 259, or e-mail: cknodel@sheridanwy.net, for further information regarding the project.

The City reserves the right to reject any or all proposals, to waive informalities, and to accept any proposal, which is in the best interest of the City of Sheridan. The Request for Proposals does not bind the City of Sheridan to award a contract or pay costs incurred by proposing firms. All proposals shall become the property of the City. The City reserves the right to cancel, in part or its entirety, this request. Upon selection, the City may enter into a professional services agreement with the project team.