

**ATTACHMENT A**  
**SCOPE OF SERVICES**

**PROJECT NAME: Water System Condition Assessment Plan Development**

**PROJECT UNDERSTANDING**

This project consists of assisting the City in developing a plan for how to assess the condition of critical water infrastructure (12-inch and larger transmission water lines and water pump station) and develop a process for identifying a replacement schedule for smaller neighborhood type infrastructure.

**SCOPE OF PROFESSIONAL SERVICES**

**TASK 1: GENERAL ITEMS AND MEETINGS**

- A. Record Research - Work with City staff to obtain all available record drawings, studies, GIS files, maintenance records, etc. associated with the water system infrastructure.
- B. Kick-off Meeting - Conduct kick-off meeting with the City to confirm the goals, schedule, and deliverables for the project.
- C. Miscellaneous Meetings – Conduct up to two (2) meetings with City to discuss evaluation.
- D. Project Site Visit – Conduct up to two (2) site visits to investigate existing infrastructure. One (1) visit is assumed for water line investigations and one (1) visit is assumed for the pump station.
- E. Report Review Meeting - Conduct meeting with City to review draft technical memorandum.
- F. Project Management – Prepare project schedule, conduct internal project meetings, prepare monthly invoices, and prepare project deliverables.

**TASK 2: CRITICAL WATER INFRASTRUCTURE PLANNING**

This task consists of identifying and evaluating the City's critical water infrastructure which is defined as water transmission lines 12-inch and greater in diameter. This task involves evaluating possible technologies and methods available for condition assessment and determining what should be utilized for critical infrastructure. This task does not include the actual assessments. Those activities will be performed in a future task.

- A. Condition Assessment Evaluation for Concrete Pipe (30-inch and 24-inch transmission mains from pumping station to elevated storage tanks)
  - 1. Evaluate options for leak detection.
  - 2. Evaluate options to determine structural integrity.
  - 3. Review pipe record drawings, manufacturer's lay drawings and historical maintenance records.

4. Develop recommendations for methods, limits of assessment, and pipeline improvements required to perform assessment. Design of pipeline improvements is not included in this scope of work.
  5. Prepare opinion of construction cost (OPCC) for pipeline improvements required to allow for selected inspections.
  6. Coordinate with inspection companies and determine estimated cost for selected inspection.
- B. Condition Assessment Evaluation for Non-Concrete Pipe (12-inch and 16-inch transmission mains within the water system, assumed to be a combination of Ductile Iron and PVC)
1. Evaluate options for leak detection. It is assumed that technologies considered will not require insertion of equipment into the pipe.
  2. Review water system GIS data and historical maintenance records.
  3. Develop recommendations for methods and limits of assessment.
  4. Coordinate with inspection companies and determine estimated cost for selected inspection.

### **TASK 3: SMALL DIAMETER WATER LINE REPLACEMENT STRATEGY**

This task consists of assisting the City in developing a replacement strategy for small diameter (12-inch and smaller) neighborhood type water lines. Replacement may be needed due to age, pipe material, size, and/or maintenance history. It is assumed that up to ten (10) replacement projects will be identified as part of this task.

- A. Review historical maintenance records and identify locations with a history of water line breaks. Identify areas for replacement due to maintenance history.
- B. Review size of existing small diameter water lines and identify areas where lines require upsizing to meet City minimum diameter requirements or increase available flow. No modeling is including in this task to identify undersized lines; sizing will be based solely on City's system knowledge.
- C. Review material of existing small diameter water lines and identify locations where existing pipe material no longer meets the City's design requirements.
- D. Develop OPCCs for replacements identified.
  1. A detailed OPCC will be developed for one sample neighborhood replacement project. This OPCC will be used to develop a standard project cost per linear foot that will be used to developed cost projections for the remainder of projects identified. Detailed OPCCs will not be prepared for every project.
- E. Work with City to develop criteria to be utilized to rank replacements required. Utilize criteria to develop a priority list.
- F. Evaluate options for leak detection. It is assumed that technologies considered will not require insertion of equipment into the pipe. Identify locations where City may consider performing leak detection in the future. Future inspection recommendations will incorporate priority list developed in subtask E.
- G. Coordinate with City to understand yearly budget for smaller diameter replacements. Utilize budget to plan out yearly replacements.

#### **TASK 4: PUMP STATION EVALUATION**

This task consists of evaluating the City's existing pump station and water supply. As part of this task, options for increasing system redundancy will be evaluated.

- A. Review City's contracted wholesale water supply, pumping station capacities, storage tank capacity, water service connections, and historical demands. Evaluate demands vs capacities to determine bottlenecks, potential failure points, and amount of redundancy available.
- B. Review existing Village Parkway Pump Station record drawings to understand facility's capacities and constraints. Discuss with City staff facility operations parameters, limitations, and constraints to understand required future improvements and flexibility needed. Develop OPCCs for improvements identified.
- C. Evaluate power supply and communications for pump station. Identify single points of failure and provide recommendations for improvements to power and communications resiliency.
- D. Perform XAK-PAC Facility Evaluation. This consists of performing individual tests on all six (6) of the existing pumps at the Village Parkway pump station. This task consists of the following:
  1. Pre-Evaluation Site Visit. Visit pump station site to be evaluated along with City staff to determine necessary pre-work that will be required to perform pump evaluation.
  2. Pre-Evaluation Summary. Provide a summary of work that needs to be completed by the City before testing is conducted. Work is expected to include, but is not limited to, installation of tap assemblies, functional testing of isolation valves, providing SCADA data, providing applicable pump curves and record drawings, and City staff coordination to complete pump evaluations. Consultant will not be able to begin final evaluation until all items detailed in this summary are completed.
  3. Pump Evaluations. Conduct pump performance tests of each pump. Pump performance tests will include flow, discharge head, suction head, NPSHa, surge data, vibration, rotational speed, and input power measurements where possible. Power measurements will only be possible for 600 volt and below. Perform the following tests for each operational pump.
  4. Condition Assessments. Conduct a condition assessment of each pump and associated piping. Condition assessments will include major pump components and a numerical condition ranking from 1 to 5 including notes regarding significant defects. Photos and details will be provided for components with conditions equal to 4 or 5. Portions of the evaluation requiring confined space entry will not be performed.
  5. Pump Performance Report. Provide an engineering report summarizing the data collection process, findings, criticality, and recommendations for each pump.

#### **TASK 5: TECHNICAL MEMORANDUM**

- A. Prepare a technical memorandum describing the recommendations for condition assessment and replacements. Memorandum will include anticipated design and inspection costs associated with selected condition assessment approach as well as an OPCC for any modifications needed to the pipeline to facilitate the condition assessment. Memorandum will also include replacement strategy for small diameter water lines and OPCCs.
- B. Incorporate comments and provide a final memorandum.
- C. Deliverables

1. Provide PDF copy of draft technical memorandum
2. Provide PDF copy of final technical memorandum

## **ADDITIONAL SERVICES**

Any services not specifically provided for in the above scope will be considered additional services and can be performed at our then current hourly rates. Additional services we can provide include, but are not limited to, the following:

- Assisting City or contractor in the defense or prosecution of litigation in connection with or in addition to those services contemplated by this Agreement. Such services, if any, shall be furnished by Consultant on a fee basis negotiated by the respective parties outside of and in addition to this Agreement.
- Sampling, testing, or analysis beyond that specifically included in the Scope of Services referenced herein above.
- Preparing applications and supporting documents for government grants, loans, or planning advances, and providing data for detailed applications.
- Appearing before regulatory agencies or courts as an expert witness in any litigation with third parties or condemnation proceedings arising from the development or construction of the Project, including the preparation of engineering data and reports for assistance to the Town.
- Providing professional services associated with the discovery of any hazardous waste or materials in the project route.
- Providing additional presentations to the City Council.
- Providing construction staking, additional platting, or other surveying services not identified in the above Scope of Services.
- Providing any easement acquisition services.
- Attending additional public meetings during the project.
- Preparation of Easement Documents
- Perform any materials testing.
- Perform welding and coating inspections.
- Prepare construction documents for pipeline modifications needed to facilitate pipeline inspection.
- Any services not listed in the Scope of Services.

**ATTACHMENT B**

**COMPENSATION**

The Consultant will provide the Scope of Services detailed in Tasks 1 through 5 for a lump sum fee.

TASK 1 – General Items and Meetings	\$25,500.00
TASK 2 – Critical Water Infrastructure Planning	\$46,500.00
TASK 3 – Small Diameter Water Line Replacement Strategy	\$43,500.00
TASK 4 – Pump Station Evaluation	\$64,300.00
TASK 5 – Technical Memorandum	\$19,000.00

**TOTAL** **\$198,800.00**

Additional services will be negotiated at the time they are identified.