



Work Order No. 22W02370

to the

Master Agreement

For

Professional Services

**City of Midwest City and Midwest City
Municipal Authority**

Project No. 22W02370

This WORK ORDER ("Work Order") is made by and between the **City of Midwest City and the Midwest City Municipal Authority** (hereinafter referred to as "**Owner**") and **Garver, LLC**, (hereinafter referred to as "**Garver**") in accordance with the provisions of the MASTER AGREEMENT FOR PROFESSIONAL SERVICES executed on October 25, 2017 (the "Agreement").

Under this Work Order, the Owner intends to the Owner intends to **Procure professional services for Master Planning and Lead and Copper Rule Support**. These services will delivered according to the schedule in Exhibit A.

Garver will provide professional services related to these improvements as described herein. Terms not defined herein shall have the meaning assigned to them in the Agreement.

SECTION 1 - SCOPE OF SERVICES

- 1.1 Garver shall provide the following Services:
 - 1.1.1 See attached Appendix A for Scope of Services.
- 1.2 In addition to those obligations set forth in the Agreement, Owner shall:
 - 1.2.1 Give thorough consideration to all documents and other information presented by Garver and informing Garver of all decisions within a reasonable time so as not to delay the Services.
 - 1.2.2 Make provision for the Personnel of Garver to enter public and private lands as required for Garver to perform necessary preliminary surveys and other investigations required under the applicable Work Order.
 - 1.2.3 Obtain the necessary lands, easements and right-of-way for the construction of the work. All costs associated with securing the necessary land interests, including property acquisition and/or easement document preparation, surveys, appraisals, and abstract work, shall be borne by the Owner outside of this Agreement, except as otherwise described in the Services under Section 1.1.
 - 1.2.4 Furnish Garver such plans and records of construction and operation of existing facilities, available aerial photography, reports, surveys, or copies of the same, related to or bearing on the proposed work as may be in the possession of Owner. Such documents or data will be returned upon completion of the Services or at the request of Owner.
 - 1.2.5 Furnish Garver a current boundary survey with easements of record plotted for the project property.
 - 1.2.6 Pay all plan review and advertising costs in connection with the project.
 - 1.2.7 Provide legal, accounting, and insurance counseling services necessary for the project and such auditing services as Owner may require.
 - 1.2.8 Furnish permits, permit fees, and approvals from all governmental authorities having jurisdiction over the project and others as may be necessary for completion of the project.

SECTION 2 – PAYMENT

For the Services set forth above, Owner will pay Garver as follows:

TASK	FEE AMOUNT	FEE TYPE
TASK 2 - Historical Data Review	\$13,850.00	LUMP SUM
TASK 3 - Baseline Development	\$26,450.00	LUMP SUM
TASK 4 - Water Treatment Plant Evaluation	\$113,000.00	LUMP SUM
TASK 5 - Distribution System Facilities Evaluation	\$93,500.00	LUMP SUM
TASK 6 - Water Line Infrastructure Condition Data Evaluation	\$49,150.00	LUMP SUM
TASK 7 - Hydraulic Model Update and Calibration	\$107,800.00	LUMP SUM
TASK 8 - Hydraulic Model Evaluations	\$53,750.00	LUMP SUM
TASK 9 - Distribution System Water Quality Analysis	\$28,000.00	LUMP SUM
TASK 10 - Risk Analysis and CIP Planning	\$61,900.00	LUMP SUM
TASK 11 - Water Master Plan Report	\$85,550.00	LUMP SUM
TASK 12 – SCADA and Security System Evaluation	\$50,000.00	LUMP SUM
TASK 13 – Lead and Copper Inventory	\$114,250.00	LUMP SUM
TOTAL FEE	\$797,200.00	LUMP SUM

The lump sum amount to be paid under this Work Order is \$797,200.00. Any unused portion of the fee, due to delays beyond Garver’s control, will be increased six percent (6%) annually with the first increase effective on or about July 1, 2025.

Additional Services (Extra Work). For services not described or included in Section 2, but requested by the Owner in writing, the Owner will pay Garver as expressly set forth in the applicable Amendment, or in the event the Amendment is silent, for the additional time spent on the Project, at the agreed upon rates for each classification of Garver’s personnel (may include contract staff classified at Garver’s discretion) plus reimbursable expenses including but not limited to printing, courier service, reproduction, and travel. The agreed upon rates will be increased annually with the first increase effective on or about July 1, 2025.

SECTION 3 – EXHIBITS

- 3.1 The following Appendices are attached to and made a part of this Work Order:
 - 3.1.1 Exhibit A - Scope of Services

This Work Order may be executed in two (2) or more counterparts each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

The effective date of this Work Order shall be the last date written below.

CITY OF MIDWEST CITY

GARVER, LLC

By: *Matthew D. Dukes II*
Signature

By: *Mary Elizabeth Mach*
Signature

Name: Matthew D. Dukes II
Printed Name

Name: Mary Elizabeth Mach
Printed Name

Title: Mayor

Title: Vice President

Date: 2/27/24

Date: February 6, 2024

Attest: *Sara Hancock*

Attest: _____

MIDWEST CITY MUNICIPAL
AUTHORITY

By: *Matthew D. Dukes II*
Signature

Name: Matthew D. Dukes II
Printed Name

Title: Chairman

Date: 2/27/24

Attest: *Sara Hancock*



EXHIBIT A SCOPE OF SERVICES

GENERAL

The scope of services includes professional services necessary for development of a Water Master Plan for the City of Midwest City and the Midwest City Municipal Authority (Owner). The Owner owns, operates, and maintains the raw water conveyance infrastructure, groundwater supply infrastructure, water treatment facilities, and water infrastructure necessary to provide finished water to system customers. This scope of services focuses on development of a Water Master Plan for the Owner.

The Master Plan is to be comprised of the following tasks:

1. Task 1 – Project Administration
2. Task 2 – Historical Data Review
3. Task 3 – Baseline Development
4. Task 4 – Water Treatment Plant Evaluation
5. Task 5 – Distribution System Facilities Evaluation
6. Task 6 – Water Line Infrastructure Condition Data Evaluation
7. Task 7 – Hydraulic Model Update and Calibration
8. Task 8 – Hydraulic Model Evaluations
9. Task 9 – Distribution System Water Quality Analysis
10. Task 10 – Risk Analysis and CIP Planning
11. Task 11 – Water Master Plan Report

TASK 1 – PROJECT ADMINISTRATION

Garver will complete the following project administration tasks over the duration of the project:

1. Garver will attend one hybrid kick-off meeting, with up to three (3) Garver staff in person and up to three (3) virtual attendees, to discuss project objectives, internal and external team, lines of communication, and schedule.
2. Garver will prepare a Project Management Plan (PMP) and Quality Control Plan (QCP) in compliance with Garver project execution standards.
3. Garver will prepare monthly invoicing with percent complete by task and monthly progress reports. Garver will also coordinate meetings between Garver and Owner staff, site visits, and requests for information as detailed in the following tasks.

TASK 2 – HISTORICAL DATA REVIEW

Garver will coordinate with the Owner to obtain the necessary historical information for use in execution of this project. Data review and consolidation will not duplicate previous work with Garver. Data provided to Garver from the Owner is considered accurate and reliable. Garver will complete the following items related to this task.

1. Data Request Log: Garver will develop a data request log with a list of requested data and anticipated schedule of delivery and provide that list to the Owner. Garver will maintain that data request log throughout the duration of the project.
2. Data Analysis: Garver will receive, review, compile, and evaluate relevant information provided by the Owner for use in subsequent tasks.
3. QA/QC: Garver will provide QA/QC according to the PMP.

All information provided to Garver by Owner is assumed as correct and accurate.

TASK 3 – BASELINE DEVELOPMENT

Garver will complete projections through full buildout based on land use planning information provided by the Owner. The projections will allow evaluation of capacity-based improvements for this project. Specifically, Garver will accomplish the following items:

1. Historical Population: Garver will assess historical service population and customer connection information for the system and any potential wholesale customers identified by the Owner. Wholesale customers' demand will be input as a single point in the model without the addition of their system.
2. Population Projections: Garver will develop up to three (3) service population and development projections for the service area and potential wholesale customers. These projections will be based on historical trends, available planning documents, and future land use maps provided by the Owner. Garver will also review population projections completed by others for the Owner's recent Wastewater Master Plan project for consistency of population projections within overlapping service areas.
3. Historical Water Use: Garver will assess historical water usage and consumption data to identify per capita and/or per land area demand values for average day, maximum month, and maximum day water use for the system.
4. Unit Demand Coordination: Garver will coordinate with the Owner to determine per capita and/or per land area demand values used to project water usage over the planning horizon.
5. Water Use Projections: Garver will project water usage over the planning horizon based on projected development and unit water usage values.
6. Water Rights and Supply Evaluation: Garver will identify the existing water rights and water supply capacities to identify potential gaps in water supply over the planning horizon.
7. Water Loss Audit: Garver will build upon and update Owner's existing Water Loss Audit for the most recent year of data provided based on standard AWWA methodology. The updated Water Loss Audit will be provided to the client electronically.
8. Workshop 1: Garver will conduct a workshop to review draft Baseline Development results and conclusions with Owner staff. Decisions and comments made in Workshop 1 will be incorporated in the meeting minutes to be sent out following Workshop 1 electronically.

9. The results of Task 3 will be included in the Water Master Plan (in Task 11).
10. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 4 – WATER TREATMENT PLANT GAP ANALYSIS

Garver will complete gap analysis of the existing water treatment plant (WTP) to identify existing and/or anticipated future condition and capacity challenges. Specifically, Garver will accomplish the following items:

1. WTP Data Evaluation: Garver will conduct an in-person site visit of the WTP and conduct operator interviews, utilizing up to five (5) Garver staff. Garver will also compile and evaluate the last three (3) years of WTP flow and water quality data. Combining the two sources of information, Garver will identify existing or potential WTP system capacity and condition needs, and their impacts on treatment processes and operations, within the modeling horizons established in previous tasks. Growth demand triggers established in Task 3 will be used to set preliminary expansion schedules based on capacity needs.
2. WTP Regulations Review: Garver will identify current and anticipated Safe Drinking Water Act (SDWA) regulations that may impact the Owner's water supply system capital improvements and operating strategies. The following SDWA regulations will be reviewed and summarized: Surface Water Treatment Rules, Stage 1 and 2 D/DBP Rules, the Lead and Copper Rules (includes Revision and Improvements), and the Proposed PFAS National Primary Drinking Water Regulation (NPDWR).
3. Gap Analysis: Garver will summarize capacity, regulatory, and condition needs in a Gap Analysis to be included in the Water Master Plan report. A draft of this section will be provided to Owner for review and approval. Alternatives evaluations and ultimate project recommendation is not included in this task but may be included as Additional Work. This Gap Analysis will provide the foundations of the identification and design of those projects.
4. Facility Analysis and Recommendations: Garver will compare existing work area layouts, square footages, and amenities with up to three (3) other facilities with similar headcounts and provide recommendations of improvements outside of standard condition improvements.
5. The results of Task 4 will be included in the Water Master Plan (Task 11).
6. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 5 – DISTRIBUTION SYSTEM FACILITIES EVALUTION

Garver will complete condition assessments of distribution system facilities. Condition assessments will evaluate paving and grading of pump-stations and towers, mechanical equipment (piping, valves, and pumps), electrical and instrumentation equipment, coatings, and structural integrity, as applicable. Specifically, Garver will accomplish the following items:

1. Historical Data Review: Garver will review historical condition assessment information associated with distribution system facilities.
2. Condition Assessments: Garver will perform field investigations to develop an understanding of the condition and service of the water supply facilities, storage tanks, and

booster pump stations within the water distribution system. Invasive, or condition assessments using NACP/PACP standards, of the pipe network is not part of this scope of services. The Condition Assessment is limited to the following facilities:

- a. Bomber Tower EST
- b. Well Field GST and BPS Facility
- c. WTP Tower
- d. Up to twenty (20) well sites and/or other facilities

Specifically excluded from condition and capacity evaluation, is the Titan Tower as it has recently been inspected and rehabbed.

3. ODEQ Compliance: Garver will evaluate whether each facility inspected complies with ODEQ regulations.
4. Garver will identify gaps in compliance and condition for inclusion in Task 11.
5. Garver will provide up to three (3) hydraulic scenarios, for the WTP Tower, to make a recommendation for current deficiencies. A planning level opinion of probable construction cost (OPCC) accurate within -50% - +100% will be provided for each of the three (3) scenarios and a recommended alternative will be selected. Planning and Design is excluded from this scope by may be included as Additional Work.
6. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 6 – WATER LINE INFRASTRUCTURE CONDITION DATA EVALUATION

Garver will review existing information and coordinate with the Owner on developing a preferred path forward for water line condition assessment based on the existing data available. Detailed analysis of water line condition, including analysis of effective useful life remaining for individual pipe assets, development, and assessment of pipe cohorts, and/or development of a water line predictive failure model, is not included in this scope of services. Specifically, Garver will accomplish the following items:

1. Asset Information Review: Garver will review available water line asset information to identify suitability for development of a model to predict pipe failure. Collection of asset information will be considered Extra Work. This review will include the past ten (10) years of Owner provided data in excel format for the following:
 - a. Line break data
 - b. Work orders
 - c. Customer complaints
 - d. ODEQ compliance reviews
 - e. Leak detection activities
2. Break Data Review: Garver will review historical geolocated water line break data, provided by Owner in tabular electronic format, to evaluate suitability for development of a model to predict pipe failure. Detailed evaluation of historical break rate data will be considered Extra Work.
3. Approach Alternatives Evaluation: Based on the data available, Garver will evaluate pros and cons associated with up to four (4) different alternatives for development of a model to

predict pipe failures. Development of one or more models to predict/develop asset condition will be considered Extra Work.

4. Water Line Condition Modeling Workshop: Garver will conduct a workshop to review asset information, break rate data, and potential approaches for evaluating water line infrastructure condition.
5. The results of Task 6 will be included in the Water Master Plan (Task 11).
6. Workshop 2: Results from Tasks 4-6 will be discussed in Workshop 2. Up to two (2) in-person Garver staff will attend Workshop 2 with up to three (3) Garver staff in virtual attendance. Owner comments and conclusions will be included in Workshop 2 meeting minutes. The meeting minutes will be provided electronically to Owner following Workshop 2.
7. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 7 – HYDRAULIC MODEL UPDATE AND CALIBRATION

Garver will update the hydraulic model, collect data in the field, and calibrate the hydraulic model. Specifically, Garver will accomplish the following items:

1. Model Network and Facility Updates: Garver will review and update the distribution system hydraulic model so it accurately represents the current state of the system. The following components will be updated based on information provided by the Owner:
 - a. Pipe Network
 - b. Facilities (Pump Stations, In-line Wells, Storage Tanks, Control Valves, Normally-Closed Valves)
2. Updates for Recent Projects: Garver will incorporate up to ten (10) recent and/or proposed improvements provided within 60 days of notice to proceed (NTP) on the project. Incorporation of additional projects provided more than 60 days after NTP will be considered Extra Work.
3. Customer Classification: Garver will assess water meter demand data and develop bins of water customers based on type of account as defined by Owner (e.g., residential, commercial, etc.) and magnitude of demand (e.g., low usage, medium usage, high usage).
4. AMI Data Analysis: Garver will assess water meter demand data to develop representative diurnal demand patterns for each account type. Representative average and maximum day diurnal curves will be developed for each account type based on averaging of a subset of meter data from each account type. Garver will use AMI data from up to one thousand (1,000) meters for this analysis.
5. Zonal Demand Analysis: Garver will analyze historical Supervisory Control and Data Acquisition (SCADA) data to develop diurnal demand curves for each pressure plane in the system using a mass-balance approach. Garver will develop these diurnal demand curves for average, maximum month, and maximum day conditions in the duration of Owner provided data.

6. Demand Alternatives Development: Garver will develop existing average day, maximum month, and maximum day demand alternatives using water meter data and representative diurnal demand curves. Demand allocation will use tools within the hydraulic modeling software. Garver will select the methodology that maximizes the number of junctions receiving demands to limit the presence of zero-demand junctions on dead-end lines.
7. SCADA Data Review: Garver will review historical SCADA data to identify typical pumping operations for development of model boundary conditions and to develop current pump performance curves, where possible, based on available data. Garver will identify typical operations for average day, maximum month, and maximum day demand conditions.
8. Operations Staff Interviews: Garver will meet with Owner operations staff to review system control information identified from the SCADA Data Review and discuss typical operations for facilities that are not captured in SCADA.
9. Model Controls: Garver will update model controls based on the SCADA Data Review and Operations Staff Interviews.
10. Field Data Collection Plan: Garver will develop a field data collection protocol based on evaluation of system hydraulics and discussion with the Owner. This field data collection plan will include preferred locations for installation of the loggers. The field data collection will also include locations for hydrant flow tests, including preferred flow and test hydrant locations. Garver will submit to the Owner for review.
11. Pressure Logging: Garver will furnish and loan up to ten (10) hydrant pressure loggers for deployment by the Owner in the Owner's system for the purposes of collecting continuous pressure data for a period of up to fourteen (14) days. It is anticipated that the pressure logging will consist of up to two (2) sets of unique logging locations. It is assumed that Garver staff will assist the Owner in deployment and collection of the loggers.
12. Hydrant Flow Tests: Garver will select up to twenty (20) hydrant flow test locations and assist the Owner in directing operations and collecting data during the flow tests. It is anticipated that two (2) Garver staff will be present for up to two (2) days to support hydrant flow tests.
13. Pump Testing: Pump testing at the WTP high-service pump station, groundwater booster pump station, and groundwater well locations is not included in this scope but will be considered Extra Work.
14. Pressure Logging and Hydrant Flow Testing Data Analysis: Garver will analyze the data collected during the Pressure Logging and Hydrant Flow Tests for use in calibration of the hydraulic model.
15. Hydraulic Model Calibration: Garver will calibrate the distribution system hydraulic model using the hydrant pressure logger, flow test, and system SCADA data.
16. Workshop 3: Garver will conduct a workshop to review the model calibration and discuss potential issues with the model's accuracy in representing system conditions, including potential closed isolation valves, pipe connectivity issues, and/or inaccurate facility information.

17. Model Calibration Update: Garver will update the model calibration based on Owner feedback during the Model Calibration Workshop and collected in the field.
18. The results of Task 7 will be included in the Water Master Plan (Task 11).
19. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 8 – HYDRAULIC MODEL EVALUATIONS

Garver will complete hydraulic model evaluations for existing conditions, and up to three (3) planning horizons as identified in Task 3. These evaluations will be used to develop and identify triggers/phasing for capital improvement projects. At each horizon, Garver will complete modeling for average day, maximum month, and maximum day conditions using extended-period simulations (EPS), unless otherwise specified. Garver will complete fire flow evaluations for maximum day conditions. Garver will complete water age evaluations for average day and maximum month conditions. Garver will accomplish the following items:

1. Level of Service Criteria and TM: Garver will develop level of service criteria for the system based on Owner requirements and preferences, State regulations, and industry standards. Criteria will be developed related to system pressures (minimum, maximum, and variation), pipe velocities, pipe head loss gradients, storage levels and turnover, and fire flows. Garver will document these criteria in a Level of Service Criteria TM and submit for review by the Owner prior to completing any system assessments with the hydraulic model. Note that head loss gradient will not be used as a strict criterion, but it will be used in conjunction with pressure to identify areas of the system with insufficient hydraulic capacity.
2. Existing System Assessment: Garver will use the calibrated hydraulic model to assess the performance of the existing system and identify system deficiencies in meeting level of service criteria.
3. Buildout Model Updates: Garver will create average day, maximum month, and maximum day demand alternatives for buildout conditions and add skeletonized model pipe infrastructure necessary to serve new areas for the buildout evaluation. Pipe infrastructure for new areas is assumed to consist of water lines along the section lines, as well as lines along the half-section lines. Garver will also identify local minimum and maximum elevation locations and include model junctions at these locations.
4. Buildout System Assessment: Garver will assess the system at buildout to identify potential system deficiencies in meeting level of service criteria.
5. Buildout System Improvements: Garver will identify improvements to pumping, storage, and conveyance infrastructure to address system deficiencies for buildout conditions.
6. Existing System Improvements: Garver will identify improvements necessary to address deficiencies with the existing system. It is assumed that these improvements will be a subset of improvements identified in the Buildout System Improvements.
7. Intermediate Horizon Identification: Garver will identify up to three (3) intermediate horizons based on results from the Existing System Assessment, Buildout System Assessment, and Population Projections.
8. Existing and Buildout Evaluation Workshop: Garver will conduct an Existing and Buildout Evaluation Workshop to review results of the evaluations and the recommended

improvements. Garver and Owner will establish Intermediate Horizons to evaluate. Intermediate Horizons will be based on anticipated development, industrial and commercial growth, and/or regional factors that could impact demands on the Owner's water system. Garver will present the recommended intermediate horizons for discussion with the Owner.

9. Intermediate Horizon Model Updates: Garver will create average day, maximum month, and maximum day demand alternatives for each of the intermediate horizons. For each intermediate horizon, Garver will identify the water line infrastructure (from the buildout model) that is necessary to serve the extents of development anticipated at that horizon.
10. Intermediate Horizon Evaluations and Project Phasing: Garver will complete hydraulic modeling at intermediate horizons to develop phasing and/or triggers for improvements at each horizon. It is assumed that these improvements will be a subset of improvements identified in the Buildout System Improvements.
11. The results of Task 8 will be included in the Water Master Plan (Task 11).
12. Workshop 4: Garver will conduct a workshop to review the results of the Hydraulic Model Evaluations and Distribution System Water Quality tasks with the owner, including review of the recommended improvements.
13. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 9 – DISTRIBUTION SYSTEM WATER QUALITY ANALYSIS

Garver will assess distribution system water quality data and hydraulic model results to identify challenges with maintaining water quality throughout the distribution system. Specifically, Garver will complete the following items:

1. Water Quality Data Review: Garver will review distribution system water quality data (chlorine residual, HAA5, and TTHM) provided by the Owner from the last five (5) years.
2. Source Trace and Blending Analysis: Garver will use the calibrated hydraulic model to complete source trace and blending analysis for the existing average day and maximum month demand conditions.
3. WQ and Model Data Analysis: Garver will evaluate the distribution system water quality data in the context of hydraulic model results (water age, source trace, and blending) and distribution system pipe material information.
4. WQ Improvements: Garver will identify system deficiencies related to water quality for the existing system and develop operational and/or capital improvement recommendations to address system deficiencies.
5. Workshop 5: Results of this task will be discussed in Workshop 5 and Owner comments will be summarized in the meeting minutes. Meeting minutes will be provided electronically after the workshop.
6. The results of Task 9 will be included in the Water Master Plan (Task 11).
7. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 10 – RISK ANALYSIS AND CIP PLANNING

Garver will complete risk analysis and develop a Capital Improvement Plan (CIP) to support multiple goals, including addressing system deficiencies, providing capacity for system growth and expansion, improving system operability and reliability, and renewing and replacing infrastructure that has reached the end of its effective useful life. Specifically, Garver will complete the following items:

1. Major Infrastructure Risk Assessment: Garver will complete an evaluation of impacts to system performance because of loss of major transmission, pumping, and/or storage infrastructure. Garver will evaluate up to ten (10) scenarios determined in conjunction with the Owner; a scenario consists of a set of one or more infrastructure components being removed from service and a specific horizon and demand condition. For example, Existing Maximum Day Conditions without the Titan Tower.
2. Cost Estimates: Garver will develop conceptual costs for each CIP project. Each of these conceptual cost estimates will be a Class 4 estimate as defined by the Association for the Advancement of Cost Engineering (AACE), which is consistent with cost estimates developed for studies and feasibility. The expected accuracy range for the estimates is -30% to +50% of the estimated values.
3. Project Triggers: Garver will identify triggers for each project. Condition-based triggers will be based on specific years, while capacity-based triggers will be based on capacity-related information, such as number of connections, system flows, etc., as applicable.
4. CIP Development: Garver will develop CIP based on identified funding levels provided by the Owner and project phasing identified through the hydraulic modeling and/or condition assessments. Development of a dynamic CIP tool using a digital platform will be considered Extra Work.
5. Workshop 6: Garver will conduct a CIP Workshop to review the CIP with the Owner and identify adjustments to the CIP.
6. The results of Task 10 will be included in the Water Master Plan (Task 11).
7. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 11 – WATER MASTER PLAN REPORT

Garver will document the results of all of the evaluations in a final report. Specifically, Garver will complete the following items:

1. Draft Water Master Plan Report: Garver will develop a Water Master Plan Report that consists of an Executive Summary, an Introduction, list of tasks that are accomplished, summaries of decisions, conclusions, and recommendations as appropriate for each task. Garver will submit the Draft Water Master Plan Report for review by the Owner.
2. Workshop 7: Garver will conduct a Water Master Plan Workshop with the Owner to discuss comments associated with the Draft Water Master Plan Report.
3. Final Water Master Plan Report: Garver will incorporate Owner comments and prepare a Final Water Master Plan Report. Garver will submit this report to the Owner in electronic format.

4. QA/QC: Garver will provide QA/QC according to the PMP.

TASK 12 – SCADA AND SECURITY SYSTEM EVALUATION

Task 12 deliverables will be standalone and not incorporated into the Water Master Plan. Garver will evaluate the SCADA and Security systems at up to twenty (20) well houses, the Water Treatment Plant, three (3) water towers, and the Felix Place Booster Pump Station. Specifically Garver will provide the following:

1. Distribution System SCADA Evaluation – Garver will evaluate SCADA at the sites identified in the introduction to Task 12. This includes control systems, network, and telemetry infrastructure and Human-Machine Interfaces (HMIs). Garver will develop up to two (2) alternatives for system-wide SCADA system telemetry and SCADA HMI platforms to meet the future planned growth. Garver will also provide recommendations for improving the SCADA HMI user interface to improve data collection, control, and reporting. Existing system data, as well as City GIS and desktop topographical information will be utilized to identify potential limitations in line-of-sight (LOS) or other telemetry challenges.
2. SCADA Recommendations – Garver will evaluate strengths and limitations for each alternative, and conceptual phase opinions of probable construction costs (OPCCs) will be developed. Each alternative will be evaluated based upon estimated annual operating and maintenance (O&M) costs and net present worth value for a 20-year period. The conceptual cost estimate will be Class 4 as defined by the Associate for the Advancement of Cost Engineering (AACE), which is consistent with cost estimates developed for studies and feasibility. The expected accuracy range for the estimates is -30% to +50% of the estimated values.
3. Security Evaluation – Garver will evaluate security of the sites identified in the introduction of Task 12 by comparing to general best practices of the industry and recommend projects or operational changes to support standard security measures. These projects will planning level with no recommendations on vendor or specific site locations, but will have general details that would allow for further action by a security system installer. The planning's cost estimate will be Class 5 as defined by the AACE, which will have an accuracy of -50% to 100%.
4. SCADA and Security System TM – Garver will prepare a TM summarizing existing conditions, needs, gaps between needs and existing, and recommendations of and for the Owner's existing SCADA and security systems. This may be delivered in multiple parts. Garver will review, consider, and incorporate upon agreement one (1) round of Owner comments a final version of this TM.

TASK 13 – LEAD AND COPPER SERVICE LINE INVENTORY

Task 13 will have its deliverables separate from the Water Master Plan. They will be standalone documents.

1. Garver will attend one hybrid kick-off meeting to establish existing information and receive feedback on public engagement, known sampling sites, and both supporters and detractors of work associated with compliance with lead regulations. Garver will present rough outlines of public engagement, lead service line replacement, and sampling plans and receive feedback from Owner on adjustments that should be made.

2. Historical Data Collection – Garver will collect Owner’s ordinance updates related to the use of lead service lines, and Owner property data with service line installation or structure build dates to do an initial classification of service lines as non-lead or unknown, possibly lead based on local or State laws. For remaining service lines, Garver will request plats, record drawings, or other documents to classify additional service lines. From the remaining subset of properties with unknown, possibly lead service lines, Garver will propose a plan to conduct physical inspections of service lines to further prioritize future work. Garver will document the historical records review and inspection plan in a TM.
3. GIS Database – Garver will assist Owner with establishing an initial inventory based on received historical data using existing ESRI online software. Garver will provide recommendations for any updates or changes based on the feedback given during the kickoff meeting or from prior installations. Garver will do one (1) initial bulk data upload of Owner provided data in Excel format. All on-going updating will be the sole responsibility of Owner. Garver will provide one half-day training session to for Owner staff on maintaining the inventory.
4. Physical Inspection Plan – Garver will provide a draft physical inspection plan showing service lines with known and unknown classifications. Physical inspections will be conducted at a statistically representative number of service lines of unknown material. Results will be used to better understand the likelihood of the remaining unknowns being lead or non-lead lines to prioritize future work.
5. Physical Inspections – Physical inspections are excluded from this contract but can be added as Additional Work. Results from the Owner’s physical inspection or new information will be considered as it comes in for the duration of the project.
6. Plan Development – Garver will provide required planning documents, up to four (4), to comply with existing Environmental Protection Administration (EPA) regulations. At the time of drafting this will be a public communication plan, lead service line replacement plan, and sampling plans (tap sampling plan and plan for sampling in schools and licensed childcare facilities). As EPA is currently in the process of updating these regulations changes may be made to this task upon agreement of both Owner and Garver in writing.
7. Lead Compliance Workshop – Garver will attend one hybrid workshop with Owner updating Owner on the current state of lead regulations from the EPA, showing the live ESRI database, presenting the draft compliance plans, and going through a list of recommended projects. Owner comments and direction will be taken in meeting minutes to be sent out after the workshop and agreed upon changes will be made to finalize all documents. All final documents will be electronically submitted to Owner.

PROJECT DELIVERABLES

The following will be submitted to the Owner, or others as indicated, by Garver in digital (PDF) format:

- A. Draft and Final WTP Gap Analysis
- B. Draft and Final Water Master Plan Report
- C. Draft and Final SCADA and Security System TM
- D. Draft and Final plans associated with Lead and Copper Rule Revision. There are up to four (4) individual plans to be provided in this scope.
- E. Digital (PDF) submittals of meeting minutes and workshop presentations
- F. Electronic files as requested.

EXTRA WORK

The following items are not included under this agreement and will be considered Extra Work:

- A. Design of any kind
- B. Alternatives analysis except for the WTP Water Tower
- C. Survey
- D. Geotechnical Services
- E. Design services of any kind
- F. Computational fluid dynamics (CFD) modeling
- G. Transient analysis
- H. Condition assessment outside of those stated in this scope of services.
- I. Pump testing at system pump facilities
- J. Process or hydraulic modeling of the Water Treatment Plant
- K. Process sampling and/or laboratory testing
- L. Electrical Power Usage Analysis or Profiling
- M. Rework for the Owner's convenience or due to changed conditions after previous alternate direction and/or approval.
- N. Submittals or deliverables in addition to those listed herein.
- O. Construction materials testing.
- P. Environmental Handling and Documentation, including wetlands identification or mitigation plans or other work related to environmentally or historically (culturally) significant items.
- Q. Coordination with FEMA and preparation/submittal of a CLOMR and/or LOMR.
- R. Radio path study.
- S. In-field service line identification.

Extra Work will be as directed by the Owner in writing for an addition fee as agreed upon by the Owner and Garver.

SCHEDULE

Garver will begin work under this Agreement within ten (10) days of a Notice to Proceed and will complete the work in accordance with the schedule below:

Phase Description	Calendar Days
Kick-off Meeting and Data Request	10 days from notice to proceed
Draft Baseline Development TM	60 days from receipt of requested data
Draft Water Treatment Gap Analysis	60 days from completion of Workshop 1
Draft Distribution System Facilities Evaluation TM	60 days from completion of Workshop 1
Draft Water Line Condition Modeling TM	60 days from completion of Workshop 1
Draft Model Calibration TM	30 days from completion of Workshop 2
Draft Hydraulic Modeling and Improvements TM	90 days from completion of Workshop 3
Draft Distribution System Water Quality TM	90 days from completion of Workshop 3
Draft Capital Improvement Plan TM	60 days from completion of Workshop 4
Draft Water Master Plan	30 days from completion of Workshop 5
Final Water Master Plan	30 days from receipt of Owner comments on Draft Water Master Plan and Workshop 6
SCADA and Security TM	90 days after delivery of requested data and relevant site inspections
Lead and Copper Service Line Inventory Kickoff	Can be combined with original Kickoff meeting or setup as directed by Owner
Lead and Copper Service Line Inventory Final Workshop	120 days from completion of Lead and Copper Service Line Inventory Kickoff or receipt of requested data