City of Bel Aire, Kansas

STAFF REPORT

DATE: August 31, 2022

TO: City Manager

FROM: Anne Stephens, PE, City Engineer

RE: Water and Sewer Master Plans

BACKGROUND:
The City is experiencing record growth and need planning assistance to ensure that we have water and sanitary sewer services available to serve the entire corporate limits as well as areas of potential growth beyond our corporate limits.

DISCUSSION:
In the past two years, we have added, or in the process of adding 22 different developments. Having a good master plan is imperative so we can ensure that we are able to serve all of our new developments without duplicating efforts. Staff created an RFP for the water and sanitary sewer master plans and sent it to four firms. The goal of the master planning effort is two-fold. First, we need to understand the current capacities and capabilities of our current infrastructure. What are the extents of our current service area? What types of flows and water pressures are we able to provide at the extents of our system? Secondly, we need to understand what improvements we will need in order to fully serve all potential customers. Three firms responded with proposals.

PEC	$134,000.00
Garver	$211,117.00
Burns & McDonnell	$236,700.00

Staff have reviewed all three proposals and feel that all three will provide what we are looking for. The proposals from Burns and McDonnel and Garver appear to provide a more in-depth analysis of the overall system. PEC will still be able to provide the information we need, but with less specific details.

FINANCIAL CONSIDERATIONS: The cost of the project will be paid for out of our water and sewer funds.

POLICY DECISION: To ensure that water and sanitary sewer services are able to be provided to all potential customers, a Master Plan for both the water and sanitary sewer utility are needed. The City does not have the available staff or equipment needed to properly produce master plans of this type. As requested by the Governing Body, staff solicited proposals from four firms, only three of which responded. Council's decision is whether they would like to pursue the master plan for the water and sanitary sewer systems and which firm to select.

RECOMENDATION: In reviewing all three proposals with the Public Works staff, we feel that the PEC proposal would provide adequate detail for us to accomplish the stated goals of understanding the current capacities and capabilities of our current infrastructure and understanding what improvements to both the water and sewer system will need to be made to provide water and sewer service to all potential customers.

PROFESSIONAL ENGINEERING CONSULTANTS

August 24, 2022

Anne Stephens, PE
City Engineer
City of Bel Aire
7651 E. Central Park Avenue
Bel Aire, Kansas 67226

Reference: AGREEMENT for 2022 Bel Aire Water Distribution System and Sanitary Sewer Collection Master Plans
Bel Aire, Kansas
PEC Project No. 35-220925-000-2564

Dear Ms. Stephens:

Professional Engineering Consultants, P.A. ("PEC") is pleased to provide professional services to City of Bel Aire ("Client") in connection with the referenced Project, and in accordance with this letter agreement ("Agreement"). The services to be performed by PEC ("the Services") are described in Exhibit A – Services, Schedule, and Payment (attached and incorporated by reference) and are subject to the following terms and conditions.

Performance. PEC will perform the Services with the level of care and skill ordinarily exercised by other consultants of the same profession under similar circumstances, at the same time, and in the same locality. PEC agrees to perform the Services in as timely a manner as is consistent with the professional standard of care and to comply with applicable laws, regulations, codes and standards that relate to the Services and that are in effect as of the date when the Services are provided.

Client Responsibilities. To enable PEC to perform the Services, Client shall, at its sole expense: (1) provide all information and documentation regarding Client requirements, the existing site, and planned improvements necessary for the orderly progress of the Services; (2) designate a person to act as Client representative with authority to transmit instructions, receive instructions and information, and interpret and define Client requirements and requests regarding the Services; (3) provide access to, and make all provisions for PEC to enter the project site as required to perform the Services, including those provisions required to perform subsurface investigations such as, but not limited to, clearing of trees and vegetation, removal of fences or other obstructions, and leveling the site; (4) site restoration and repair, as needed following field investigations; (5) establish and periodically update a project budget, which shall include a contingency to cover additional services as may be required by changes in the design or Services; and (6) timely respond to requests for information and timely review and approve all design deliverables. PEC shall be entitled to rely on all information and services provided by Client. Client recognizes field investigations may damage existing property. PEC will take reasonable precautions to minimize property damage whenever field investigations are included in the Services.

Payment. Invoices will be submitted periodically and are due and payable net 30 days from invoice date. Unpaid balances past due shall be subject to an interest charge at the rate of 1.5 % per month from the date of the invoice, and any related attorneys' fees and collection costs. PEC reserves the right to suspend the Services and withhold deliverables if the Client fails to make payment when due. In such an event, PEC shall have no liability for any delay or damage resulting from such suspension.

Work Product. PEC is the author and owner of all reports, drawings, specifications, test data, techniques, photographs, letters, notes, and all other work product, including in electronic form, created by PEC in connection with the Project (the "Work Product"). PEC retains all common law, statutory, and other reserved rights in the Work Product, including copyrights. The Work Product may not be reproduced or used by the Client or anyone claiming by, through or under the Client, for any purpose other than the purpose for which it was prepared, including, but not limited to, use on other projects or future modifications to the Project, without the prior written consent of PEC. Any unauthorized use of the Work Product shall be at the user's sole risk and Client shall indemnify PEC for any liability or legal exposure arising from such unauthorized use. To the extent PEC terminates this Agreement due to non-payment by Client shall not be entitled to use the Work Product for any purpose without the prior written consent of PEC.

Unless otherwise agreed by Client and PEC, Client may rely upon Work Product only in paper copy ("hard copy") or unalterable digital files, with either wet or digital signature meeting the requirements of the governing licensing authority having jurisdiction over the Project. In all instances, the original hard copy of the Work Product takes precedence over electronic files. All electronic files furnished by PEC are furnished only for convenience, not reliance by Client, and any reliance on such electronic files will be at the Client sole risk.

Insurance. PEC and Client agree to each maintain statutory Worker's Compensation, Employer's Liability Insurance, General Liability Insurance, and Automobile Insurance coverage for the duration of this Agreement. Additionally, PEC will maintain Professional Liability Insurance for PEC's negligent acts, errors, or omissions in providing Services pursuant to this Agreement.

Supplemental Agreements. Changes in the Services may be accomplished after execution of this Agreement only by a written Supplemental Agreement signed by PEC and Client. For any change that increases PEC's cost of, or time required for performance of any part of the Services, PEC's compensation and time for performance will be equitably increased.

Differing, Concealed, or Unknown Conditions. If PEC encounters conditions at the Project site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the information provided to PEC or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities provided for in this Agreement, PEC will, if practicable, promptly notify Client before conditions are disturbed. Subsurface condition identification is limited to only those points where samples are taken. The nature and extent of subsurface condition variations across the site may not become evident until construction. PEC assumes no liability for site variations differing from those sampled or changed conditions discovered during construction. If the differing, concealed, or unknown conditions cause an increase in PEC's cost of, or time required for performance of any part of the Services, PEC's compensation and time for performance will be equitably increased.

Additionally, Client (1) waives all claims against PEC and (2) agrees to indemnify and hold harmless PEC as well as its respective officers, directors and employees, from and against liability for claims, losses, damages, and expenses, including reasonable attorneys' fees from all third-party claims resulting from differing, concealed, or unknown conditions.

Fast-Track, Phased or Accelerated Schedule. Accelerated, phased or fast-track scheduling increases the risk of incurring unanticipated costs and expenses including costs for PEC to coordinate and redesign portions of the Project affected by the procuring or installing elements of the Project prior to the completion of all relevant construction documents, and costs for the contractor to remove and replace previously installed work. If Client selects accelerated, phased or fast-track scheduling, Client agrees to include a contingency in the Project budget sufficient to cover such costs.

Force Majeure. PEC will not be liable to Client for delays in performing the Services or for any costs or damages that may result from: labor strikes; riots; war; acts of terrorism; acts or omissions of governmental authorities, the Project Client or third parties; extraordinary weather conditions or other natural catastrophes; acts of God; unanticipated site conditions; or other acts or circumstances beyond the control of PEC. In the event performance of the Services is delayed by circumstances beyond PEC's control, PEC's compensation and time for performance will be equitably increased.

Construction Means; Safety. PEC shall have no control over and shall not be responsible for construction means, methods, techniques, sequences or procedures, or for construction safety precautions and programs. PEC shall not be responsible for the acts or omissions of any contractor, subcontractor or any other person performing any work (other than the Services), or for the failure of any of them to carry out their work in accordance with all applicable laws, regulations, codes and standards, or the construction documents.

Cost Estimates. Upon request, PEC may furnish estimates of probable cost, but cannot and does not guarantee the accuracy of such estimates. All estimates, including estimates of construction costs, financial evaluations, feasibility studies, and economic analyses of alternate solutions, will be made on the basis of PEC's experience and qualifications and will represent PEC's judgment as a design professional familiar with the construction industry. However, PEC has no control over (1) the cost of labor, material or equipment furnished by others, (2) market conditions, (3) contractors' methods of determining prices or performing work, or (4) competitive bidding practices. Accordingly, PEC will have no liability for bids or actual costs that differ from PEC's estimates.

Termination. Both the Client and PEC have the right to terminate this Agreement for convenience upon fifteen calendar days' written notice to the other party. In the event the Client terminates this Agreement without cause, PEC shall be entitled to payment for all Services performed and expenses incurred up to the time of such termination, plus fees for any required transition services, and reimbursement of all costs incurred which are directly attributable to such termination.

Environmental Hazards. Client acknowledges that the Services do not include the detection, investigation, evaluation, or abatement of environmental conditions that PEC may encounter, such as mold, lead, asbestos, PCBs, hazardous substances (as defined by Federal, State or local laws or regulations), contaminants, or toxic materials that may be present at the Project site. Client agrees to defend, indemnify, and hold PEC harmless from any claims relating to the actual or alleged existence or discharge of such materials through no fault of PEC. PEC may suspend the Services, without liability for any damages, if it has reason to believe that its employees may be exposed to hazardous materials.

Betterment. PEC will not be responsible for any cost or expense that provides betterment, upgrade, or enhancement of the Project.

Dispute Resolution. The Client and PEC will endeavor to resolve claims, disputes and other matters in issue arising out of this Agreement, the Project or the Services through a meet and confer session. The meeting will be attended by senior representatives of Client and PEC who have full authority to

resolve the claim. The meeting will take place within thirty (30) days after a request by either party, unless the parties mutually agree otherwise. Prior to the meeting, the parties will exchange relevant information that will assist in resolving the claim.

If the parties resolve the claim, they will prepare appropriate documentation memorializing the resolution.

If the parties are unable to resolve the claim, PEC and Client agree to submit the claim to mediation prior to the initiation of any binding dispute resolution proceedings (except for PEC claims for nonpayment). The mediation will be held in Wichita, Kansas, and the parties will share the mediator's fees and expenses equally.

Jurisdiction; Venue; Governing Law. To the fullest extent permitted by law, PEC and Client stipulate that the Eighteenth Judicial District, District Court, Sedgwick County, Kansas is the court of exclusive jurisdiction and venue to determine any dispute arising out of or relating to this Agreement, the Project or the Services. PEC and Client further agree that this Agreement shall be construed, interpreted and governed in accordance with the laws of the State of Kansas without regard to its conflict of laws principles.

Indemnity. To the fullest extent permitted by law, Client and PEC each agree to indemnify and hold harmless the other, as well as their respective officers, directors and employees, from and against liability for claims, losses, damages, and expenses, including reasonable attorneys' fees, provided such claim, loss, damage, or expense is attributable to bodily injury, sickness, disease, death, or property damage, but only to the extent caused by the negligent acts or omissions of the indemnifying party, or anyone for whose acts they may be liable.

Agreed Remedy. To the fullest extent permitted by law, the total liability, in the aggregate, of PEC and PEC's officers, directors, employees, agents, and consultants to Client and anyone claiming by, through or under Client, for any and all injuries, claims, losses, expenses, or damages, including, without limitation, attorneys' fees, arising out of or in any way related to this Agreement, the Services, or the Project, from any cause and under any theory of liability, shall not exceed PEC's total fee under this Agreement. In no event will PEC be liable for any indirect, incidental, special or consequential damages, including, without limitation, loss of use or lost profits, incurred by Client or anyone claiming by, through or under Client.

Assignment. Client will not assign any rights, duties, or interests accruing from this Agreement without the prior written consent of PEC. This Agreement will be binding upon the Client, its successors and assigns.

No Third-Party Beneficiaries. This Agreement is solely for the benefit of PEC and Client. Nothing herein is intended in any way to benefit any third party or otherwise create any duty or obligation on behalf of PEC or Client in favor of such third parties. Further, PEC assumes no obligations or duties other than the obligations to Client specifically set forth in this Agreement. PEC shall not be responsible for Client obligations under any separate agreement with any third-party.

Entire Agreement. This Agreement represents the entire and integrated agreement between PEC and Client and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement may only be amended by a writing signed by PEC and Client.

Severability. If any provisions of this Agreement is determined to be unenforceable, in whole or in part, the remainder shall not be affected thereby and each remaining provision or portion thereof shall continue to be valid and effective and shall be enforceable to the fullest extent permitted by law.

Thank you for engaging PEC; we look forward to working with you. If this Agreement is acceptable, please sign below and return an executed copy to me. Receipt of the executed copy will serve as PEC's notice to proceed with the Services.

Sincerely,

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

Ryan W. Glessner, PE
Municipal Division Project Manager

TBK:apg

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

By: _____, Signatory

Printed Name: Michael D. Kelsey, PE

Title: Principal / Municipal Division Manager

Date: 8/24/2022

ACCEPTED: CITY OF BEL AIRE

By: _____

Printed Name: _____

Title: _____

Date: _____

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

EXHIBIT A

A. Project Description:

1. The Project shall consist of preparing Water Distribution System and Sanitary Sewer Collection System Master Plans (Master Plans). The planning period for the Master Plans shall be 20 years.

B. Anticipated Project Schedule:

1. PEC shall commence its services on the Project within 14 days after receiving CLIENT's notice to proceed.
2. PEC and CLIENT anticipate that the draft Master Plans will be completed within 180 days after receiving Notice to Proceed. A detailed schedule will be determined with the CLIENT during the project kickoff meeting.
3. CLIENT acknowledges that directed changes, unforeseen conditions, and other delays may affect the completion of PEC's services. PEC will not have control over or responsibility for any contractor or vendor's performance schedule.

C. Project Deliverables:

1. This Project Deliverables shall consist of the following sealed by an Engineer licensed in the State of Kansas where applicable:

    a) Draft Master Plans Reports.
    b) Final Master Plans Reports.

D. Scope of Services:

1. Project Management:

    a) Prepare an information request and coordinate information needs and confirm assumptions as required to complete project tasks.
    b) Conduct project kick-off meeting.
    c) Conduct a maximum of three project progress meetings and two report review meetings with City Staff.
    d) Prepare meeting agendas and distribute meeting minutes to all attendees.

2. Report Preparation and Presentation:

    a) Produce draft reports for City review and comment. Address CLIENT's comments for final reports.
    b) Preparation of final report to include a discussion of data collected and field observations, analysis of the existing and future service areas, recommended improvements, cost estimates, and maps showing the general location of current and recommended system infrastructure.
    c) Presentation of the master planning process, findings, and recommendations at one City Council meeting upon request.

Water Master Plan Design Services

1. Data Collection:

    a) Obtain mapping of the existing distribution system from the City and conduct interviews as needed with key staff familiar with the distribution system.
    b) Collect water use data including average day use, peak daily use, peak hourly use, and usage information for large water consumers from City staff.
    c) Obtain design and operations information pertaining to distribution supply connections, system pumps, storage facilities, and system controls from the City.
    d) Review existing studies, master plans, and comprehensive plans to be provided by the City.
    e) Perform fire hydrant flow testing to collect system flow and pressure data. The ENGINEER will establish eight (8) field test locations with City input, provide flow testing equipment, perform field testing, and evaluate results. The City shall provide staff to operate valves and inform residents of testing operations prior to and during testing as necessary. ENGINEER plans to provide 2 people to perform flow testing.

2. Projecting Population and Water Demands (20-Year Planning Period):

    a) Utilizing existing plans and City input, define the water distribution system service area.
    b) Evaluate existing land use and population projections for the City. Projections will be established for any neighboring entities/growth areas that are to be included in the defined service area.
    c) Determine potential growth areas and projected future service areas.
    d) Develop a base map that illustrates the existing service area and identifies the projected future service areas.
    e) Review existing water demand data for the defined service area and determine appropriate residential flows per capita, and commercial/industrial unit flow data to be used for evaluation. Review the top water users and include analysis of their existing and future use.

3. Dynamic Modeling and Evaluation:

    a) Develop a hydraulic model of the existing distribution system. The model shall include:

        i. A network of model segments consisting of waterlines 4-inches and larger. Additional lines shall only be included as needed to prepare a functioning model.
        ii. Supply connections, water storage facilities, pump data, valves, fire hydrants, and system controls.
        iii. Existing and projected system demands.

    b) Utilize the field-collected fire hydrant testing data and other system information to calibrate the model within reasonable accuracy of the existing system's actual performance.

c) Utilize the water model to analyze the system pressures, pipe velocities, operation, and available fire flows, under current and projected average day, maximum day, and peak hour demands. The model will be evaluated using both steady state and extended period simulations.
d) Evaluate fire hydrant coverage in the system.
e) Perform a system storage analysis on the system to determine the recommended volume of storage for current and projected conditions.
f) Evaluate the available pumping capacity's ability to meet current and projected demands.
g) Identify current system deficiencies and future deficiencies based on the projected demands.

4. Distribution System Improvement Alternatives:

a) Identify alternatives to address deficiencies and provide water distribution service to areas within the defined service area.
b) Alternatives will be developed to a planning level which will indicate general locations and sizes of major water lines, booster pump stations and/or storage requirements. Considerations will be based on cost effectiveness and feasibility of construction.
c) Recommended improvement alternatives will be added to the model to evaluate impact to the system.
d) The alternatives will be presented to the CLIENT. Information will be revised and refined to incorporate CLIENT's input.

5. Establish Recommended Improvements Program with Estimated Costs:

a) Determine estimated total project costs for all recommended improvements.
b) Determine priority of the recommended improvements based on need, feasibility of construction, capital costs, and maintenance costs.

Sanitary Sewer Master Plan Design Services

1. Obtain mapping of the existing collection system from the City and conduct interviews as needed with key staff familiar with the collection system.
2. Collect wastewater flow data of the existing meters including average day use, peak daily use, peak hourly use (if available) from City staff.
3. Obtain design and operations information pertaining to lift station pumps from the City.
4. Review existing studies, master plans, and comprehensive plans to be provided by the City.
5. Collection System Flow Monitoring:

a) Flow activities will focus on the interceptor sewers. The base flow monitoring task comprises a period of thirty (30) days.

i. Flow Meter Site Assessment/Installation:

1) ENGINEER shall install up to six (6) flow monitors at agreed upon locations for up to thirty (30) days.
2) A site assessment of potential flow monitoring sites will be made to determine, in general, the most suitable flow monitoring locations based on the following conditions:

3) Suitability for Accurate Metering – The accuracy of open channel flow metering will depend on numerous variables that should be controlled as much as possible. For this reason, reconnaissance inspections will be performed to identify the best sites for metering and to minimize such error-causing factors as changes in pipe alignment and size, interruption of channel flow by side inlets and turbulence cause by uneven channels.

ii. Safety – It is equally important that the proposed sites conform to ENGINEER's requirements for safe operating conditions. If the site falls outside of these requirements, alternate sites that are suitable based on safety requirements will be selected upon further consultation with the CITY.

iii. ENGINEER will complete site assessment forms for each flow monitoring location. The ENGINEER will provide six (6) electronic depth/velocity flow monitors (ISCO 2150). These units will be installed, and the site calibrated for the 30-day monitoring period.

iv. The flow monitors shall be maintained by ENGINEER on a bi-weekly basis. Bi-weekly maintenance shall include the upload of all flow data, meter calibration (as-needed), and other diagnostic checks. Flow monitors shall remain in place for an initial continuous 30-day base period. ENGINEER shall remove all monitors at the conclusion of the monitoring period.

6. Flow Data Analysis:

a) The flow data collected will require processing for use in the hydraulic model. Principal components of wastewater system flows will be deconstructed from the flow meter hydrographs in the following general manner:

i. Provide an analysis of flow metering data to estimate average dry weather flow, peak dry weather flow and peak wet weather flow.

7. Projecting Population and Sewer Flows (20-Year Planning Period):

a) Utilizing existing plans and City input, define the sewer collection system service area.

b) Evaluate existing land use and population projections for the City. Projections will be established for any neighboring entities/growth areas that are to be included in the defined service area.

c) Determine potential growth areas and projected future service areas.

d) Develop a base map that illustrates the existing service area and identifies the projected future service areas.

e) Review existing sewer flow data for the defined service area and determine appropriate flows per capita to be used for evaluation. Typical design flow rates as defined by the Kansas Department of Health and Environment (KDHE) will be also be considered in the evaluation of projected flows.

8. Dynamic Modeling:

   a) Perform field data collection to obtain manhole top elevations and flowlines for all manholes and pipes 10-inch larger that will be utilized in the hydraulic model. Elevation data will be obtained using a GPS unit and laser measurer.
   b) Development of a hydraulic model using hydraulic modeling software. The hydraulic model will incorporate all manholes and pipes 10-inch and larger.

      i. Hydrologic loading areas and population characteristics will be developed from existing and future land use and population data and input into the hydraulic model.
      ii. A model schematic showing the relationship of flow meter areas will be prepared.

   c) Calibrate the utilizing the flow data collected from meter data and from flow monitoring.

9. System Analysis:

   a) Use the calibrated model to estimate existing and projected flows conveyed by the system. Identify issues, including, but not limited to, flow constrictions, surcharging, and overflows in the system.
   b) Evaluated lift station pumping capacities as compared to existing and projected flows.

10. Collection System Improvement Alternatives:

   a) Identify alternatives to address deficiencies and provide sewer collection to areas within the defined service area.
   b) Alternatives will be developed to a planning level which will indicate general locations and sizes of sewer interceptors and lift stations. Considerations will be based on cost effectiveness and feasibility of construction.

11. Establish Recommended Improvements Program with Estimated Costs:

   a) Determine estimated total project costs for all recommended improvements.
   b) Determine recommended improvements based on need, feasibility of construction, capital costs, and maintenance costs.

E. Additional Responsibilities of CLIENT:

The CLIENT agrees to provide the following pursuant to PEC accomplishing the Scope of Services outlined herein.

1. Provide documents, sampling reports, treatment system drawings and operational data, and other system information as requested and available in a timely manner.
2. Provide access to system components upon ENGINEER's request.
3. Review submitted reports and documents in a timelymanner.

F. Additional Services:

The following services can be provided by PEC at an additional cost by Supplemental Agreement:

1. Additional Fire Hydrant Flow Testing Locations.
2. Additional locations or additional time of sanitary sewer flow monitoring.
3. Design or assistance with implementation of any recommended improvements.
4. Evaluation of wastewater discharge and/or treatment.
5. Field survey or geotechnical investigations.
6. Evaluation of water supply.
7. Reviewing potential project funding sources for the recommended improvements.

G. Exclusions:

The following shall be specifically excluded from the Scope of Services to be provided by PEC.

1. Distribution system water quality evaluation including compliance with regulatory requirements associated with lead and copper, disinfection byproducts, or the Total Coliform Rule.
2. Water quality sampling or testing.

H. PEC's Fees:

1. PEC's Fee for its Scope of Services will be on a lump sum basis in the cumulative amount shown in the table below:

Scope Item	**Fee**
Water Distribution System Master Plan	$38,500.00
Sanitary Sewer Master Plan	$45,000.00
Sewer Flow Monitoring	$25,500.00
Elevation Data Collection	$25,000.00
Sewer Total	$95,500.00
Total	**$134,000.00**
Additional Hydrant Flow Test (Per Location, if authorized)	$500.00
Additional Sewer Flow Monitoring for 30 Days (Per Location, if authorized)	$4,800.00

2. Additional on-call work will be performed per PEC's standard hourly fee schedule.
3. Taxes are not included in PEC's Fees. CLIENT shall reimburse PEC for any sales, use, and value added taxes which apply to these services.

1995 Midfield Road
Wichita, KS 67209

TEL 316.264.8008

www.GarverUSA.com

Anne Stephens, PE
City Engineer
City of Bel Aire
7651 E. Central Park Ave.
Bel Aire, KS 67226

Dear Ms. Stephens,

Having grown up in Bel Aire, I understand the substantial amount of growth that Bel Aire has experienced in the last 30 to 40 years, and the potential growth the City can achieve over the next 20 years. To properly plan for that growth, Bel Aire first needs to accurately evaluate your existing water distribution and sanitary sewer collection system to understand where needs currently exist in your system. This will involve verifying existing known issues such as low water pressure near Bristol Hollows, elevation concerns in the eastern areas of the City, or identifying issues that have yet to be uncovered. Understanding and addressing existing conditions is a critical foundation for planning improvements to serve the next 20 years of growth.

Garver has the resources and dedicated team of modelers that will help you set this foundation by building a thorough and thoughtful model of your systems, focusing on the data and inputs that matter. If critical pieces of information are missing or incomplete, we will advise you accordingly on the best path forward. We are confident that **the enclosed scope of services gives you not only what you requested, but also what you need** to establish that foundation. As an example, we propose flow metering of the sanitary sewers you requested, but also metering of the rainfall concurrent with the sanitary sewer flows. Sanitary sewer system flows are greatly impacted by rainfall dependent inflow and infiltration (RDII), therefore, we need to understand and correlate those observed flows with rainfall intensities to understand what data we are really getting and how much of a peak flow we should plan for. So, we ask that you not only evaluate the cost but also the scope of our proposal. We are always happy to discuss the proposed scope to better fit your needs.

Once we get the existing conditions established and calibrated, we will then identify recommended improvements to improve current issues. Then we will identify trigger points for additional future improvements. While it is common in our industry to correlate these points to a given year, they are really based on a certain flow rate for the sanitary sewer, or flow rate and pressure for the water system. We will help you understand those trigger points so as Bel Aire grows you will know what is needed to keep infrastructure serving your citizens at a high level.

At the conclusion of this project, we will continue to serve as your most trusted advisor. We will not simply walk away and leave you with a model that sits on a virtual shelf, but we will be there to help answer questions as needed and to run and update models as the city grows and as plans change. We will also be willing to present this project in a public setting to elected officials, so they understand the importance and outcome of this effort.

If you have any questions or need clarification, I ask that you please call me at 316-833-6060 or email me at mtdolechek@garverusa.com.

Sincerely,

Mark T. Dolechek, PE
Kansas Water Business Team Leader

Agreement
For
Professional Services
For
Water Distribution System and Sanitary Sewer Collection System Master Plans

City of Bel Aire, Kansas

Project No. 22W34240

Contents

THIS PROFESSIONAL SERVICES AGREEMENT ("**Agreement**") is made as of the Effective Date by and between the **City of Bel Aire, Kansas** (hereinafter referred to as "**Owner**"), and **Garver, LLC** (hereinafter referred to as "**Garver**"). Owner and Garver may individually be referred to herein after as a "Party" and/or "Parties" respectively.

RECITALS

WHEREAS, Owner intends to review the current water distribution system and sanitary sewer collection system to determine the extent of current service and review what is required to provide all areas within the current City limits and potential growth areas with water and sewer service in the form of a Master Plant for both water and sanitary sewer (the **"Project"**).

WHEREAS, Garver will provide professional Services related to the Project as further described herein.

NOW THEREFORE, in consideration of the mutual covenants herein contained and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree as follows:

1. DEFINITIONS

In addition to other defined terms used throughout this Agreement, when used herein, the following capitalized terms have the meaning specified in this Section:

"Effective Date" means the date last set forth in the signature lines below.

"Damages" means any and all damages, liabilities, or costs (including reasonable attorneys' fees recoverable under applicable law).

"Hazardous Materials" means any substance that, under applicable law, is considered to be hazardous or toxic or is or may be required to be remediated, including: (i) any petroleum or petroleum products, radioactive materials, asbestos in any form that is or could become friable, (ii) any chemicals, materials or substances which are now or hereafter become defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "extremely hazardous wastes," "restricted hazardous wastes," "toxic substances," "toxic pollutants," or any words of similar import pursuant to applicable law; or (iii) any other chemical, material, substance or waste, exposure to which is now or hereafter prohibited, limited or regulated by any governmental instrumentality, or which may be the subject of liability for damages, costs or remediation.

"Personnel" means affiliates, directors, officers, partners, members, employees, and agents.

2. SCOPE OF SERVICES

2.1. Services. Owner hereby engages Garver to perform the scope of service described in Exhibit A attached hereto ("**Services**"). Execution of this Agreement by Owner constitutes Owner's written authorization to proceed with the Services. In consideration for such Services, Owner agrees to pay Garver in accordance with Section 3 below.

3. PAYMENT

3.1. Fee. For the Services described under Section 2.1, Owner will pay Garver in accordance with this Section 3 and Exhibit B. Owner represents that funding sources are in place with the available funds necessary to pay Garver in accordance with the terms of this Agreement.

3.2. Invoicing Statements. Garver shall invoice Owner on a monthly basis. Such invoice shall include supporting documentation reasonably necessary for Owner to know with reasonable certainty the proportion of Services accomplished. The Owner's terms and conditions set forth in a purchase order (or any similar document) are expressly rejected.

3.3. Payment.

3.3.1. Due Date. Owner shall pay Garver all undisputed amounts within thirty (30) days after receipt of an invoice. Owner shall provide notice in writing of any portion of an invoice that is disputed in good faith within fifteen (15) days of receipt of an invoice. Garver shall promptly work to resolve any and all items identified by Owner relating to the disputed invoice. All disputed portions shall be paid promptly upon resolution of the underlying dispute.

3.3.2. If any undisputed payment due Garver under this Agreement is not received within forty-five (45) days from the date of an invoice, Garver may elect to suspend Services under this Agreement without penalty.

3.3.3. Payments due and owing that are not received within thirty (30) days of an invoice date will be subject to interest at the lesser of a one percent (1%) monthly interest charge (compounded) or the highest interest rate permitted by applicable law.

4. AMENDMENTS

4.1. Amendments. Garver shall be entitled to an equitable adjustment in the cost and/or schedule for circumstances outside the reasonable control of Garver, including modifications in the scope of Services, applicable law, codes, or standards after the Effective Date ("Amendment"). As soon as reasonably possible, Garver shall forward a formal Amendment, in the form set forth in Exhibit D, to Owner with backup supporting the Amendment. All Amendments should include, to the extent known and available under the circumstances, documentation sufficient to enable Owner to determine: (i) the factors necessitating the possibility of a change; (ii) the impact which the change is likely to have on the cost to perform the Services; and (iii) the impact which the change is likely to have on the schedule. All Amendments shall be effective only after being signed by the designated representatives of both Parties. Garver shall have no obligation to perform any additional services created by such Amendment until a mutually agreeable Amendment is executed by both Parties.

5. OWNER'S RESPONSIBILITIES

5.1. In connection with the Project, Owner's responsibilities shall include the following:

5.1.1. Those responsibilities set forth in Exhibit A.

5.1.2. Owner shall be responsible for all requirements and instructions that it furnishes to Garver pursuant to this Agreement, and for the accuracy and completeness of all programs,

reports, data, and other information furnished by Owner to Garver pursuant to this Agreement. Garver may use and rely upon such requirements, programs, instructions, reports, data, and information in performing or furnishing services under this Agreement, subject to any express limitations or reservations applicable to the furnished items as further set forth in Exhibit A.

5.1.3. Owner shall give prompt written notice to Garver whenever Owner observes or otherwise becomes aware of the presence at the Project site of any Hazardous Materials or any relevant, material defect, or nonconformance in: (i) the Services; (ii) the performance by any contractor providing or otherwise performing construction services related to the Project; or (iii) Owner's performance of its responsibilities under this Agreement.

5.1.4. Owner shall include "Garver, LLC" as an indemnified party under the contractor's indemnity obligations included in the construction contract documents.

5.1.5. Owner will not directly or indirectly solicit any of Garver's Personnel during performance of this Agreement and for a period of one (1) year beyond completion of this Agreement.

6. GENERAL REQUIREMENTS

6.1. Standards of Performance.

6.1.1. Industry Practice. Garver shall perform any and all Services required herein in accordance with generally accepted practices and standards employed by the applicable United States professional services industries as of the Effective Date practicing under similar conditions and locale. Such generally accepted practices and standards are not intended to be limited to the optimum practices, methods, techniques, or standards to the exclusion of all others, but rather to a spectrum of reasonable and prudent practices employed by the United States professional services industry.

6.1.2. Owner shall not be responsible for discovering deficiencies in the technical accuracy of Garver's services. Garver shall promptly correct deficiencies in technical accuracy without the need for an Amendment unless such corrective action is directly attributable to deficiencies in Owner-furnished information.

6.1.3. On-site Services. Garver and its representatives shall comply with Owner's and its separate contractor's Project-specific safety programs, which have been provided to Garver in writing in advance of any site visits.

6.1.4. Relied Upon Information. Garver may use or rely upon design elements and information ordinarily or customarily furnished by others including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.

6.1.5. Aside from Garver's direct subconsultants, Garver shall not at any time supervise, direct, control, or have authority over any contractor's work, nor shall Garver have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any such contractor, or the safety precautions and programs incident thereto, for security or safety at the Project site, nor for any failure of a contractor to comply with laws and regulations applicable to that contractor's services. Garver shall not be responsible for the acts or omissions of any contractor for whom it does not have a direct contract. Garver neither guarantees the performance of any

contractor nor assumes responsibility for any contractor's failure to furnish and perform its work in accordance with the construction contract documents applicable to the contractor's work, even when Garver is performing construction phase services.

6.1.6. In no event is Garver acting as a "municipal advisor" as set forth in the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) or the municipal advisor registration rules issued by the Securities and Exchange Commission. Garver's Services expressly do not include providing advice pertaining to insurance, legal, finance, surety-bonding, or similar services.

6.2. Instruments of Service.

6.2.1. Deliverables. All reports, specifications, record drawings, models, data, and all other information provided by Garver or its subconsultants, which is required to be delivered to Owner under Exhibit A (the "**Deliverables**"), shall become the property of Owner subject to the terms and conditions stated herein.

6.2.2. Electronic Media. Owner hereby agrees that all electronic media, including CADD files ("**Electronic Media**"), are tools used solely for the preparation of the Deliverables. Upon Owner's written request, Garver will furnish to Owner copies of Electronic Media to the extent included as part of the Services. In the event of an inconsistency or conflict in the content between the Deliverables and the Electronic Media, however, the Deliverables shall take precedence in all respects. Electronic Media is furnished without guarantee of compatibility with the Owner's software or hardware. Because Electronic Media can be altered, either intentionally or unintentionally, by transcription, machine error, environmental factors, or by operators, it is agreed that, to the extent permitted by applicable law, Owner shall indemnify and hold Garver, Garver's subconsultants, and their Personnel harmless from and against any and all claims, liabilities, damages, losses, and costs, including, but not limited to, costs of defense arising out of changes or modifications to the Electronic Media form in Owner's possession or released to others by Owner. Garver's sole responsibility and liability for Electronic Media is to furnish a replacement for any non-functioning Electronic Media for reasons solely attributable to Garver within thirty (30) days after delivery to Owner.

6.2.3. Property Rights. All intellectual property rights of a Party, including copyright, patent, and reuse ("**Intellectual Property**"), shall remain the Intellectual Property of that Party. Garver shall obtain all necessary Intellectual Property from any necessary third parties in order to execute the Services. Any Intellectual Property of Garver or any third party embedded in the Deliverables shall remain so imbedded and may not be separated therefrom.

6.2.4. License. Upon Owner fulfilling its payment obligations under this Agreement, Garver hereby grants Owner a license to use the Intellectual Property, but only in the operation and maintenance of the Project for which it was provided. Use of such Intellectual Property for modification, extension, or expansion of this Project or on any other project, unless under the direction of Garver, shall be without liability to Garver and Garver's subconsultants. To the extent permitted by applicable law, Owner shall indemnify and hold Garver, Garver's subconsultants, and their Personnel harmless from and against any and all claims, liabilities, damages, losses, and costs, including but not limited to costs of defense arising out of Owner's use of the Intellectual Property contrary to the rights permitted herein.

6.3. Opinions of Cost.

6.3.1. Since Garver has no control over: (i) the cost of labor, materials, equipment, or services furnished by others; (ii) the contractor or its subcontractor(s)' methods of determining prices; (iii) competitive bidding; (iv) market conditions; or (v) similar material factors, Garver's opinions of Project costs or construction costs provided pursuant to Exhibit A, if any, are to be made on the basis of Garver's experience and qualifications and represent Garver's reasonable judgment as an experienced and qualified professional engineering firm, familiar with the construction industry. Garver cannot and does not guarantee that proposals, bids, or actual Project or construction costs will not vary from estimates prepared by Garver.

6.3.2. Owner understands that the construction cost estimates developed by Garver do not establish a limit for the construction contract amount. If the actual amount of the low construction bid or resulting construction contract exceeds the construction budget established by Owner, Garver will not be required to re-design the Services without additional compensation. In the event Owner requires greater assurances as to probable construction cost, then Owner agrees to obtain an independent cost estimate.

6.4. Underground Utilities. Except to the extent expressly included as part of the Services, Garver will not provide research regarding utilities or survey utilities located and marked by their owners. Furthermore, since many utility companies typically will not locate and mark their underground facilities prior to notice of excavation, Garver is not responsible for knowing whether underground utilities are present or knowing the exact location of such utilities for design and cost estimating purposes. In no event is Garver responsible for damage to underground utilities, unmarked or improperly marked, caused by geotechnical conditions, potholing, construction, or other contractors or subcontractors working under a subcontract to this Agreement.

6.5. Design without Construction Phase Services.

6.5.1. If the Owner requests in writing that Garver provide any specific construction phase services or assistance with resolving disputes or other subcontractor related issues, and if Garver agrees to provide such services, then Garver shall be compensated for the services as an Amendment in accordance with Sections 4 and 10.2.

6.6. Hazardous Materials. Nothing in this Agreement shall be construed or interpreted as requiring Garver to assume any role in the identification, evaluation, treatment, storage, disposal, or transportation of any Hazardous Materials. Notwithstanding any other provision to the contrary in this Agreement and to the fullest extent permitted by law, Owner shall indemnify and hold Garver and Garver's subconsultants, and their Personnel harmless from and against any and all losses which arise out of the performance of the Services and relating to the regulation and/or protection of the environment including without limitation, losses incurred in connection with characterization, handling, transportation, storage, removal, remediation, disturbance, or disposal of Hazardous Material, whether above or below ground.

6.7. Confidentiality. Owner and Garver shall consider: (i) all information provided by the other Party that is marked as "Confidential Information" or "Proprietary Information" or identified as confidential pursuant to this Section 6.7 in writing promptly after being disclosed verbally; and (ii) all documents resulting from Garver's performance of Services to be Confidential Information. Except as legally required, Confidential Information shall not be discussed with

or transmitted to any third parties, except on a "need to know basis" with equal or greater confidentiality protection or written consent of the disclosing Party. Confidential Information shall not include and nothing herein shall limit either Party's right to disclose any information provided hereunder which: (i) was or becomes generally available to the public, other than as a result of a disclosure by the receiving Party or its Personnel; (ii) was or becomes available to the receiving Party or its representatives on a non-confidential basis, provided that the source of the information is not bound by a confidentiality agreement or otherwise prohibited from transmitting such information by a contractual, legal, or fiduciary duty; (iii) was independently developed by the receiving Party without the use of any Confidential Information of the disclosing Party; or (iv) is required to be disclosed by applicable law or a court order. All confidentiality obligations hereunder shall expire three (3) years after completion of the Services. Nothing herein shall be interpreted as prohibiting Garver from disclosing general information regarding the Project for future marketing purposes.

7. INSURANCE

7.1. Insurance.

7.1.1. Garver shall procure and maintain insurance as set forth in Exhibit C until completion of the Service. Upon request, Garver shall name Owner as an additional insured on Garver's General Liability policy to the extent of Garver's indemnity obligations provided in Section 9 of this Agreement.

7.1.2. Upon request, Garver shall furnish Owner a certificate of insurance evidencing the insurance coverages required in Exhibit C.

8. DOCUMENTS

8.1. Audit. Garver will retain all pertinent records for a period of three (3) years beyond completion of the Services. Owner may have access to such records during normal business hours with three (3) business days advanced written notice. In no event shall Owner be entitled to audit the makeup of lump sum or other fixed prices (e.g., agreed upon unit or hour rates).

8.2. Delivery. After completion of the Project, and prior to final payment, Garver shall deliver to the Owner all Deliverables required under Exhibit A.

9. INDEMNIFICATION / WAIVERS

9.1. Indemnification.

9.1.1. Garver Indemnity. Subject to the limitations of liability set forth in Section 9.2, Garver agrees to indemnify and hold Owner, and Owner's Personnel harmless from Damages due to bodily injury (including death) or third-party tangible property damage to the extent such Damages are caused by the negligent acts, errors, or omissions of Garver or any other party for whom Garver is legally liable, in the performance of the Services under this Agreement.

9.1.2. Owner Indemnity. Subject to the limitations of liability set forth in Section 9.2, Owner agrees to indemnify and hold Garver and Garver's subconsultants and their Personnel harmless from Damages due to bodily injury (including death) or third-party tangible property damage to the extent caused by the negligent acts, errors, or omissions of

Owner or any other party for whom Owner is legally liable, in the performance of Owner's obligations under this Agreement.

9.1.3. In the event claims or Damages are found to be caused by the joint or concurrent negligence of Garver and the Owner, they shall be borne by each Party in proportion to its own negligence.

9.2. Waivers. Notwithstanding any other provision to the contrary, the Parties agree as follows:

9.2.1. The Parties agree that any claim or suit for Damages made or filed against the other Party will be made or filed solely against Garver or Owner respectively, or their successors or assigns, and that no Personnel shall be personally liable for Damages under any circumstances.

9.2.2. Mutual Waiver. To the fullest extent permitted by law, neither Owner, Garver, nor their respective Personnel shall be liable for any consequential, special, incidental, indirect, punitive, or exemplary damages, or damages arising from or in connection with loss of use, loss of revenue or profit (actual or anticipated), loss by reason of shutdown or non-operation, increased cost of construction, cost of capital, cost of replacement power or customer claims, and Owner hereby releases Garver, and Garver releases Owner, from any such liability.

9.2.3. Limitation. In recognition of the relative risks and benefits of the Project to both the Owner and Garver, Owner hereby agrees that Garver's and its Personnel's total liability under the Agreement shall be limited to one hundred percent (100%) of Garver's fee set forth in Exhibit B or an amount equal to the amount of compensation actually received by Garver from Owner.

9.2.4. No Other Warranties. No other warranties or causes of action of any kind, whether statutory, express or implied (including all warranties of merchantability and fitness for a particular purpose and all warranties arising from course of dealing or usage of trade) shall apply. Owner's exclusive remedies and Garver's only obligations arising out of or in connection with defective Services (patent, latent or otherwise), whether based in contract, in tort (including negligence and strict liability), or otherwise, shall be those stated in the Agreement.

9.2.5. The limitations set forth in Section 9.2 apply regardless of whether the claim is based in contract, tort, or negligence including gross negligence, strict liability, warranty, indemnity, error and omission, or any other cause whatsoever.

10. DISPUTE RESOLUTION

10.1. Any controversy or claim ("**Dispute**") arising out of or relating to this Agreement or the breach thereof shall be resolved in accordance with the following:

10.1.1. Any Dispute that cannot be resolved by the project managers of Owner and Garver may, at the request of either Party, be referred to the senior management of each Party. If the senior management of the Parties cannot resolve the Dispute within thirty (30) days after such request for referral, then either Party may request mediation. If both Parties agree to mediation, it shall be scheduled at a mutually agreeable time and place with a mediator agreed to by the Parties. Should mediation fail, should either Party

refuse to participate in mediation, or should the scheduling of mediation be impractical, either Party may file for arbitration in lieu of litigation.

10.1.2. Arbitration of the Dispute shall be administered by the American Arbitration Association ("AAA") in accordance with its Construction Industry Arbitration Rules. EACH PARTY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAWS, ANY AND ALL RIGHT TO TRIAL BY JURY. The arbitration shall be conducted by a single arbitrator, agreed to by the Parties. In no event may a demand for arbitration be made if the institution of legal or equitable proceedings based on such dispute is barred by the applicable statute of limitations.

10.1.3. The site of the arbitration shall be Bel Aire, Kansas. Each Party hereby consents to the jurisdiction of the federal and state courts within whose district the site of arbitration is located for purposes of enforcement of this arbitration provision, for provisional relief in aid of arbitration, and for enforcement of any award issued by the arbitrator.

10.1.4. To avoid multiple proceedings and the possibility of inconsistent results, either Party may seek to join third parties with an interest in the outcome of the arbitration or to consolidate arbitration under this Agreement with another arbitration. Within thirty (30) days of receiving written notice of such a joinder or consolidation, the other Party may object. In the event of such an objection, the arbitrator shall decide whether the third party may be joined and/or whether the arbitrations may be consolidated. The arbitrator shall consider whether any entity will suffer prejudice as a result of or denial of the proposed joinder or consolidation, whether the Parties may achieve complete relief in the absence of the proposed joinder or consolidation, and any other factors which the arbitrators conclude should factor on the decision.

10.1.5. The arbitrator shall have no authority to award punitive damages. Any award, order or judgment pursuant to the arbitration is final and may be entered and enforced in any court of competent jurisdiction.

10.1.6. The prevailing Party shall be entitled to recover its attorneys' fees, costs, and expenses, including arbitrator fees and costs and AAA fees and costs.

10.1.7. The foregoing arbitration provisions shall be final and binding, construed and enforced in accordance with the Federal Arbitration Act, notwithstanding the provisions of this Agreement specifying the application of other law. Pending resolution of any Dispute, unless the Agreement is otherwise terminated, Garver shall continue to perform the Services under this Agreement that are not the subject of the Dispute, and Owner shall continue to make all payments required under this Agreement that are not the subject of the Dispute.

10.1.8. Owner and Garver further agree to use commercially reasonable efforts to include a similar dispute resolution provision in all agreements with independent contractors and subconsultants retained for the Project.

10.1. Litigation Assistance. This Agreement does not include costs of Garver for required or requested assistance to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by Owner, unless litigation assistance has been expressly included as part of Services. In the event Owner requests such services of Garver, this Agreement shall be amended in writing by both Owner and Garver to account for the additional services and resulting cost in accordance with Section 4.

11. TERMINATION

11.1. Termination for Convenience. Owner shall have the right at its sole discretion to terminate this Agreement for convenience at any time upon giving Garver ten (10) days' written notice. In the event of a termination for convenience, Garver shall bring any ongoing Services to an orderly cessation. Owner shall compensate Garver in accordance with Exhibit B for: (i) all Services performed and reasonable costs incurred by Garver on or before Garver's receipt of the termination notice, including all outstanding and unpaid invoices, and (ii) all costs reasonably incurred to bring such Services to an orderly cessation.

11.2. Termination for Cause. This Agreement may be terminated by either Party in the event of failure by the other Party to perform any material obligation in accordance with the terms hereof. Prior to termination of this Agreement for cause, the terminating Party shall provide at least seven (7) business days written notice and a reasonable opportunity to cure to the non-performing Party. In all events of termination for cause due to an event of default by the Owner, Owner shall pay Garver for all Services properly performed prior to such termination in accordance with the terms, conditions and rates set forth in this Agreement.

11.3. Termination in the Event of Bankruptcy. Either Party may terminate this Agreement immediately upon notice to the other Party, and without incurring any liability, if the non-terminating Party has: (i) been adjudicated bankrupt; (ii) filed a voluntary petition in bankruptcy or had an involuntary petition filed against it in bankruptcy; (iii) made an assignment for the benefit of creditors; (iv) had a trustee or receiver appointed for it; (v) becomes insolvent; or (vi) any part of its property is put under receivership.

12. MISCELLANEOUS

12.1. Governing Law. This Agreement is governed by the laws of the State of Kansas, without regard to its choice of law provisions.

12.2. Successors and Assigns. Owner and Garver each bind themselves and their successors, executors, administrators, and assigns of such other party, in respect to all covenants of this Agreement; neither Owner nor Garver shall assign, sublet, or transfer their interest in this Agreement without the written consent of the other, which shall not be unreasonably withheld or delayed.

12.3. Independent Contractor. Garver is and at all times shall be deemed an independent contractor in the performance of the Services under this Agreement.

12.4. No Third-Party Beneficiaries. Nothing herein shall be construed to give any rights or benefits hereunder to anyone other than Owner and Garver. This Agreement does not contemplate any third-party beneficiaries.

12.5. Entire Agreement. This Agreement constitutes the entire agreement between Owner and Garver and supersedes all prior written or oral understandings and shall be interpreted as having been drafted by both Parties. This Agreement may be amended, supplemented, or modified only in writing by and executed by both Parties.

12.6. Severance. The illegality, unenforceability, or occurrence of any other event rendering a portion or provision of this Agreement void shall in no way affect the validity or enforceability

of any other portion or provision of the Agreement. Any void provision of this Agreement shall be construed and enforced as if the Agreement did not contain the particular portion or provision held to be void.

12.7. Counterpart Execution. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original and all of which taken together constitute one Agreement. Delivery of an executed counterpart of this Agreement by fax or transmitted electronically in legible form, shall be equally effective as delivery of a manually executed counterpart of this Agreement.

13. EXHIBITS

13.1. The following Exhibits are attached to and made a part of this Agreement:

Exhibit A – Scope of Services
Exhibit B – Compensation Schedule
Exhibit C – Insurance
Exhibit D – Form of Amendment

If there is an express conflict between the provisions of this Agreement and any Exhibit hereto, the terms of this Agreement shall take precedence over the conflicting provisions of the Exhibit.

Owner and Garver, by signing this Agreement, acknowledges that they have independently assured themselves and confirms that they individually have examined all Exhibits, and agrees that all of the aforesaid Exhibits shall be considered a part of this Agreement and agrees to be bound to the terms, provisions, and other requirements thereof, unless specifically excluded. Acceptance of this proposed Agreement is indicated by an authorized agent of the Owner signing in the space provided below. Please return one signed original of this Agreement to Garver for our records.

IN WITNESS WHEREOF, Owner and Garver have executed this Agreement effective as of the date last written below.

City of Bel Aire, Kansas	**Garver, LLC**
By: _____ *Signature*	By: _____ *Signature*
Name: _____ *Printed Name*	Name: _____ *Printed Name*
Title: _____	Title: _____
Date: _____	Date: _____
Attest: _____	Attest: _____

EXHIBIT A
(SCOPE OF SERVICES)

1.1 Project Management – Garver shall complete the following services related to Project Management:

- 1.1.1 Conduct a project kickoff meeting to verify and establish project goals, design standards, review project scope and schedule, and verify available information.
- 1.1.2 Collect and review information relating to the Public Water Supply System and Public Sanitary Sewer Collection System.
- 1.1.3 Identify level of service goals for the water distribution system and sanitary sewer collection system.
- 1.1.4 Prepare monthly reporting and invoices.
- 1.1.5 Preparation of a Garver internal project management plan.
- 1.1.6 Conduct up to 3 progress meetings during the project with City Staff. Meetings will be a hybrid of in-person and virtual participation (Via Microsoft Teams or another platform agreeable to all parties).
- 1.1.7 Presentation providing an overview of master plan findings to elected officials. One meeting is included.

1.2 Baseline Development – Garver shall complete the following services related to assessment of historical and projection of future development, water demands, and sanitary sewer flows:

- 1.2.1 Review historical population and development information.
- 1.2.2 Review historical water demand information.
- 1.2.3 Project the population, water service area growth, and water demands within the planning period given known developments and current and projected zoning based on the City's current master land use plan.
- 1.2.4 Review historical sanitary sewer flow information.
- 1.2.5 Project the population, sanitary sewer collection system area growth, and wastewater volumes within the planning period given known developments and current and projected zoning based on the City's current master land use plan.
- 1.2.6 Collect and review information from the Chisholm Creek Utility Authority (CCUA) regarding supply and treatment capacities and compare against the current and future projected water demands and sewer loadings.
- 1.2.7 Collect and review information from the water service contract with the City of Wichita regarding water supply capacities and compare against the current and future projected water demands.
- 1.2.8 Identify gaps in the water supply and/or wastewater treatment capacity for current and future projected conditions based on agreements with and capacities of CCUA and City of Wichita.

1.3 Water Distribution System Model Development and Calibration – Garver shall complete the following services related to developing and calibrating a dynamic hydraulic model of the City's water distribution system:

- 1.3.1 Develop the model based on GIS data and facility record drawings.
- 1.3.2 Develop spatial and temporal demands using historical water use information in data base format, SCADA data, and smart water meter data, as available.
- 1.3.3 Develop a field data collection plan for hydrant pressure logging and hydrant flow testing.
- 1.3.4 Furnish up to eight (8) hydrant pressure loggers and support City staff in conducting up to eight (8) hydrant flow tests.
- 1.3.5 Calibrate the hydraulic model for steady-state and extended-period conditions using the data collected during the pressure logging and hydrant flow testing.
- 1.3.6 Develop future model demand scenarios over the planning horizon based on growth and water demand projections. It is assumed that up to four (4) demand scenarios will be developed to cover the 20-year planning horizon. The specific intermediate horizons will be identified during the project to provide the most benefit to the City.

1.4 Water Distribution System Evaluation and CIP Development – Garver shall complete the following services related to evaluating the water distribution system and developing an associated CIP:

1.4.1 Evaluate the existing system under average and maximum day demand conditions; evaluations will generally include assessment of system pressures, pipe velocities and head loss gradients, tank levels and cycling, available fire flow, and water age. Additional evaluations may be warranted for specific scenarios and will be considered extra work.

1.4.2 Identify potential deficiencies within the water distribution system for the existing system.

1.4.3 Evaluate the system using the demand scenarios for the 20-year horizon to identify future system deficiencies.

1.4.4 Develop alternatives to address system deficiencies for the existing system and the 20-year horizon.

1.4.5 Identify improvements necessary to address existing system deficiencies.

1.4.6 Evaluate the system at up to three (3) intermediate horizons to identify triggers and sequencing for CIP projects over the planning horizon.

1.4.7 Provide recommendations and potential funding sources for future water system improvements.

1.4.8 Prepare and submit a draft and final Water Distribution Master Plan

1.5 Sanitary Sewer System Model Development and Calibration – Garver shall complete the following services related to developing and calibrating a dynamic hydraulic model of the City's sanitary sewer collection system:

1.5.1 Develop the model based on GIS data and facility record drawings.

1.5.2 Develop base wastewater loads based on customer information, SCADA data, and historical flow data, as available.

1.5.3 Develop a field data collection plan for temporary flow and rainfall monitoring using up to six (6) depth/velocity flow monitors and up to four (4) rainfall monitors.

1.5.4 Gather field data for six (6) depth/flow velocity monitors and up to four (4) rainfall monitors for 30 day period.

1.5.5 Calibrate the hydraulic model for average dry and wet weather conditions using the data collected during the field data collection period, as well as lift station pump testing and/or SCADA data.

1.5.6 Identify the design wet weather event and develop anticipated flows for the design storm peak wet weather conditions.

1.5.7 Develop future model loading scenarios over the planning horizon based on growth and sanitary sewer load projections. It is assumed that up to four (4) loading scenarios will be developed to cover the 20-year planning horizon. The specific intermediate horizons will be identified during the project to provide the most benefit to the City.

1.6 Sanitary Sewer System Evaluation and CIP Development – Garver shall complete the following services related to evaluating the sanitary sewer collection system and developing an associated CIP:

1.6.1 Evaluate the existing system under average dry and peak wet weather load conditions; evaluations will generally include assessment of gravity sewer capacity, lift station and force main capacity, manhole surcharge and freeboard. Additional evaluations may be warranted for specific scenarios.

1.6.2 Identify potential deficiencies within the sanitary sewer collection system for the existing system.

1.6.3 Evaluate the system using the loading scenarios for the 20-year horizon to identify future system deficiencies.

1.6.4 Develop alternatives to address system deficiencies for the existing system and the 20-year horizon.

1.6.5 Identify improvements necessary to address existing system deficiencies.

1.6.6 Evaluate the system at up to three (3) intermediate horizons to identify triggers and sequencing for CIP projects over the planning horizon.

1.6.7 Provide recommendations and potential funding sources for future sanitary sewer system improvements.
1.6.8 Prepare and submit a draft and final Sanitary Sewer Master Plan

1.7 On-Call Modeling – Garver shall serve in an on-call capacity to run the hydraulic models as part of the City's overall land development planning process. These on-call services will be considered additional services and will be addressed via an amendment to this contract or a separate master services agreement.

1.8 Additional Services – The following shall be considered Additional Services and are not included in this scope of work:
1.8.1 Development of GIS data. It is assumed that all GIS data is complete and accurate including flow line elevations and sizes of the sanitary sewer lines.
1.8.2 Water Quality Data Analysis. Water quality-related analysis is limited to water age and source trace modeling with the hydraulic model. Additional water quality analysis, beyond that covered in the current scope, could include the following: review of historical residual disinfectant levels and disinfection byproduct (DBP) levels in the system; evaluation of compatibility of water quality between different water supplies; comparison of hydraulic model results (i.e., water age and/or source trace) with historical distribution system water quality observations; water quality sampling in the distribution system and storage tanks, including analysis of tank water quality and/or zonal sampling.
1.8.3 Survey and Field Verification. It is assumed that all modeling and master plan efforts will be based on existing GIS and available data.
1.8.4 Design. Preliminary and Final Design of any project beyond what is needed for budgetary concepts can be addressed via an amendment or separate professional services agreement.
1.8.5 Construction Phase Services including staking, shop drawing review and inspection.
1.8.6 Redesign for the Owner's convenience or due to changed conditions after previous alternate direction and/or approval.
1.8.7 Submittals or deliverables in addition to those listed herein.
1.8.8 Coordination with Outside Agencies

1.9 Schedule
1.9.1 Garver shall commence its services on the Project within 14 days after receiving notice to proceed.
1.9.2 It is anticipated that a draft Master Plan will be completed within 180 days after receiving a notice to proceed. A detailed schedule will be determined during the project kickoff meeting. Any delays in receipt of information, data gathering or decision making outside of Garver's control can result in delayed schedules.

EXHIBIT B
(COMPENSATION SCHEDULE)

The table below presents a summary of the fee amounts and fee types for this Agreement.

WORK DESCRIPTION	FEE AMOUNT	FEE TYPE
Project Management*	$22,183.00	LUMP SUM
Baseline Project Development*	$27,560.00	LUMP SUM
Water System Model Development	$23,058.00	LUMP SUM
Water Evaluation and CIP Development	$36,876.00	LUMP SUM
Sanitary Sewer System Model Development	$64,564.00	LUMP SUM
Sanitary Sewer Evaluation and CIP Development	$36,876.00	LUMP SUM
TOTAL FEE	$211,117.00	

The lump sum amount to be paid under this Agreement is $211,117.00.

Any unused portion of the fee, due to delays beyond Garver's control, will be increased five percent (5%) annually with the first increase effective on or about July 1, 2023.

Additional Services and On-Call Services (Extra Work). For services not described or included in Section 2, but requested by the Owner in writing or otherwise permitted under Section 4, including On-Call Services 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 included in this Exhibit B will be increased annually with the first increase effective on or about July 1, 2023

Exhibit B
City of Bel Aire, Kansas
Water and Sanitary Sewer Master Plan
Garver Hourly Rate Schedule: July 2022 - June 2023

Classification	Rates
Engineers / Architects	
E-1	$ 120.00
E-2	$ 139.00
E-3	$ 168.00
E-4	$ 196.00
E-5	$ 239.00
E-6	$ 294.00
E-7	$ 398.00
Planners	
P-1	$ 144.00
P-2	$ 181.00
P-3	$ 225.00
P-4	$ 251.00
P-5	$ 290.00
Designers	
D-1	$ 112.00
D-2	$ 131.00
D-3	$ 156.00
D-4	$ 181.00
Technicians	
T-1	$ 87.00
T-2	$ 111.00
T-3	$ 135.00
T-4	$ 170.00
Surveyors	
S-1	$ 54.00
S-2	$ 71.00
S-3	$ 95.00
S-4	$ 137.00
S-5	$ 181.00
S-6	$ 206.00
2-Man Crew (Survey)	$ 207.00
3-Man Crew (Survey)	$ 261.00
2-Man Crew (GPS Survey)	$ 227.00
3-Man Crew (GPS Survey)	$ 281.00
Construction Observation	
C-1	$ 106.00
C-2	$ 136.00
C-3	$ 166.00
C-4	$ 204.00
C-5	$ 244.00

Classification	Rates
Resource Specialists	
RS-1	$ 96.00
RS-2	$ 133.00
RS-3	$ 188.00
RS-4	$ 246.00
RS-5	$ 308.00
RS-6	$ 379.00
RS-7	$ 431.00
Environmental Specialists	
ES-1	$ 96.00
ES-2	$ 127.00
ES-3	$ 154.00
ES-4	$ 191.00
ES-5	$ 240.00
ES-6	$ 293.00
ES-7	$ 376.00
ES-8	$ 425.00
Project Controls	
PC-1	$ 99.00
PC-2	$ 136.00
PC-3	$ 173.00
PC-4	$ 222.00
PC-5	$ 271.00
PC-6	$ 333.00
PC-7	$ 428.00
Administration / Management	
AM-1	$ 69.00
AM-2	$ 93.00
AM-3	$ 130.00
AM-4	$ 165.00
AM-5	$ 203.00
AM-6	$ 250.00
AM-7	$ 301.00
M-1	$ 481.00

EXHIBIT C
(INSURANCE)

Pursuant to Section 7.1 of the Agreement, Garver shall maintain the following schedule of insurance until completion of the Services:

Worker's Compensation	Statutory Limit
Automobile Liability	
Combined Single Limit (Bodily Injury and Property Damage)	$500,000
General Liability	
Each Occurrence	$1,000,000
Aggregate	$2,000,000
Professional Liability	
Each Claim Made	$1,000,000
Annual Aggregate	$2,000,000

EXHIBIT D
(FORM OF AMENDMENT)

AMENDMENT TO PROFESSIONAL SERVICES AGREEMENT
City of Bel Aire, Kansas
Project No. 22W34240

AMENDMENT NO. [?]

This Amendment No. [?], effective on the date last written below, shall amend the original contract between the City of Bel Aire, Kansas (**"Owner**") and Garver, LLC (**"Garver"**), dated [Insert date] (the "**Agreement**").

This Amendment No. [?] adds/modifies the Services for the:

[Describe improvements and location]

The Agreement is hereby modified as follows:

SECTION [?] – [Insert section heading]

Section [?] of the Agreement is hereby amended as follows:

This Amendment 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.

IN WITNESS WHEREOF, Owner and Garver have executed this Amendment effective as of the date last written below.

City of Bel Aire, Kansas		Garver, LLC	
By:	_____ *Signature*	By:	_____ *Signature*
Name:	_____ *Printed Name*	Name:	_____ *Printed Name*
Title:	_____	Title:	_____
Date:	_____	Date:	_____
Attest:	_____	Attest:	_____

Northeast Maize Growth Area Water and Wastewater Study

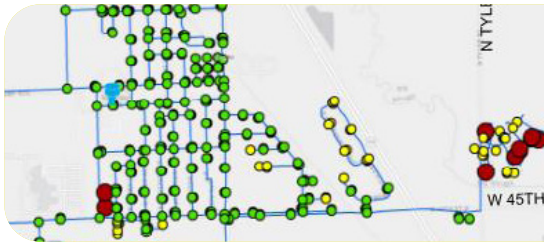
Maize, Kansas • 2021

Extending service throughout a growing area

The Northeast Maize Growth Area Water and Wastewater Study project determined important water and wastewater system improvements needed to extend service throughout northeast Maize.

Garver began the project by analyzing historical SCADA and billing data for the City's water and wastewater system. We then completed pressure monitoring and flow tests at various fire hydrants to confirm water system conditions near the northeast growth area. Garver added the proposed infrastructure required to serve the study area into the City's water system hydraulic model. We also delineated basins and determined wastewater loads and peaking factors. This allowed our team to create a capital improvement plan (CIP) to serve the study area at 5-year design horizons through buildout.

> **Garver was very responsive to staff input and questions. Their final report is very detailed and very clear. And thanks to the City Council for retaining them. The value of studies like this exceeds the cost, as they are invaluable for planning engineering improvements and determining future financial needs.**
>
> Steve Anderson
> Former City of Maize *City Engineer*



Role of Firm
Prime

Key Team Members
Mark Dolechek
Eric Gasper
Evan Tromble

Project Cost
$76,570 (fee)

Agency Contact
City of Maize
Jolene Graham, Deputy City Administrator
jgraham@maizeks.gov
TEL 316.722.7561

El Dorado Sanitary Sewer Master Plan

El Dorado, KS • 2022

Planning for future industrial growth

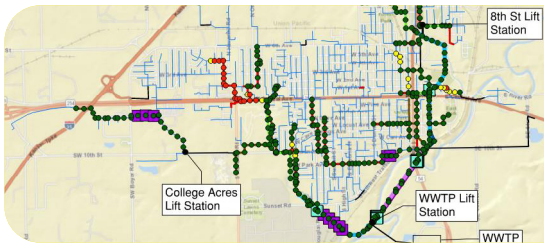
Garver developed a sanitary sewer collection model based on existing record data and City of El Dorado staff input. We calibrated the model for dry and wet weather flows following a 60-day monitoring period that included rainfall monitoring in addition to flow monitoring at 14 locations throughout the system.

Using the calibrated model, our team identified improvements to both I&I issues within the existing system, as well as accommodate future industrial growth.

Garver also conducted a draw down test of a large lift station as part of the model development to verify flow rates at the lift station. During this, we discovered some inefficiencies with set points and helped the city make their lift station operate more efficiently.

Ultimately, we developed a list of capital improvement projects to address anticipated industrial growth and existing system deficiencies.

The projects considered identified project drivers, including capacity, operations, maintenance, condition, and regulatory needs, as well as a schedule and cost estimates for construction and professional services.



Role of Firm
Prime

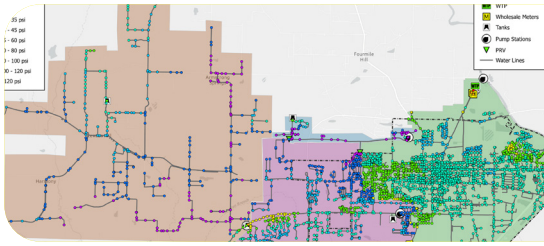
Key Team Members
Mark Dolechek
Eric Gasper
Evan Tromble

Project Cost
$70,793 (fee)

Agency Contact
City of El Dorado
Scott Rickard, Engineering Director
srickard@eldoks.com
TEL 316.321.9100

Searcy Water System Master Plan Update 2022

Searcy, Arkansas • 2022



Addressing inefficiencies to serve future growth

Garver updated the 2001 Searcy Water Utilities Water Master Plan, which assessed the existing water system and extended the demand projections and capital improvements plan for the next 20 years (through 2041).

We evaluated the Water Treatment Plant (WTP) water quality data to identify existing or potential WTP system shortcomings and their impacts on treatment processes and operations. Additionally, we identified current and anticipated Safe Drinking Water Act (SDWA) regulations that may impact the water system improvements and operating strategies. Garver performed an analysis of the WTP unit processes to document the capacities and conditions based on visual inspection.

Our team developed a hydraulic model to identify existing system deficiencies based on the design and evaluation criteria. The model was expanded to include proposed pipes to serve future growth areas.

After the data was gathered, Garver identified data gaps and proposed assumptions for the master plan. Ultimately, the master plan addressed existing system deficiencies and improvements needed to serve future growth, including new pump stations, storage tanks, and transmission mains.

Role of Firm
Prime

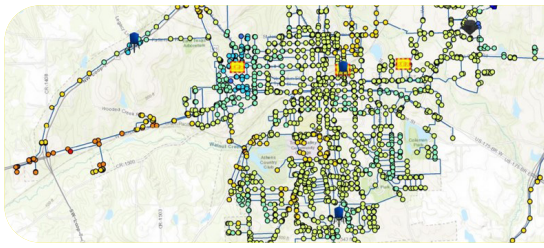
Key Team Members
Evan Tromble

Project Cost
$225,000 (fee)

Agency Contact
Searcy Water Utilities
Dan Dawson, General Manager
d.dawson@searcywater.org
TEL 501.268.1853

Athens Water Distribution Model and 20 Year Plan

Athens, TX • 2018



Providing a path forward for the next 20 years

Garver recently helped Athens address a number of issues with their water system that have provided the City a path forward, allowing them to supply quality water compliant with regulatory criteria to its citizens for the next 20 years.

To address the challenge of maintaining adequate distribution system pressures in the higher elevation portions of the system, Garver developed a system-wide hydraulic model. Garver collected pressure data using loggers, utilized the field data to reproduce existing system conditions in the model, and used the model to develop short- and long-term solutions to address pressure challenges. The "all pipes" model also studied water age, made recommendations to improve water quality, and identified operations to help with tank mixing.

The short-term solution focused on addressing the major pressure challenges in the area while maximizing use of existing distribution system infrastructure. The long-term solution took into consideration design of new infrastructure components necessary for the short-term solution to minimize the potential for stranded capital in the future.

Role of Firm
Prime

Key Team Members
Evan Tromble

Project Cost
$197,134 (fee)

Agency Contact
City of Athens
Randy Williams, Utilities Director
rwilliams@athenstx.gov
TEL 214.693.4834

Mark Dolechek, PE

Project Manager

As a leader known for his ability to innovate and think beyond conventional design, Mark serves as a responsive and dedicated source of support for our clients, one they can rely on and contact with any concerns. Having spent time working on the client side of projects, he understands the concerns municipalities face and how to mitigate them before they become an issue.

Education
BS, Civil Engineering

License
Professional Engineer, Kansas, No. 25299

Maize Northeast Growth Area Water/Wastewater Study • Maize, KS
Project leader responsible for general project oversight in determining important system improvements needed to extend water and sewer service throughout the Northeast Growth Area for the City of Maize. Garver began the project by analyzing historical SCADA and billing data for the City's water and wastewater system. The City's water system hydraulic model was then updated and calibrated. Population and growth projections were analyzed and with that future demand the proposed infrastructure was added to the model and sized to serve the study area.

El Dorado Sanitary Sewer Master Plan • El Dorado, KS
Project manager responsible for developing a sanitary sewer master plan that targeted existing and future interceptor capacity to serve future industrial areas. Responsibilities included developing a sanitary sewer model and collecting rain data and flow data to calibrate the model.

Eric Gasper, PE, CFM

Project Engineer

Eric knows that while a design may work on paper, it needs to have practical applications to work effectively, so working collaboratively with operators is essential to project success. He also creates effective designs to improve conveyance and collection infrastructure to support community growth, using detailed models to identify the most cost-effective solutions for pipelines.

Education
MS, Civil Engineering

BS, Civil Engineering

License
Professional Engineer, Kansas, No. 27559

El Dorado Sanitary Sewer Master Plan • El Dorado, KS
Project engineer responsible for identifying current and future needs to serve future industrial areas with sanitary sewer service. Responsibilities included coordinating efforts to collect rainfall and existing system sanitary sewer flow data in support of hydraulic model development and calibration. Also responsible for developing alignments and cost estimates.

Maize Northeast Growth Area Water/Wastewater Study • Maize, KS
Project engineer responsible for identifying current and future needs for the NE growth area of Maize. Based on growth projections, updated the City's hydraulic model to identify what projects were necessary to maintain reliable water service to the targeted area. Similarly, identified what improvements were needed in the sanitary sewer collection system and combined and prioritized these projects.

Evan Tromble, PhD, PE

Hydraulic Modeling

An expert in modeling and master planning for water distribution, sewer collection, and conveyance projects, Evan is Garver's hydraulic modeling practice leader with experience in planning, conceptual design, pump optimization, and detailed hydraulic evaluations for finished water storage and pumping.

Education
PhD, Civil Engineering - Water Resources

BS, Civil Engineering

License
Professional Engineer, Kansas, No. 28371

Evan's Experience

BY THE NUMBERS

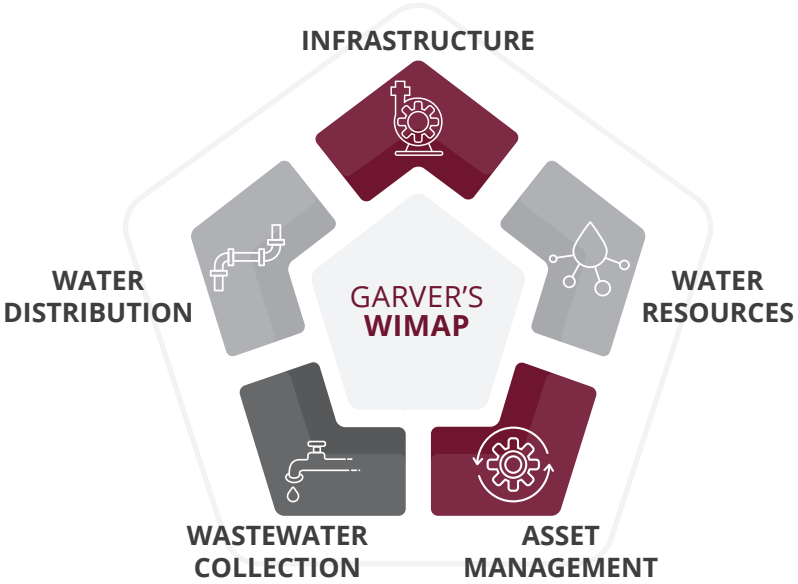
27 Master Plans Completed

40+ Models Completed

773K LF of Pipeline

Athens Water Distribution Model • Athens, TX
Technical lead and lead hydraulic modeler for this project, which included population and demand projections, development and calibration of a distribution system hydraulic model, assessment of the capacities of major infrastructure components against regulatory criteria, application of the hydraulic model to evaluate the system over the 20-year planning horizon for the project, and development of a capital plan to address system challenges identified during the evaluations.

Celina Water and Wastewater System Modeling • Celina, TX
Technical lead and lead hydraulic modeler for this master plan for the City of Celina's water distribution and wastewater collection systems. Garver developed the ultimate build-out solution to identify the finished water storage, conveyance, and distribution requirements and the wastewater lift station and interceptor capacity requirements for a build out population of approximately 350,000.



Evan has spent 18 years specializing in hydraulic modeling and master planning. As Garver's Water Infrastructure - Modeling, Analytics, and Planning (WIMAP) leader, he oversees modeling efforts and keeps staff up to date on software and applications.

City of Bel Aire, Kansas

Request for Proposal

Water Distribution System Master Plan and Sanitary Sewer Collection System Master Plan

Friday, August 26, 2022 | 12:00 PM

Submitted to:

City of Bel Aire, Kansas
Attn: Anne Stephens, PE, City Manager
astephens@belaireks.gov
7651 E. Central Park Ave.
Bel Aire, KS 67226

Prepared by:

Burns & McDonnell
Brian Meier, Project Manager
bmeier@burnsmcd.com
9400 Ward Parkway
Kansas City, Missouri 64114

1 Letter Agreement

August 26, 2022

Anne Stephens, PE | City Engineer
City of Bel Aire
7651 E. Central Park Ave.
Bel Aire, KS 67226

RE: Request for Proposal: Water Distribution System Master Plan and Sanitary Sewer Collection System Master Plan

Dear Ms. Stephens and Selection Committee,

The City of Bel Aire is well positioned for significant growth and economic development. As such, a thoughtful, data-driven water and sanitary sewer collection system plan will be needed to help guide infrastructure decisions as the needs of your community change and expand over time with new commercial and population growth.

Burns & McDonnell is the right partner to help you develop a prioritized investment schedule that aligns with your available funds. We will deliver a water and sanitary sewer collection system master plan that prioritize projects to address aging infrastructure, capacity deficiencies, growth, and operational limitations. These include integrating currently unserved areas, managing collection and distribution system bottlenecks, and replacing or updating aging or failing infrastructure. **As a team, we offer several advantages that will help us deliver a master plan to position the City for success:**

Aligning with the **City of Bel Aire's Goals**

Goals | Develop water and wastewater master plans that will provide recommendations for your prioritized and defensible 10-year CIP and budget

Value/Benefit | Ability to make data-driven decisions with confidence and allocate funds to the right projects at the right time and in the right sequence

Challenge Areas | We will help you understand the trigger points and opportunities to increase efficiency, reduce risk, and maintain established service levels throughout your water and wastewater systems. As part of this project, we have the technical capability and local experience to identify opportunities to solve challenges, including:

- *Aging infrastructure*
- *Integration and management of new service areas*
- *Lift station hydraulic limitations and bottlenecks*
- *High inflow and infiltration (I/I)*
- *System data gaps*
- *Capacity needs to accommodate economic development opportunities*

Flexible Approach to Master Planning

The only certainty in master planning is that growth is unpredictable. Burns & McDonnell understands how to develop evaluation strategies and build a model that positions the City to prepare reliable and dependable plans for capital improvements. Our approach identifies demand triggers for hydraulic improvements, enabling the City to confidently determine if a project should be accelerated, delayed, or deleted (if growth trends move or change). The planning process is adaptable and meets short-term needs and long-term goals. We will deliver a capital improvement plan (CIP) that prioritizes your projects to meet your needs and is adaptable to change.

Experience Delivering Master Plans for Kansas Communities Similar to Yours

The City will receive a partner who understands the needs of your community — one who will make recommendations and provide alternatives that are right-sized for your population, systems, and budget. Burns & McDonnell is well-versed in working with similar-sized utilities to prioritize CIPs. Additionally, our understanding of the CCUA infrastructure and its capacity and limitations will provide a solid foundation for developing a strategic and defensible Master Plan. Making improvements requires innovation and technical expertise. Burns & McDonnell has the experience to navigate and evaluate alternatives to identify the best options for improvements or replacement within your distribution and collection systems.

Coordination with Local, Regional, and Environmental Stakeholders for Optimal Integration

Burns & McDonnell firmly understands the regional economy and the drivers that influence growth and impact utility construction and operation. This understanding will ensure that your goals and project deliverables are aligned with potential growth opportunities. As part of this effort, our team will provide support regarding state and federal funding opportunities. Our experience and relationships will help you navigate this process efficiently, producing the best possible results.

Burns & McDonnell is excited to see what's in store for the City of Bel Aire — and we're thrilled for the opportunity to be your partner as you grow. We are ready to begin work immediately on this project and commit to serving as a trusted resource. Now and in the future. If you have questions about our proposal, please don't hesitate to contact me directly at 316-554-6996 or bmeier@burnsmcd.com.

Sincerely,

Burns & McDonnell

Brian Meier
Project Manager

Value Added Approach!

We are excited about the City's desire to move forward with master planning and would welcome the opportunity to discuss our thoughts and approach that may enhance the success of your projects. **Pages 16 and 17** *contain our estimated costs to complete your master plans. These costs are based on the information that has been provided, the tasks that were outlined in the RFP, and assumptions herein. We also identified areas not outlined in the RFP that will benefit the City's redundancy and resiliency. J****ump to page 16 to read more about our value added approach!***

2 Integrated Approach

The Burns & McDonnell team, in collaboration with City staff, will build a living document and functional tool that can be used to validate currently planned capital projects, develop new capital projects for master planning efforts to support potential customers and evaluate existing conditions for operational needs. Our team includes well-rounded modelers that are also experienced design engineers and project managers that deliver practical solutions for water distribution and sanitary sewer systems.

General Project Plan

Although each project is unique in execution, our team has developed a repeatable and highly successful set of project management, quality assurance and communication practices that allow our team to be fully focused on the City's project objectives, while maintaining project scopes, schedules and budgets.

Combined Project Approach

To provide the cohesive approach and consistent deliverables across both Master Plans, the establishment of a framework to define regulatory compliance schedules that better match the City's financial capability is required. Any capital planning process must include a forecast of regulatory driven needs and a financial strategy to meet those needs on a reasonable schedule. As an example, Burns & McDonnell assisted the City of Lawrence in completing the first integrated water and wastewater plan in EPA Region 7. The plan resulted in a CIP that was driven by the City's ability to fund capital projects rather than arbitrary regulatory deadlines. The cornerstone of our approach is doing the right project and, just as importantly, doing it at the right time.

Our integrated project approach is illustrated in the workflow below (**Figure 1**) and demonstrates how this will result in a successful project for the City. As a unified project team, Burns & McDonnell will execute the Water and sanitary sewer collection system Master Plans with distinctly qualified teams to maintain schedule, combine project tasks for meetings, workshops, training and field testing and deliver a single CIP and report.

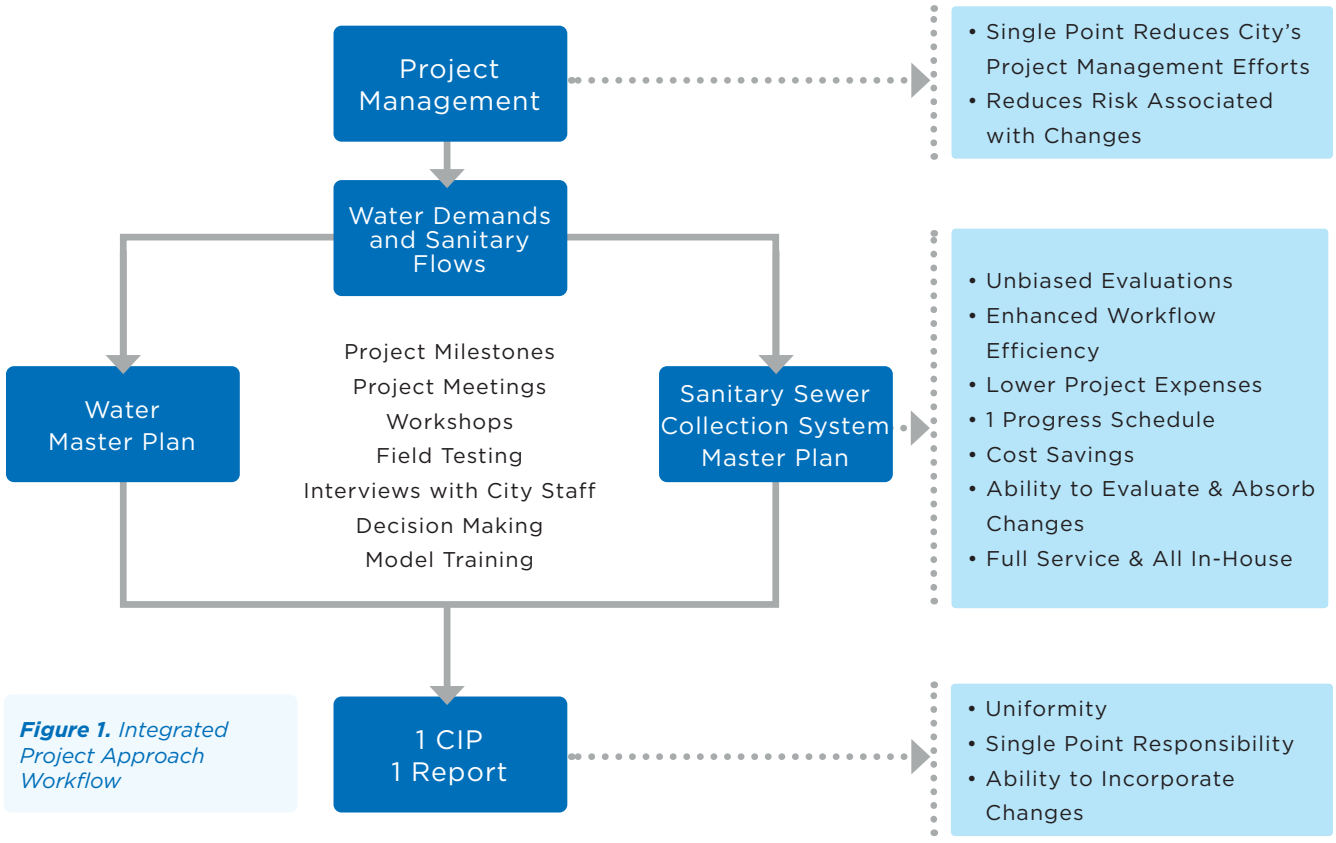


Figure 1. *Integrated Project Approach Workflow*

3 How We Can Help

Established in 1898, our firm was awarded its first project in Iola, Kansas: a combined water and light plant. More than a century later, we remain committed to solving water and wastewater challenges, providing creative solutions to treat and preserve our most vital resource. Whether it's treating wastewater, nutrient removal, wastewater collection, drought contingency or diversifying water resources, we assess your resources and develop a tailored plan to meet your immediate needs and keep your region hydrated into the future.

Firm Water and Wastewater Experience

The engineering and planning needs of the City are unique and specific to your water and wastewater systems. Burns & McDonnell takes a partnership approach to master planning project execution and while we will leverage our historical experience with similar projects (**Figure 2**), we understand that the City will require a unique solution and plan. To provide both a water master plan and a wastewater master plan that are separately comprehensive and technically complete, but cohesive in their approach, you need a team that has a proven track record doing these projects across the region.

Our master planning experience, systems design, field data collection, computer modeling, regulatory analysis and GIS experience uniquely positions the Burns & McDonnell team to develop the City's Water and sanitary sewer collection system Master Plan. From our conversations, we understand this "integrated" plan needs to serve as a detailed road map for capital improvements projects, as well as a very powerful tool for management of the utilities' infrastructure.

Our team has completed over 80 master plans throughout the country in the past 20 years. Our experience gained on those projects is directly transferable to the City because we can leverage this experience and learned best practices to develop innovative and cost-effective ideas that are grounded in experience, leading to more efficient implementation.

Local Master Planning Professionals

Burns & McDonnell is a 100% employee-owned firm with more than 8,430 employees, contractors and interns. Our water and governmental planning team includes 168 personnel including planners, designers, process engineers and cost estimators within a few hours to the City of Bel Aire.

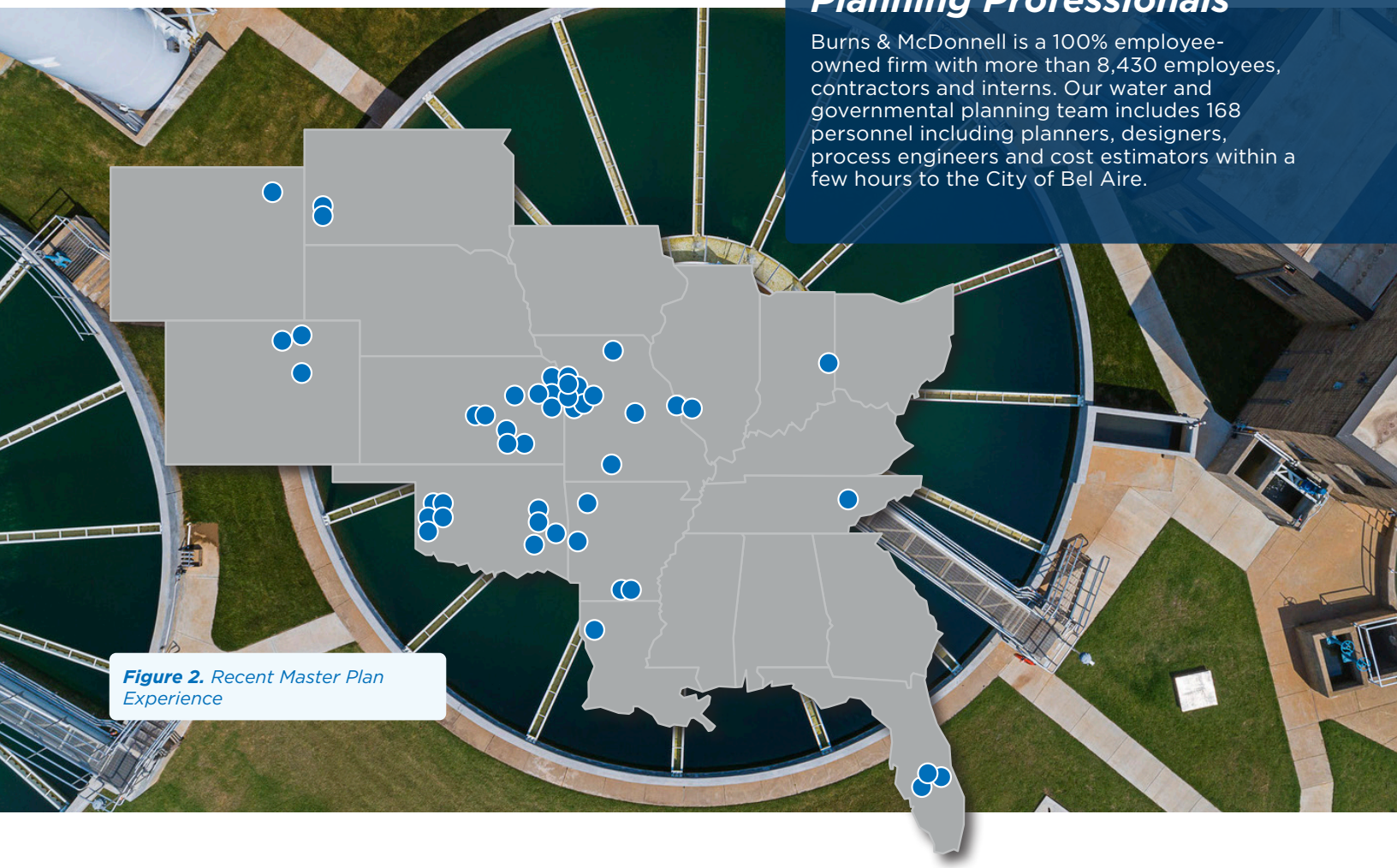


Figure 2. *Recent Master Plan Experience*

4 Project Team Qualifications

The City of Bel Aire can count on Project Manager Brian Meier to serve as single point of contact and coordinator. He will make sure our team's deliverables align with the City's goals and expectations, as well as those of regional stakeholders and regulatory agencies.

Composition of Team

We organized our project team to provide streamlined and efficient project execution. Our project manager, Brian Meier, will be the direct line of communication, attend monthly progress meetings and allocate resources to meet your scope, schedule and budget goals. Ryan Scott and Cliff Cate will lead the water and sanitary sewer collection system analysis, respectively and will work collaboratively with each other, their supporting staff and the City to provide your Water and Sanitary Sewer Collection System Master Plan. We bring relevant master planning experience including working with communities to develop plans that properly project growth and identifies capital projects to meet those needs.

Brian will serve as the direct line of communication to the City. He'll also be responsible for coordinating efforts with impacted stakeholders, organizations and agencies including KDHE.

Organizational Chart

City of Bel Aire, KS
Anne Stephens, City Manager

Project Manager
Brian Meier

Water Master Plan
Ryan Scott, PE

Sanitary Sewer Collection System Master Plan
Cliff Cate, PE

VALUE ADDED

In the past seven years, our proposed project team has worked together on master plan projects across the Midwest. This experience includes the City of Wichita, Derby, Iola, and Edgerton, Kansas. We understand each others strengths, compliment each others efforts and provide Bel Aire with a cohesive, efficient approach to your projects.

Hydraulic Modeling
Alicia Chase, PE

Grants and Funding Solutions
Tracy Streeter

Project Manager
Brian Meier

Brian has been serving municipal and industrial clients for more than 35 years. He is responsible for working with clients to find the best and most economical solutions to meet his clients' needs. Brian has experience in regulatory compliance, primarily relating to public water supply. This experience includes Water Right administration and management. Brian's responsibilities have also included quality control and assurance. He has been tasked with ensuring that projects are completed on schedule, within budget and in adherence with the highest quality standards possible.

BIOGRAPHY

Years of Experience
35

Education
BS, Industrial Engineering

Brian has spent the vast majority of his career working with Municipal Utilities in Kansas. His primary focus has been to ensure that project goals and defined outcomes are meet or exceeded while completing the projects on time and within budget.

RELEVANT EXPERIENCE

Water and Wastewater Master Plan | City of Iola, Kansas
Technical Advisor. In addition to treating and delivering water to 5,000 plus residents, The City of Iola is also a wholesale water service provider to the City of Gas, RWD8 and RWD 3. In an effort to assess the capacity of the water system, develop capital improvements and prioritize the existing water main replacement program, the City solicited our expertise in preparing their 2019 Water Master Plan. This project included water model construction, field testing for model calibration, evaluation of historical demands and water usage to evaluate planning level demand conditions, hydraulic analysis of the existing system, regulatory review of current standards, regulatory outlook of anticipated standards applicable to the City, evaluation and prioritization of the City's water main replacement program and capital improvements planning.

Wastewater Facility Plan | City of Hutchinson, Kansas
Technical Advisor. The City of Hutchinson's plant currently treats an average flow of approximately 5.0 MGD and is permitted for 8.3 MGD. Many of the wastewater treatment facility components are more the 50 years old and are reaching the end of their life expectancy putting plant operations at risk. Burns & McDonnell performed a facility planning study. The work included a condition assessment for key pieces of the City WWTF. A regulatory evaluation was also made to assess potential risks to plant operations from pending or projected regulatory requirements. Using this information, our team developed alternatives and performed a capital and operational cost analysis.

Water and Wastewater Master Plan | City of Wichita, Kansas
Management Support and Review. Brian was responsible for the coordination of all Burn & McDonnell activities including adherence to schedule and budget. Brian was also responsible for reviewing and evaluating recommended improvements to aid in the risk management process. Burns & McDonnell assisted the City of Wichita's Public Works & Utilities Department in developing an Integrated Water and Wastewater Master Plan to prepare for projected changes in Wichita's population, problems caused by aging infrastructure and treatment challenges posed by stricter regulatory nutrient removal requirements anticipated through the year 2045. For the Sanitary Sewer Master Plan, we developed CIPs for performance, growth and regulatory-driven improvements at each of the five wastewater treatment plants, lift stations and collection system.

Water Supply Development | City of Clinton, Oklahoma
Technical Advisor. Burns & McDonnell led a program focused on expanding the Water Supply Portfolio for the City of Clinton, Oklahoma to include groundwater resources and improve drought resiliency. The program included the planning, permitting, design and construction phase services associated with the development of two new wellfield areas, 12 miles of new water transmission line, 3 miles of water line rehabilitation, a new RO water treatment plant and a deep disposal well. The project also included conceptual planning for wastewater reuse alternatives. Brian's responsibilities included budget and schedule management and reporting to City staff and elected officials and stakeholders via public presentations and individual meetings.

New Water Source Development | City of McPherson, Kansas
Technical Advisor. Burns & McDonnell provided planning and evaluation for the development of an alternate water supply source for the McPherson BPU. Due to declining water levels within the existing well field, BPU required a supplemental source of supply in order to reduce the use of existing groundwater resources to sustainable levels. Sources evaluated included both surface water and groundwater. The development of a new well field was selected for additional evaluation. The project includes preliminary design of the well field, approximately 20 miles of raw water pipeline and a new water treatment facility. Groundwater modeling and new water right applications were also included.

Water Master Plan
Ryan Scott, PE

Ryan is responsible for the project management and design of municipal projects dealing with distribution and analysis of surface water and groundwater systems, raw water distribution and hydraulic analysis multiple software platforms for pressurized pipe systems, water master planning, pump station design and hydraulic components for distribution system storage for design. Ryan has served as project manager and lead engineer for water master plans with municipalities throughout the Midwest, ranging with population and customer sizes less than 5,000 to over 400,000.

BIOGRAPHY

Years of Experience
18

Education
BS, Civil Engineering

License/Certifications
Professional Engineer

Ryan's recent experience with municipalities of similar size and water demand as Bel Aire will help deliver a defendable CIP based on a calibrated hydraulic model, engineering judgment and collaboration with City staff.

RELEVANT EXPERIENCE

Water and Wastewater Master Plan | City of Iola, Kansas
Project Manager. In addition to treating and delivering water to 5,000 plus residents, the City of Iola is also a wholesale water service provider to the City of Gas, RWD8 and RWD 3. In an effort to assess the capacity of the water system, develop capital improvements and prioritize the existing water main replacement program, the City solicited our expertise in preparing their 2019 Water Master Plan. This project included water model construction, field testing for model calibration, evaluation of historical demands and water usage to evaluate planning level demand conditions, hydraulic analysis of the existing system, regulatory review of current standards, regulatory outlook of anticipated standards applicable to the City, evaluation and prioritization of the City's water main replacement program and capital improvements planning.

Lebanon Water System Hydraulic Model and Master Plan | City of Lebanon, Missouri
Project Manager. Ryan's primary responsibilities included project management, model construction and development from the City's water system GIS, field testing for model calibration, hydraulic analysis and recommendations and development of the capital improvements plan for immediate needs for 5-year and 15-year planning periods for a marginal growth pattern consistent with historical 10-year trending. The existing system and future planning periods are evaluated under maximum day, minimum hour, peak hour and maximum day plus fire flow demand conditions in the hydraulic model to determine the high service pumping, transmission, storage and future growth needs. Water demand projections were also evaluated with the model to develop capital improvements as the City's water service area expands peripherally to City limits. An extended period simulation of the existing system under average day and maximum day demands was also prepared to evaluate water age in the system.

Water Master Plan | City of Liberty, Missouri
Project Manager. Ryan led the preparation of the water master plan. His primary responsibilities included project management, field testing for model verification and calibration, hydraulic analysis and recommendations and development of the capital improvements plan for immediate needs and the 2015 and 2025 planning periods. The existing system, 2015 and 2025 planning periods were evaluated for maximum day, minimum hour, peak hour and maximum day plus fire flow demand conditions in the hydraulic model to determine the high service pumping, transmission, storage and future growth needs.

Water Master Plan | City of Wichita, Kansas
Project Manager/Lead Hydraulic Modeler. Ryan's primary responsibilities included project management hydraulic modeling, system calibration and development of the capital improvements plan. The capital improvements were evaluated to accommodate future maximum day and peak hour demands of 175.0 MGD and 290.0 MGD respectively as they relate to pumping, storage and transmission. The improvements are prioritized and phased in for the City's 2005, 2010 and 2025 planning horizons.

Water Master Plan | City of O'Fallon, Illinois
Project Manager. Ryan's primary responsibilities included field testing for model calibration, hydraulic modeling, final master plan report and development of the capital improvements plan. Site-specific hydraulic analyses were conducted to determine impacts of new large water users on the existing system.

Sanitary Sewer Collection System Master Plan

Cliff Cate, PE

Cliff serves as the director of water/wastewater systems for Burns & McDonnell. He has led projects that developed master plans and several I/I assessment and reduction programs. His experience includes evaluating the condition, operation and maintenance of sanitary sewers and analyzing their existing and future capacity, as well as designing sewer extensions, interceptors, pump stations and rehabilitation projects. Cliff is instrumental in leading water/wastewater programs, master plans, evaluation studies and rehabilitation projects. He will provide the oversight and resources necessary to complete your projects on time and under budget.

BIOGRAPHY

Years of Experience
26

Education
MS, Engineering Management

BS, Civil Engineering

License/Certifications
Professional Engineer

Cliff's experience in the regulatory environment offers a deep knowledge base that helps clients understand the regulations, how to implement programs, track data and meet reporting requirements.

RELEVANT EXPERIENCE

Water and Wastewater Master Plan | City of Iola, Kansas
Project Director. In addition to treating and delivering water to 5,000 plus residents, the City of Iola is also a wholesale water service provider to the City of Gas, RWD8 and RWD 3. In an effort to assess the capacity of the water system, develop capital improvements and prioritize the existing water main replacement program, the City solicited our expertise in preparing their 2019 Water Master Plan. This project included water model construction, field testing for model calibration, evaluation of historical demands and water usage to evaluate planning level demand conditions, hydraulic analysis of the existing system, regulatory review of current standards, regulatory outlook of anticipated standards applicable to the City, evaluation and prioritization of the City's water main replacement program and capital improvements planning.

Wastewater Master Plan | City of Edgerton, Kansas
Project Director. Burns & McDonnell was engaged to identify and prioritize areas of concern, capital projects, operational costs in a comprehensive City-wide wastewater master plan. This master plan will serve as a guide for the City to properly plan, budget and maintain a sustainable wastewater management system.

Integrated Wastewater Master Plan | City of Wichita, Kansas
Project Director. Cliff assisted with the development of the sanitary sewer master plan that included hydraulic model, dry and wet weather flow analysis, model calibration and verification using the InfoWorks hydraulic model software. The team prepared synoptic typical year rainfall distributions, CIPs, hydraulic model quality control and quality assurance, workload projections, work task assignments and budget and schedule oversight. CIPs included trigger point-based implementation schedules and 30-year budgetary phasing. Applied Asset Management concepts of Business Risk Exposure (BRE), asset replacement costings and LOS definition so that the Master Plan could be integrated with the City's Asset Management Plan.

Sanitary Sewer Master Plan | City of Blue Springs, Missouri
Project Principal. Cliff was responsible for leading the project team as they assisted in providing flow and rainfall monitoring services, performed flow analysis, developed the hydraulic model and performed model calibration and verification to the City of Blue Springs. Burns & McDonnell performed an existing conditions analysis to identify issues related to I/I and capacity. As a separate contract, Burns & McDonnell will provide on-call modeling services to the City.

Wastewater Master Plan | City of Enid, Oklahoma
Project Director. Burns & McDonnell developed the City's obsolete EPA-SWMM hydraulic model into a new state-of-the-art InfoWorks ICM hydraulic model to schedule sewer system improvements in the form of relief and/ or replacement sewers and sewer rehabilitation for structural integrity and/or I/I reduction purposes. The City's hydraulic model is maintained by Burns & McDonnell on an on-call, as needed basis.

Water Master Plan | City of Republic, Missouri
Project Director. The City of Republic required a plan to address short-term needs and meet long-term goals based on water demand projections and future growth planning. The 2019 water master plan includes the development and calibration of a hydraulic model of the water distribution system, an evaluation of system hydraulics for current and projected demand conditions and a list of capital improvements projects with associated opinions of probable cost. Current and future scenarios are evaluated under a range of water demand conditions, including five-year and 20-year planning periods, to provide a capital improvements plan for the distribution system.

Hydraulic Modeling
Alicia Chase, PE

Alicia brings more than 16 years of experience in hydrologic and hydraulic modeling. She has worked on both combined and separated sewer system models in a variety of software depending on the needs of the client. Alicia is a registered professional engineer and is currently a project engineer for a project that requires extensive modeling of existing and proposed conditions. Alicia works hard to provide clients with results critical to the current and future operations of their systems.

BIOGRAPHY

Years of Experience
16

Education
BS, Chemical Engineering

License/Certifications
Professional Engineer

Alicia is focused on trigger point-based implementation of CIPs, which will give the City the flexibility to build the right project, in the right place, at the right time.

RELEVANT EXPERIENCE

Water and Wastewater Master Plan | City of Iola, Kansas
Collection System Engineer. As an engineer for the project, Alicia provided technical oversight and engineering for the development of the sanitary sewer hydraulic model, dry and wet weather flow analysis, model calibration and verification using the InfoWorks hydraulic model software. She was responsible for preparation of CIPs to meet LOS requirements.

Wastewater Master Plan | City of Edgerton, Kansas
Project Engineer. Burns & McDonnell was engaged to identify and prioritize areas of concern, capital projects, operational costs in a comprehensive City-wide wastewater master plan. This master plan will serve as a guide for the City to properly plan, budget and maintain a sustainable wastewater management system.

Integrated Water and Sanitary Sewer Master Plan | City of Wichita, Kansas
Project Engineer. Burns & McDonnell assisted the City of Wichita's Public Works & Utilities Department in developing an Integrated Water and Wastewater Master Plan to prepare for projected changes in Wichita's population, problems caused by aging infrastructure and treatment challenges posed by stricter regulatory nutrient removal requirements anticipated through the year 2045. Alicia assisted with the development of the sanitary sewer hydraulic model, dry and wet weather flow analysis, model calibration and verification using the InfoWorks hydraulic model software. The project prepared synoptic typical year rainfall distributions, CIPs, hydraulic model quality control and quality assurance, workload projections, work task assignments and budget and schedule oversight. CIPs included trigger point-based implementation schedules and 30-year budgetary phasing.

Wastewater System Master Plan | City of Kansas City, Missouri
Project Engineer. This was a program management effort to study, analyze, design and construct new basin overflow systems for the city of Kansas City, Missouri. This is a 25-year, $2 billion dollar effort. Alicia provided technical oversight and engineering. She assisted with the development of the sanitary sewer hydraulic model, dry and wet weather flow analysis, model calibration and verification using the XP-SWMM and InfoWorks hydraulic model software. She prepared capital improvement projects to meet 2035 projections and coordinate consent decree requirements.

Derby WWTP Master Plan | City of Derby, Kansas
Collection System Engineer. Alicia provided engineering for the development of the sanitary sewer hydraulic model, dry and wet weather flow analysis, model calibration and verification using the InfoWorks hydraulic model software. Responsible for preparing existing conditions analysis, hydraulic model quality control and quality assurance, workload projections, work task assignments and budget and schedule oversight.

KC Water Comprehensive Wastewater Master Plan | Kansas City, Missouri
Collection System Engineer. As a Project Engineer for the project, Alicia provided technical oversight and engineering for the development of the sanitary sewer hydraulic model, dry and wet weather flow analysis, model calibration and verification using the XP-SWMM and InfoWorks hydraulic model software. She was responsible for preparation of capital improvement projects to meet 2035 projections and coordinate consent decree requirements. Burns & McDonnell is developing a Comprehensive Wastewater Master Plan to allow for long-term planning of capital and operating needs for 2,800 miles of collection system, 50 pumping stations and six treatment facilities through a planning horizon of 2035. The Plan covers a broad range of topics that touch nearly every aspect of WSDs facilities and operations activities.

Grants & Funding Solutions
Tracy Streeter

Tracy has more than 35 years of experience in the consulting industry. Prior to joining Burns & McDonnell, Tracy served as a director for over 14 years where his primary responsibility was aiding in the development and implementation of the Kansas Water Plan. He has also collaborated on various water projects throughout the state of Kansas and understands the water industry. In addition, Tracy has served on the board of directors for the Western States Water Council, Missouri River Association of State and Tribes and the National Association of State Conservation Agencies. He also chaired the Governor's Drought Response Team and the state's Geographic Information Systems Policy Board.

BIOGRAPHY

Years of Experience
35

Education
MS, Public Administration

BS, Agriculture Economics

Tracy is familiar with the City's municipal water rights and the Operations Agreement for the MDC PUA District No. 2, of which Bel Aire is a member. As part of the master planning effort, he is equipped to assess the City's water sources and provide advice and support on state and federal funding opportunities.

RELEVANT EXPERIENCE

Northwest Water Treatment Facility | City of Wichita, Kansas
Regulatory Compliance Support. The City of Wichita currently operates the Main Water Treatment Facility (MWTF), a surface water, softening facility rated for 160.0 MGD. With a plant more than 60 years old and without necessary redundancies, the City has long recognized a risk with serving its more than 550,000 customer-base from one facility. To provide redundancy to the City of Wichita's customers, Burns & McDonnell is designing and building the new Northwest Wichita Water Facility (NWWF) to provide an additional 120.0 MGD of treatment. Tracy's responsibilities involved coordinating various regulatory aspects for the project including securing an Action Permit through the Kansas Department of Wildlife Parks & Tourism for the protection of state-listed threatened and endangered species. He also managed the development of a habitat mitigation project and conservation easement required as a condition of the KDWPT action permit.

American Royal New Campus | American Royal Association Inc. | Kansas City, Kansas
Project Coordination Liaison. Burns & McDonnell completed a wetland delineation and permitting for the project. With impacts to ephemeral streams and adjacent wetlands, an individual permit application was put together and submitted to the US Army Corps of Engineers (USACE). When the Navigable Waters Protection Rule went into effect, a request for re-evaluation of jurisdictional status was submitted. An approved jurisdictional determination and "no permit required" letter was received. Burns & McDonnell also completed a cultural resources investigation and report for the project. Tracy served in a coordination role with the American Royal and Burns & McDonnell's Environmental Services to secure the necessary permits required by the USACE and KDHE under the Clean Water Act, Section 404 and NPDES.

McPherson BPU New Water Source Development | McPherson Board of Public Utilities
Finance and Funding. Burns & McDonnell provided planning and evaluation for the development of an alternate water supply source for the McPherson BPU. Due to declining water levels within the existing well field, BPU required a supplemental source of supply in order to reduce the use of existing groundwater resources to sustainable levels. Sources evaluated included both surface water and groundwater. The development of a new well field was selected for additional evaluation. The project includes preliminary design of the well field, approximately 20 miles of raw water pipeline and a new water treatment facility. Groundwater modeling and new water right applications were also included. Tracy assisted in the coordination and financial aspects on the McPherson BPU South Wellfield project. He evaluated financing and state and federal funding opportunities.

Wastewater Treatment Plant | Arkansas City, Kansas
Finance and Funding. Burns & McDonnell entered into a Phase I Preliminary Design-Build Agreement with the city of Arkansas City to conduct a facility plan for improvements to their wastewater treatment plant, conceptual design, investigation of potential funding opportunities and development of a rate impact model. Tracy has engaged the city in discussions regarding SRF, principal forgiveness and Water Infrastructure Finance and Innovations Act (WIFIA) opportunities. He is also monitoring the recently announced Infrastructure Initiative by President Biden and infrastructure initiatives being deliberated by the United States Congress.

5 Work Samples and References

In choosing Burns & McDonnell, the City of Bel Aire will receive a true partner – one your staff has worked with to deliver master plans before and one who will be by your side as projects within your 10-year CIP move forward. This continuity will be no ramp up time and recommendations that can save you initial implementation costs and long-term maintenance and operational costs.

REFERENCES

Nearly 85% of our business comes from long-term, repeat clients. We encourage you to contact the references below and ask about our performance on the projects included in this section.

Water and Wastewater Master Plan
City of Iola, Kansas
Corey Schinstock, Assistant City Administrator
620-365-4908
corey.schinstock@cityofiola.com

Water System Hydraulic Model and Master Plan
City of Lebanon, Missouri
Eric Mork, Environmental Superintendent
417-991-3950
emork@lebanonmo.org

Wastewater Master Plan
City of Edgerton, Kansas
Dan Merkh, Utilities/Public Works Director
913-893-6231
dmerkh@edgertonks.org

Water and Wastewater Master Plan

Iola, Kansas

The City of Iola has a population of about 5,300 which is served by 45 miles of sewers ranging in size from 6-inches to 36-inches diameter and six pump stations. Additionally, the City is a wholesale water service provider to the City of Gas, RWD8 and RWD 3. Burns & McDonnell was contracted to assess the capacity of the City's water and wastewater systems, develop capital improvements and prioritize existing programs.

Water Master Plan

This project included water model construction, field testing for model calibration, evaluation of historical demands and water usage to evaluate planning level demand conditions, hydraulic analysis of the existing system, regulatory review of existing and anticipated water quality standards applicable to the City, prioritizing the City's current water main replacement program and capital improvements planning.

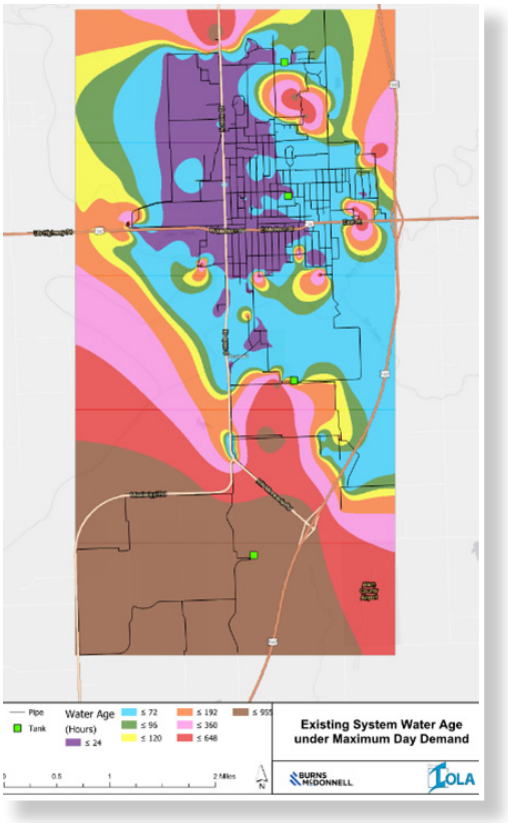
The hydraulic model was built using a combination of data and information from the City's water system GIS and CADD files. Field testing activities was performed for model calibration and included fire hydrant tests and pressure monitoring in the distribution system via data loggers. Hydraulic analyses are conducted with the model to evaluate system hydraulics with respect to high service pumping, storage, water age and distribution water main network and capital improvements.

The hydraulic model was used to evaluate existing distribution system components for a maximum day demand of 2.0-MGD, a peak hour demand of 3.4-MGD and minimum hour demand of 0.8-MGD. An EPS was also developed in the model to evaluate water age in the existing distribution system under maximum and average day demands. The modeling efforts were conducted to assess the pumping, storage, pressure, fire flow and water age standing of the existing distribution system and identify capital improvements in each of these areas including redundancy and reliability water main improvements. The capital improvements are prioritized and include implementation triggers and opinions of probable cost in today's dollars.

Wastewater Master Plan

Burns & McDonnell developed a new InfoWorks ICM hydraulic model to evaluate system capacity and schedule improvements, including relief sewers, pump station consolidation and I/I reduction. Our team reviewed the City's existing sewer records and incorporated survey data into the hydraulic model. Five flow meters and two rainfall gauges were installed and maintained by our in-house field services team, allowing flexible installation of flow monitoring equipment, data collection and equipment removal for the City.

We evaluated areas of high I/I and sewer capacity restrictions to produce a prioritized sewer improvement and rehabilitation schedule. The I/I prioritization was derived from a cost-effective analysis and the hydraulic model results. We worked with the City to coordinate capital improvement projects with known improvements to pump station conditions. This provided the City with one source for capital improvement planning.



PROJECT INFORMATION

Client & Reference

City of Iola
P.O. Box 308
Iola, Kansas 66749
Corey Schinstock
Assistant City Administrator
620-365-4908
corey.schinstock@cityofiola.com

Key Dates

Start | August 2018
End | October 2019

Project Team

- Brian Meier
- Cliff Cate
- Ryan Scott
- Alicia Chase

Relevant Services

- Hydraulic Modeling
- Water Supply Planning
- Master Planning
- Extended Period Simulation
- Storage Analysis
- Water Age Analysis
- Fire Flow analysis
- Model Calibration
- Field Testing
- CIP Planning

Water System Hydraulic Model and Master Plan

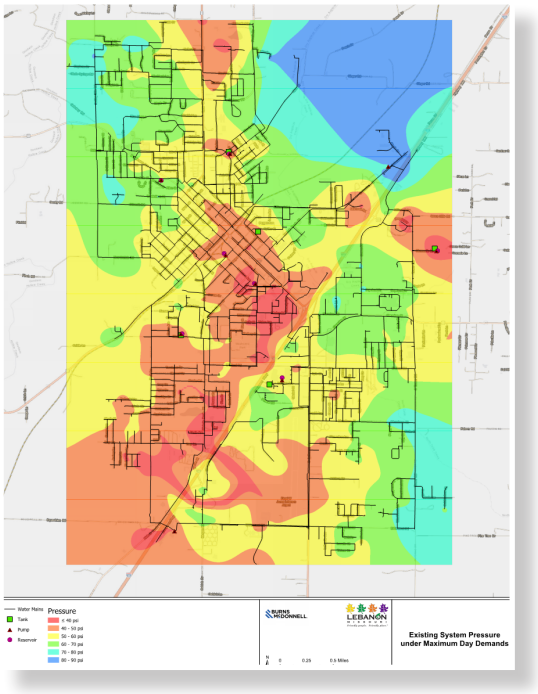
Lebanon, Missouri

The 2019 Water Master Plan includes a hydraulic model, field testing for model calibration, hydraulic evaluation for current and future conditions and a summary of CIPs with associated opinions of probable cost. The master plan includes the hydraulic evaluation of the existing system, five-year planning period and 20-year planning period under maximum day demands of 4.44 MGD, 4.62 MGD and 5.32 MGD, respectively.

Burns and McDonnell conducted a meter-based water demand projection because it considers historical customer class data. Our approach projects meters by customer class which, in lieu of a population-based projection, appropriately weights the permanent residents and its large transient daytime workforce population. Removing the inherent inconsistencies associated with a population-based demand projection for Lebanon fosters greater attention to the end goal of this project which is reliable water master planning uniquely tailored Lebanon's water demand profile. The demand projections also play a pivotal role in the storage analysis because the daytime workforce population heavily influences the equalization storage requirement for the distribution system. Equalization storage is considered the water demand in excess of the 24-hour average daily demand.

Our team evaluated the capacity of the existing wells to assess current well performance, compare current and historical well performance and estimate maximum well yield. The timing of a supply deficiency and the need and timing of new supply sources is identified based on the 20-year water demand projections. City SCADA information from the water distribution system and field test data from 29 fire hydrant tests and data logger deployments for pressure recording are used for model calibration. The current water system geodatabase was collected and reviewed by GIS specialists to develop the model and allocate current customer consumption and elevation data.

Future demands are allocated to the water service area based on the demand projections, growth areas and growth schedule for each area based on input from City staff. The five-year and 20-year planning periods are evaluated to determine the necessary improvements to deliver the water demand projections and fire flow requirements. Recommended improvements and their associated opinion of probable cost are developed for each planning period with prioritization.



PROJECT INFORMATION

Client & Reference
City of Lebanon
1401 W. Commercial St
Lebanon, Missouri 65536
Eric Mork
Environmental
Superintendent
417-991-3950
emork@laebanonmo.org

Key Dates
Start | August 2018
End | October 2019

Project Team
- Ryan Scott
- Cliff Cate

Relevant Services
- Hydraulic Modeling
- Water Supply Planning
- Master Planning
- Extended Period Simulation
- Storage Analysis
- Water Age Analysis
- Fire Flow analysis
- Model Calibration
- Field Testing
- CIP Planning

Wastewater Master Plan

Edgerton, Kansas

Since 2013, the City of Edgerton, with a population of nearly 1,700 residents, has been experiencing unprecedented growth at the Logistics Park of Kansas City as well as surrounding areas. Businesses continue to move into the area and rapid residential growth could present itself at any time. With these changes, the City is also experiencing growth and residential development in the area. With these exciting additions, the City took steps to assess and evaluate its collection system and Big Bull Creek WWTF's capability to take on these customers.

Burns & McDonnell was engaged to identify and prioritize areas of concern, capital projects, operational costs in a comprehensive City-wide wastewater master plan. This master plan will serve as a guide for the City to properly plan, budget and maintain a sustainable wastewater management system.

Using the data gathered from the Johnson County's AIMs database, City staff and data collection efforts, Burns & McDonnell created hydraulic model that included manholes and pipes up to 12-inches and larger and connected lift stations.

Flow meters were installed in strategic locations throughout the collection system during the rainy months to capture dry and wet weather flows for model calibration and for I/I analysis. Following the flow monitoring period, each metered subbasin was ranked based on wet weather peaking factors, inflow, infiltration and total I/I. This ranking was used to develop a five-year plan to identify, assess and reduce I/I in a manner where the City gets the "biggest bang for the buck."

The hydraulic model was further calibrated based on the flow metering data, as well as incorporating the City's lift station data, which now simulates actual flows through their system.

PROJECT INFORMATION

Client & Reference
City of Edgerton
404 East Nelson
Edgerton, Kansas 66021
Dan Merkh
Utilities/Public Works Director
913-893-6231
dmerkh@edgertonks.org

Key Dates
Start | April 2020
End | June 2021 (est.)

Project Team
- Cliff Cate
- Alicia Chase

Relevant Services
- Hydraulic Model Development
- Network Construction
- Flow Monitoring
- Flow Data Analysis
- Hydraulic Model Calibration
- I/I Reduction
- CIP Development
- Funding Assessment
- Treatment Plant Evaluation

Early in the project, flow and loading projections were developed to identify the necessary future collection system and treatment system capacity. The assessment included an evaluation of usage trends and water quality characteristics, particularly for current and potential large users in the service area.

Once a LOS or design storm was identified, the hydraulic model evaluated various design and growth scenarios. Where hydraulic deficiencies or constrictions were present, including lift station capacities, additional analysis was conducted to determine the cause. Where wet weather flows were determined to be the cause, I/I removal scenarios were analyzed to determine cost-effective solutions. These solutions included a combination of I/I removal, gravity and lift station capacity improvements and lift station consolidation.

The City was provided with a tool that included the condition and capacity for all major components at the WWTF, as well as needs-based growth projections and potential future effluent water quality requirements. The team further led a workshop where potential plant improvements and alternative technologies to meet future flow and loadings to the Big Bull Creek WWTF were developed and vetted.

Once the collection system and treatment plant improvements are fully identified, the alternatives will be incorporated into a master planning toolkit the City can use to plan and budget for improvements based on the community's needs. This capital improvements planning tool will be structured by triggers in land developments coupled with the hydraulic and organic loading data. The planning tool will use real-time data to regularly update the order and schedule of needed capital improvement projects.

6 Proposed Fees and Schedule

Based on our extensive experience delivering integrated master plans for utilities of comparable size to Bel Aire in terms of population, service area, water demand, and collection system infrastructure and our understanding of the City's desired outcome, **there are items not specifically included in the RFP which should be considered to deliver a comprehensive master plan accompanied by reliable and defendable hydraulic models.** This may consist of additional fieldwork and as-built research to improve the hydraulic modeling performance, update your GIS mapping, and better position the City for an asset management program to improve overall efficiency in operations & maintenance (O&M) and capital planning.

Another component not explicitly identified in the RFP but essential in integrated master planning is redundancy and resiliency planning for an unexpected loss of service to critical facilities (i.e., critical main failure, loss of elevated storage (planned or unplanned), loss of power high service pumping, loss of process treatment/supply, etc.). In addition, the ability to continue providing a minimum level of service standards through emergency connections, the capacity of elevated storage, etc. Resiliency and redundancy evaluations work two ways to safeguard Bel Aire and during times when Bel Aire can safeguard others. **The need for system resiliency is magnified in those utilities where source, supply, treatment, and pumping are shared and provided by a collective entity such as CCUA other than the City itself.**

We are excited about the City's desire to move forward with master planning and would welcome the opportunity to discuss our thoughts and approach that may enhance the success of your projects. Below and the following page are our estimated costs to complete your master plans. These costs are based on the information that has been provided, the tasks that were outlined in the RFP, and the following assumptions.

Water Distribution System Master Plan // $87,000 Additional Hydrant Testing: $0 (per hydrant if completed during project testing period, includes model calibration labor and expenses)	
Assumptions	• Water system GIS pipe connectivity is accurate and includes pipe diameter. • Billing records for all customers is available with monthly or annual consumption with meter address or meter coordinates. • Up to five (5) in-person meetings throughout the project to be coordinated with the Sanitary Sewer Collection System Master Plan
Value-Added Services No-Cost Services (if requested by the City)	• Mobilize and perform fire hydrant testing in advance of contract execution. • Data logger (14 recorders) deployment during fire hydrant testing for comprehensive model calibration. • Model calibration runs for fire hydrant test with data logger locations. • Prepare low, moderate, and high water demand projections; work with City to select one projection. • System head curve development for high service pump curve review. • Quantitative storage analysis based on selected water demand projection. • Distribution system water age analysis via extended period simulation modeling. • Virtual model training or in-person (one day) at Burns & McDonnell headquarters in Kansas City (City travel expenses not included).
Milestone Schedule	• *Fire hydrant testing and data logger deployment: within 10 days of selection* • Notice-to-proceed (NTP): within 14 days from executed contract • Draft Water Master Plan: within 180 days of NTP • City Council meeting or workshop presentation: after receipt of draft Water Master Plan comments. • Final Water Master Plan: within 2 weeks of draft report comments or City Council meeting/workshop.

Proposed Fees and Schedule continue on the following page

Sanitary Sewer Collection System Master Plan // $149,700 Additional depth/velocity meter (30 days, $70/meter day): $2,100 (per meter if completed during the monitoring period or if meter period extended)	
Assumptions	• Sanitary sewer system GIS pipe connectivity is accurate. • Pipe slopes for model development based on assumed vertical profiles. • Population and land use based on City's current master land use plan • Future condition extents and land use assumptions provided by City • Up to five (5) in-person meetings throughout the project to be coordinated with the Water Distribution System Master Plan.
Value-Added Services No-Cost Services (if requested by the City)	• *Monitoring wet weather events is critical for calibrating and simulating an accurate hydraulic model. We understand this and are willing to mobilize and install flow monitors as soon as the selection has been made, prior to executed contract if need be.* ***Mobilize and install flow monitors in advance of contract execution to capture potential rain events.*** • Install and provide two (2) rain gauges to be in conjunction with the flow monitoring period. • Flow data of actual system dry weather and wet weather response. • Return period analysis for support selecting level of service • Virtual model training or in-person (one day) at Burns & McDonnell headquarters in Kansas City (City travel expenses not included).
Milestone Schedule	• Flow monitoring: within 14-days of selection • Notice-to-proceed (NTP): within 14 days from executed contract • Draft Sanitary Sewer Collection System Master Plan: within 180 days of NTP • City Council meeting or workshop presentation: after receipt of draft Sanitary Sewer Collection System Master Plan comments. • Final Sanitary Sewer Collection System Master Plan: within 2 weeks of draft report comments or City Council meeting/workshop.
On-Call Services On Call services will be provided based on the scope of services requested by the City at the hourly and unit rates provided in the attached rate schedule. For On-Call Modeling Services, the following are general cost ranges based on hourly rates with a typical 72-hour turnaround with results summary via email.	
Water Distribution System Modeling Services: (0 to 8 hours, $0 to $1,200)	• Preliminary water main sizing with proposed alignment or alignment evaluation for development opportunities • Confirm proposed water main sizing and alignment with level of service conditions • Fire flow analysis for development opportunities • Hydraulic analysis for development opportunities • Water demand estimate for development opportunities • Model updates including areas with new pipes, elevation data, and/or water demand.
Sanitary Sewer Collection System Modeling Services (0 to 24 hours, $0 to $4,500):	• Preliminary sewer interceptor sizing with proposed alignment evaluation for development opportunities • Confirm proposed sewer interceptor sizing and alignment with level of service conditions • Hydraulic analysis for development opportunities • Model updates including new sewer interceptors and projected flows
Optional Services	• MACP Level 1 Inspection + Survey: $125/MH

BURNS McDONNELL®

CREATE AMAZING.

9400 Ward Parkway
Kansas City, Missouri 64114
burnsmcd.com