

Exhibit B

City of Lee's Summit, Missouri Water Master Plan

The following is our understanding of the Water Master Plan Scope of Services provided by Burns & McDonnell, hereinafter called Contractor, for the City of Lee's Summit, Missouri, hereinafter called the City.

Scope of Services:

1. Project Management:

- a. Conduct a project kickoff meeting with the City to include project goals, scope, schedule, required data, field testing plan, proposed analysis scenarios and planning, and other pertinent items.
- b. Prepare a list of required information for the City to provide to the Contractor and project impact.
- c. Provide project management and quality-assurance/quality-control through the duration of the project. Prepare monthly progress reports to include summary of work completed in that last 30 days, list of action items and responsibility, and 30-day look ahead of project tasks to be completed. Conduct biweekly meetings after the project kickoff meeting throughout the project; Contractor will notify City when biweekly meetings are unnecessary and stopped for extended periods of time.
- d. Contractor shall prepare and distribute agendas and workshop/meeting minutes. In-person meetings at the City's Water Utilities Service Center include the following:
 - i. Project kickoff meeting.
 - ii. System operations, critical facility/appurtenance elevations, and model control features.
 - iii. Model calibration, water demand projections, and future land use planning.
 - iv. Water distribution and water supply master planning. Coordinate with City's planning department staff on future growth strategy within the City's water service area.
 - v. Up to four meetings, in any combination, with neighboring water service suppliers and alternative wholesale water suppliers.
 - vi. Draft report review.
 - vii. Final report review.

2. Model Update:

- a. Collect and review the current water system geodatabase for the hydraulic model update.
- b. Update the model with water mains greater than or equal to four inches in diameter and any smaller water mains required for system connectivity to replicate distribution service to customers.
- c. Geocode annual average water demand from a recent and representative year from customer billing system data using.
- d. Estimate and allocate water demands for neighboring water service suppliers based on information provided and supplement missing information with City's water usage characteristics.

- e. Assign topography across linear and vertical water distribution system assets including water mains, storage, pumping facilities, and other appurtenances in the model.
- f. Validate model initial conditions, boundary conditions and operational controls for proposed analysis scenarios.

3. Field Testing and Model Calibration:

- a. Prepare a field test plan for City review to include the following:
 - i. Data collection for pump station status (on/off), flow, suction pressure, discharge pressure, ground storage level, and elevated storage level from City's SCADA system in 30-minute intervals for a period of seven days.
 - ii. Conduct up to 25 fire hydrant tests per zone or up to eight days of tests, whichever is reached first.
 - iii. Deploy data loggers for pressure recording in the distribution system during the entire duration of the fire hydrant testing.
 - iv. Conduct sites visits to high service pump stations, ground and elevated storage tanks, and other hydraulic appurtenances in the distribution system and summarize control features, sizing characteristics, standard operating procedures, and review concerns and/or issues of City's staff relevant to model calibration efforts.
- b. Debug the model update and create a working hydraulic model of the existing water distribution system. Integrate operational control boundaries and/or parameters for model calibration.
- c. Calibrate the model within +/- five pounds per square inch (psi) of the SCADA data points, data loggers, and fire hydrant test data.
- d. Prepare calibration tables comparing measured field test data with model results for each fire hydrant test, the pressure at data logger locations, and associated SCADA points.

4. Level of Service for Hydraulic Analysis:

- a. Coordinate with City to select the following criteria based on industry best practices, mid-tier goals, and minimum acceptable performance:
 - i. Minimum storage requirement and associated volumetric storage allocations for equalization, fire, and emergency reserves.
 - ii. Level of redundancy desired for elevated storage.
 - iii. Pumping capacity of high service pump stations at point of entry to distribution system.
 - iv. Velocity and headloss criteria for transmission and distribution system water mains.
 - v. Maximum and minimum pressures under normal service and minimum pressure under fire service conditions; minimum fire flow requirements.

5. Diurnal Analysis:

- a. Determine peak hour, minimum hour, and equalization storage factors for each 24-hour period within a seven-day field period captured by City's SCADA system and:

- i. Prepare distribution system diurnal patterns from SCADA data for each pressure zone.
 - ii. Prepare a representative 24-hour diurnal pattern from SCADA data for each pressure zone and integrate into the model.
 - b. Sequester large users from customer billing data and prepare diurnal patterns from automated meter reading system where available. Criteria for large user status shall be determined by total annual customer sales by volume and/or by higher annual average day customer sales based on the frequency distribution of the data set.
 - c. Integrate large user diurnal patterns into the model.
6. Water Demand Projections for Distribution Service:
- a. Review historical water usage and customer consumption data by customer class.
 - b. Project customer meters by class and develop a range of draft water demand projections based on customer class water usage and available land use planning information:
 - i. Evaluate historical seasonal demand patterns with normalized deviations for precipitation and weather during peak demand seasons to determine the need and degree of a dry-year water usage demand adder.
 - ii. Determine nonrevenue water component based on recent historical annual highs and/or 12-month rolling average defined as the difference between metered supply sources and customer billing data.
 - iii. Work with City to determine anticipated and/or known changes in existing large user water demands and timing.
 - iv. Work with City to determine water demand allowance for large new customers and timing within City's water service area.
 - c. Review service area per annexation report and comprehensive plan. Review opportunities for efficiencies of service with neighboring service providers which could affect water demand projections.
 - d. Water demand projections evaluated with the model shall include the current year, 5-year planning period, and a 20-year planning horizon.
7. Water Supply Planning:
- a. Work with City to establish the level of service for water supply.
 - b. Extend water demand projections for distribution service to a 50-year planning period and identify demands that result in water supply deficiencies.
 - i. Review opportunities for efficiencies of service with neighboring service providers which could affect water supply needs.
 - c. Develop a water supply plan with capacity escalations in advance of the water demand projections. Identify demand triggers as the basis for updates to contractual supply agreements with current suppliers and/or other potential suppliers.
 - i. Review opportunities for efficiencies of service with neighboring service providers which could affect water supply needs.

- d. Evaluate water supply opportunities, including emergency service, with alternate neighboring suppliers.
- e. Prepare recommendations for water supply capital improvement projects to address projected deficiencies and water quality compatibility needs.

8. Water Distribution System Master Planning:

- a. Work with City's staff to identify growth areas and associated schedule within the 5-year and 20-year planning periods.
- b. Use available land use mapping from current comprehensive plan to spatially allocate customer projections by customer class where available. Develop spatial allocation of water demands associated with growth areas. Growth areas can include, but are not limited to, the following types:
 - i. Redevelopment areas within the existing water service area.
 - ii. Undeveloped areas within the existing water service area.
 - iii. Peripheral growth in areas beyond the existing water service area.
- c. Develop water demands for growth areas within the City's service area for City review and approval.
 - i. Review opportunities for efficiencies of service which could affect distribution system redundancy/resiliency and under-served areas such as single point of failure instances.
- d. Transcribe the growth scenarios and water demand projections to the 5-year and 20-year planning period scenarios into the model.

9. Distribution System Hydraulic Modelling:

- a. Existing System:
 - i. Evaluate water distribution system hydraulics for strengths and weaknesses based on the level of service criteria with an extended period simulation (EPS) for the maximum day demand and static simulation for the maximum day demand plus fire flow.
 - ii. Evaluate water age in the distribution system with an EPS.
 - 1. Determine the average water age for each pressure zone under average day and maximum day demands.
 - 2. Evaluate residence time in ground and elevated storage for the average day demand.
- b. Five year and 20-Year Planning Periods:
 - i. Evaluate water distribution system hydraulics for strengths and weaknesses based on the level of service criteria with an EPS for the maximum day demand and static simulation for the maximum day demand plus fire flow.
 - ii. Identify capacity relief projects and capital improvement projects required to deliver the demand projections as it relates to water mains in the distribution system, transmission mains, storage, and pumping.

- c. 20-Year Planning Period Distribution Service beyond Water Service Area:
 - i. Evaluate water distribution system hydraulics for strengths and weaknesses based on the level of service criteria with an EPS for the maximum day demand and static simulation for the maximum day demand plus fire flow.
 - ii. Identify capital improvement projects required to deliver the demand projections as it relates to water mains in the distribution system, transmission mains, storage, and pumping.

10. Storage Evaluation:

- a. Evaluate and compare available storage and effective storage volumes in the distribution system.
- b. Evaluate storage requirements including reserves for equalization, fire, flow, and emergency service for the existing and projected water demands and identify surplus/deficit status.
- c. Identify demand trigger(s) to supplement storage deficit(s) with sizing recommendations for additional storage in the distribution system within the respective planning periods evaluated in the model.
 - i. Review opportunities for efficiencies of service which could affect storage requirements of the City with neighboring service providers.

11. Opinions of Probable Cost:

- a. Develop planning-level unit cost data for linear improvements in the distribution system. Work with the City and review historical bids in the development of unit cost data.
- b. Capital cost components shall include planning-level estimates for construction, engineering, and contingency.
- c. Prepare opinions of probable cost for recommended capital improvement projects required to deliver the demand projections as it relates to water mains in the distribution system, transmission mains, storage, and pumping.
 - i. Prepare opinions of probable cost for potential mutually beneficial projects with adjacent water districts.
- d. Prepare opinions of probable cost for recommended capital improvements with respect to the water supply system.
- e. Improvements will be categorized as distribution or supply and include following implementation triggers:
 - i. Distribution: hydraulic, development, fire flow, small mains, operational, and redundancy and resiliency.
 - ii. Supply: supply-demand and water quality.
- f. Work with City to develop prioritization for capital improvement projects across all categories and prioritization for each trigger within their respective category.
- g. Prepare a comprehensive prioritized listing of all capital improvement projects arranged by planning period.

- i. Prepare a one-page summary-detail sheet for each capital improvement project with locational description, figure, and cost development information.
- h. Integrate other projects identified by the City in the capital improvements plan; City to deliver associated reports, project scheduling, and cost of other projects to Contractor. Contractor is not responsible for, nor will Contractor provide any independent validation, of these projects, costs, or other associated details.

12. Supplementary Tasks:

- a. Review previously uncompleted planning level projects for continued need and applicability. Current projects for review include the following:
 - i. Bowlin Rd Pump Station Improvements (by Others).
 - ii. Water Main Replacement Program (by Others).
- b. Review the Design and Construction Manual pipeline infrastructure sizing practices and provide recommendations where applicable based on current practices and engineering judgment.
- c. Technical memorandum with recommendations to improve the evaluation, content, or methodology for purposes of informing water master planning efforts in the future on the following plans:
 - i. Water Utilities Strategic Plan 2020 (by City).
 - ii. Facilities Asset Management Plan 2018 (by Others).
 - iii. High Consequence of Failure Asset Condition Study 2020 (by Others).

13. No-Cost Services:

- a. Model training will include two 4-hour demonstrations covering the existing system scenario and analysis and the future planning period scenarios and analyses.
- b. Contractor to deliver profession development hour certificates to attendees.

14. Prepare draft report and deliver electronic copy to City for review. Prepare two hard copies and an electronic copy of the final report.

- a. Prepare technical memorandum summarizing the evaluation and findings for each adjacent water district where mutually beneficial projects are identified.

15. Deliver an electronic copy of water distribution system model files to City.

Schedule

Contractor will proceed with providing the services set forth herein within 14 calendar days of executing this Agreement. The draft report will be issued within 270 days of receipt of information requested in the Responsibilities of City in the following paragraph.

Responsibilities of City:

- 1. Attend project kickoff meeting and other meetings indicated in the Scope of Services.
- 2. Automated meter reading data as requested for large water users.

3. Provide fire flow and duration requirements and a copy of the most current Insurance Services Office (ISO) report.
4. Provide list of any known or perceived issues with the distribution system with respect to water quality (i.e. taste and odor, low disinfectant residual, etc.), low and/or high pressure, low fire flow, closed valves, chronic water main break areas, etc.
5. Written operational description of the water distribution system with respect to high service pumping and tank levels and any specific conditions relative to system demands (i.e. average day, daily peaking, maximum day). Describe demand conditions for seasonal operation of distribution system facilities.
6. Provide the water system GIS files any improvements and/or water main replacements in place that are not in GIS.
7. Provide 2019 and 2020 monthly metered water consumption (total gallons) for every customer from the billing system; additional customer data shall include classification and meter address. Data for each year shall be provided in a separate Excel file. A geodatabase format is preferred for meter location; else meter address can be included in Excel files.
 - a. Provide list of known customers that are not metered; include customer class and location.
8. Provide historical summary report of annual billed customer consumption and water supply source pumping (flowmeters from wholesale provider). Provide historical maximum day and average day demands and include date (maximum day) it occurred if available.
9. Sample SCADA data for seven consecutive days at 1-minute intervals in Excel for review. Same data shall be provided for seven consecutive days that spans the field-testing efforts. Data points shall include the following:
 - a. Distribution system: pump status (on/off), flow, pump speed, suction pressure, and discharge pressure.
 - b. Distribution system: ground and elevated tank level and any other pressure monitoring locations in the distribution system.
10. Provide the following information:
 - a. Tank and pump station plans, pump curves, pump type, discharge elevation, impeller elevation, and tank data including volume, head range, and base elevation.
 - b. Elevated tank data including as-built plans, volume, shape (spheroidal or cylindrical), head range, base bowl elevation, and diameter. Provide volume and level data in a table for spheroidal tanks.
11. Wholesale customer meter locations and current contractual water supply agreement.
12. Work with Contractor to develop and approve the water demands selected for master planning and hydraulic modeling efforts.
13. Provide available land use planning information, list and location of known development areas and associated customer type, and anticipated schedule of growth. Work with Contractor to develop and approve the master planning efforts including new growth and redevelopment areas, type of growth with respect to customer classes, and anticipated timing/schedule of these growth opportunities. Similar information with respect to large water use customers.
14. Provide access and assistance during field testing.

15. Recent bid tab information for linear water main installation projects.
16. Other information as requested by Contractor throughout the duration of the project.
17. Review the draft report.