

**Action Requested/Required:**

- ☐ Vote/Action Requested
☒ Discussion or Presentation Only
☐ Public Hearing
Report Date: _____
Hearing Date: _____
Voting Date: _____

Department: Community Development**Presenter(s) & Title:** Bethany Watson

City Engineer

Agenda Item Title:

Discussion of the Proposal for Wasterwater System Master Plan from Black & Veatch in the Amount of \$509,319.

Summary:

Staff has requested B&V update Canton's 2018 Wastewater Master Plan to provide a road map for the future system needs through 2070. The goal of the Wastewater System Master Plan is to assess the current system & develop recommended solutions for wastewater collection & conveyance system to meet both the short and long-term system needs costs effectively. The Plan will prioritize improvements while providing triggers to maintain flexibility to adapt to changing conditions & opportunities. The City is currently permitted to treat 7 MGD discharging to the Etowah River & treats wastewater delivered to the facility from its collection system & customers via its network of 33 pump stations, 17 miles of force mains, & 110 miles of gravity sewers. The Plan will include the following elements to provide a comprehensive view of the system needs: Wastewater Flow Projections, Wastewater Collection and Hydraulic Conveyance System Evaluation, Wastewater Treatment Capacity Planning, Capital Improvements Plan, & Master Plan Report.

Budget Implications:Budgeted? ☒ Yes ☐ No ☐ N/ATotal Cost of Project: \$ 509,319.00 Check if Estimated ☐Fund Source: General Fund ☐ Water & Sewer ☒ Sales Tax ☐ Other: _____**Staff Recommendations:****Reviews:**Has this been reviewed by Management and Legal Counsel, if required? ☐ Yes ☐ No**Attachments:**

Canton Wastewater System Master Plan Proposal

PROPOSAL FOR

WASTEWATER SYSTEM MASTER PLAN

PREPARED FOR



City of Canton

8 OCTOBER 2025



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Exhibit A

Scope of Services

Project Background

The City of Canton (City) requested Black & Veatch (BV) update Canton's 2018 Wastewater Master Plan to provide a road map for the future system needs through 2070. The goal of the Wastewater System Master Plan (Plan) is to assess the current system and develop a suite of recommended solutions for wastewater collection and conveyance system to meet both the short-term and long-term system needs cost effectively. The Plan will prioritize improvements while providing triggers to maintain flexibility to adapt to changing conditions and opportunities.

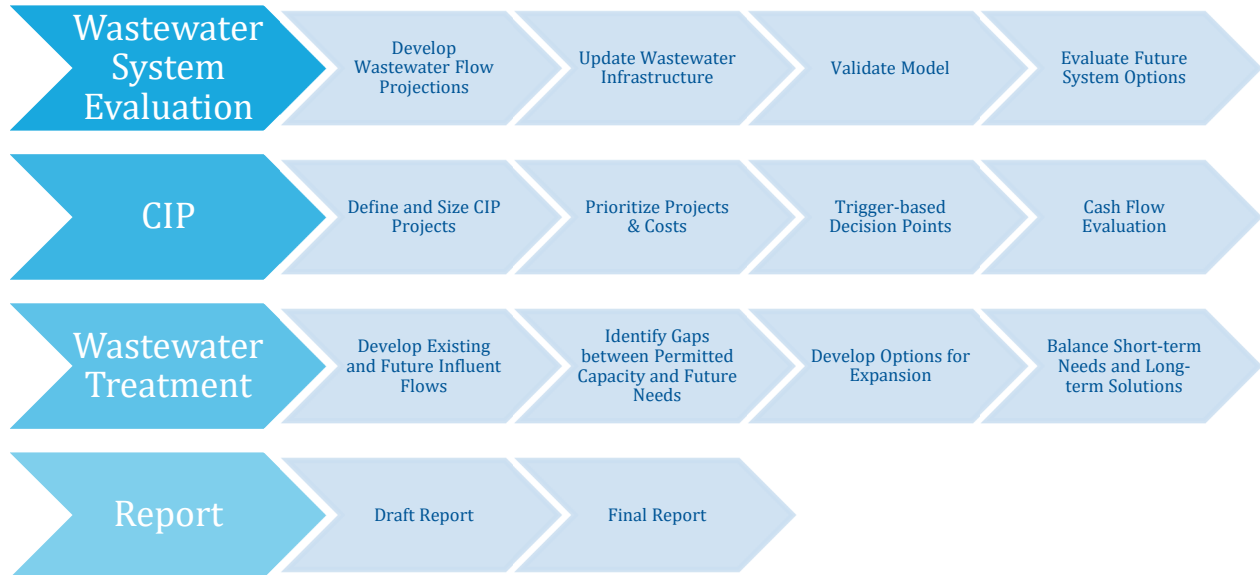
The City is currently permitted to treat 7 mgd discharging to the Etowah River. The Canton WWTP treats wastewater delivered to the facility from its collection system and customers via its network of 33 pump stations (not including two County and four private pump stations), 17 miles of force mains, and 110 miles of gravity sewers.

The Plan will include the following elements to provide a comprehensive view of the system needs:

- Wastewater Flow Projections
 - Develop wastewater flow projections through 2070
 - Consider climate resiliency and extreme storm events impacts
- Wastewater Collection and Hydraulic Conveyance System Evaluation:
 - Update the SewerGEMS wastewater system model to include infrastructure built since 2018
 - Validate the model using the current pump station SCADA/Mission data including pump runtimes, wet well depths, discharge pressure, and pumped flow as available. For the purposes of this scope, it is assumed that up to ten locations will be calibrated.
 - Use the calibrated model to evaluate short-term and long-term system performance and infrastructure improvements.
 - Prioritize wastewater system improvements, for both sewer/pump station/force main capacity and expansion.
- Wastewater Treatment Capacity Planning:
 - Summarize existing, permitted treatment capacity and operational maximum treatment capacity
 - Identify gaps between current treatment capacity and future flow projections, as well as waste load allocation for discharge.
 - Regulatory review to consider if more stringent limits and treatment will be required in the future.
 - Identify the timeframe for treatment expansions based on flow forecasts.
- Capital Improvements Plan:
 - Summarize completed or in progress wastewater infrastructure improvements recommended in the 2018 Wastewater Master Plan

- Summarize recommended wastewater system infrastructure improvements, including trigger-based decision points and improvement drivers.
- Establish a capital improvements plan (CIP) to provide insights into financial needs for both short- and long-term infrastructure investments.
- Master Plan Report:
 - Prepare a draft and final report to document the planning process.

The above process is presented graphically in the figure below.



The following scope of services provides details on tasks, meetings, and deliverables.

Scope of Services

The services to be provided in each phase of this project will be as follows:

- Task 100: Project Management
- Task 200: Data Request and Review
- Task 300: Wastewater Flow Projections
- Task 400: Wastewater System Climate Resilience
- Task 500: Wastewater Collection and Conveyance System Assessment
- Task 600: Wastewater Treatment Evaluation
- Task 700: Capital Improvements Plan
- Task 800: Master Plan Report

Task 100: Project Management

Task 110 – Project Kickoff

Schedule and prepare for project kickoff meeting; discuss goals of the project, scope, schedule, budget, and data request needs. Project kickoff meeting will be hybrid with key team members attending in person while others attending virtually.

Task 120 – Project Coordination

1. Provide project management and administration for a 13-month project period:
 - a. Correspond and consult with Canton staff.
 - b. Coordinate activities on the project team.
 - c. Develop and implement specific work plans, procedures and quality control and quality assurance plan.
 - d. Provide overall project direction to meet Canton’s project goals.
2. Maintain project files and documents.
3. Prepare monthly invoices and status reports to document project progress.
4. Maintain decision log for the project.

Task 130 – Project Communication

1. Arrange for and participate in monthly project status meetings (virtual) to review progress, budget, schedule, changes in scope of services and exchange of information and ideas.
2. Prepare and distribute meeting notes within one week of the meeting. Action items and decisions will be documented in the meeting notes.
3. Meeting notes will be prepared and provided along with presentation materials for all workshop and technical meetings.

Deliverables:

- Project Schedule
- Monthly Project Progress Reports
- Monthly Project Status Meeting Notes

Meetings:

- Project Kickoff
- 12 Monthly Project Progress Meetings, Virtual

Task 200. Data Request and Review

Task 210 – Data Request

BV will prepare an initial data request to discuss during the project kick-off meeting. The data request will include items such as infrastructure upgrades since the 2018 master plan, GIS data of the wastewater system (gravity sewers, manholes, force mains, pump stations, pump station area delineations), customer billing data, SCADA/Mission Data, previous studies by others, TAZ GIS polygons, and other information as deemed pertinent. The data request will be prioritized to help the City focus its efforts on the most important data pieces first to keep the project moving forward.

Task 220 – Data Review

BV will review the requested data as it is received and may request a virtual meeting to review any questions or identified data gaps in the data sets. BV will track the status of data transmittal until all available items are received. The data request will be formally submitted

to the City prior to the kickoff meeting. An updated copy of the data request spreadsheet will be included in the monthly progress report.

Assumptions:

- Data for review will be provided in Excel format.

Deliverables:

- Data request tracking spreadsheet and updates.

Task 300: Wastewater Flow Projections**Task 310 – Historical Wastewater Flow Analysis and Metrics Development**

1. Review customer meter records historical water consumption data by customer classification over the last 3 to 5 years, as available from the City. Convert water consumption to sewer production rates.
2. Convert sewer rates to unit per capita and per acreage rates by dominant tributary land use. Compare unit rates against typical acceptable rates and perform flow balance using the pump station data at the receiving downstream pump station.
3. BV will calculate and summarize historic wastewater production metrics, including average day, maximum day, per capita usage, and peaking factors.
4. Areas that have water only and septic systems will be taken into account, removing that population for existing conditions and discussing the vision for any extension of service to the existing water only/septic system customers.

Task 320– Population Forecasts

1. Data obtained for the Water Master Plan, including TAZ data from the Atlanta Regional Commission, will be used to develop the population forecast for wastewater service. The population with sewer service will be estimated based on the billing records and customers who have both water and sewer service.
2. Future Land Use, Demographics and Development
 - One meeting with City staff to understand future wastewater service areas, future service goals, anticipated local development drivers and likely targets for redevelopment and infill, major industries or employers and projected timing (Future Land Use and Development Vision Meeting). Information from the water system future land use and development vision meeting likely applies to the wastewater system; however, additional considerations on service goals and areas desired for sewer extensions will be the focus of this discuss.
 - Information obtained from the Water Master Plan’s Stakeholder Meeting: Planning and/or Economic Development Partners will be used for the Wastewater Master Plan.
3. Develop Population Forecasts, incorporating local growth vision:
 - BV will compile available data from the ARC and Georgia OPB population forecasts, as well as the meetings described above) to develop population estimates through the planning period for the sewer service area (if this is the same geographic area as the water service area, then the population developed for the water master plan will be used here).

- Local plans for growth, including future land use plan and known developments and employment centers will also be incorporated.
 - Population will be estimated through 2070, using years 2025 (Baseline), 2030, 2035, 2040, 2050, 2060 and 2070.
4. Schedule and hold Population Forecasts Review Meeting to discuss population forecasts through the planning period and make one round of edits to incorporate input.

Task 330 – Wastewater Flow Projections

1. Wastewater flow projections are foundational to the planning process. **Any changes to the projections once finalized will have ripple impacts through the project.** We will collaborate with Canton on the development of wastewater flow projections to capture elements that may impact wastewater infrastructure needs in the future. Once the Population and Wastewater Flow Projections TM is finalized, changes to population or flow projections will result in scope change and project schedule delay.
2. Future flow projections will be forecast for the 2025 (Baseline), 2030, 2035, 2040, 2050, 2060 and 2070 planning horizons.
3. Residential and commercial flow projections will be developed using population-based metrics for wastewater production; employment data will be considered if accurate and available.
4. Large discharge customers, such as the hospital, industry or other large employment centers will be estimated based on current wastewater production and/or typical rate for the business type.
5. Wastewater flow projections for the year 2025 (Baseline), and each planning horizon will be spatially allocated.
6. Develop a water conservation wastewater flow projections scenario to reflect reduced flow as a result of conservation and efficiency efforts based on information developed by the Metropolitan North Georgia Water Planning District (Metro Water District).
7. Wastewater Flow Projections Workshop. BV will present the draft population and wastewater flow projections to obtain input and feedback. One round of updates to the forecasts will be made to incorporate feedback.
8. Once adjustments are incorporated and forecasts are final, technical evaluations and options identification will begin.

Task 340 – Population and Wastewater Flow Projections Technical Memorandum (TM)

1. Prepare a draft document to summarize the population and wastewater flow projections. One round of review comments from the City will be incorporated into the forecasts TM to finalize it.

Deliverables:

- Population and Wastewater Flow Projections TM - Draft and Final

Meetings:

- Future Land Use and Development Vision (Hybrid)
- Population Forecasts Review Meeting (Virtual)
- Wastewater Flow Projections Workshop (Virtual or Hybrid)

Task 400. Wastewater System Climate Resilience

To comply with requirements of Metro Water District, the Plan must consider climate resilience based on the Climate Resilience Study developed for the Metro Water District in 2015. Based on this document, the climate is anticipated to be hotter and wetter for North Georgia. Climate resilience will be considered in terms of impact to rainfall dependent infiltration and inflow (RDII) in the gravity system resulting from increased rainfall intensities under extreme climate scenarios. Wastewater system infrastructure capacity to convey these flows via gravity sewers, pump stations, and force mains will be evaluated. A summary of risk mitigation measures for inclusion in the Master Plan Report will be drafted.

Deliverables:

- Draft Wastewater System Climate Resilience Summary

Task 500 - Wastewater Collection and Conveyance System Assessment

The City's wastewater system model was developed as part of the 2018 Master Plan using Bentley's SewerGEMS software. This model will serve as the initial starting point for the wastewater collection and conveyance system evaluation. The model will be reviewed against the City's updated GIS database, and new pipes larger than 8-inches in diameter, or as needed for system connectivity, will be added to the model; existing flow inputs will be updated as well as system operational data. The model will be validated so that this tool will provide reliable output data. Future system evaluations will be conducted using flow projections to assess impacts to the collection and conveyance system.

Task 510 – Workshop with GIS and Wastewater System Operations

1. BV will conduct the GIS and Wastewater System Operations Workshop with City staff to discuss and document current operational processes as well as GIS updates in the geodatabase.
2. If not in our files, as-built drawings of key infrastructure, such as pump stations and diversion structures will be requested.
3. Performance criteria, or level of service goals, are used to identify areas of concern and system shortfalls and help identify recommended improvements. BV will prepare a table of typical design criteria, including maximum force main velocities, pump station firm capacity, maximum pump run times and starts per day, allowable surcharge in gravity sewers, and minimum velocity in gravity sewers. This table will be submitted for consideration and discussion at the workshop.

Task 520 – Update Wastewater Model Baseline Data

1. Hydraulics: Using the City's GIS data, the wastewater model will be updated to include any new pipes added to the system since the 2018 master plan that are 8-inches or larger in diameter or as needed for system connectivity. In addition, facility changes, such as new or upgraded pump stations and/or operational changes of existing pump stations, will be incorporated into the hydraulic model.
2. Hydrology: The average dry weather flow spatial assignments to nodes will be updated based on the billing data and information obtained in Task 300. Twenty-four-hour diurnal

patterns will be developed for pump station collection systems using available data. If no new data is available, existing patterns will be inherited. To account for RDII, available flow data influent to the pump station wet well will be reviewed and characterized for the respective basin. In the absence of such data, SCADA/Mission data will be used to compare pump station operations between dry and wet periods to determine appropriate peaking factors for each pump station area characterization.

Task 530 – Model Validation

1. SCADA data will serve as the basis for validation of the updated hydraulic model.
2. SCADA data and regional rainfall data will be reviewed to identify a representative dry weather period (typically one week) and up to three large wet weather storm events.
3. Validation metrics will include total flow and pump run times matching within the previously established tolerances between observed and predicted quantities. Pump stations with no available SCADA/Mission data will be adjusted using inferences and best engineering judgment.
4. Model anomalies will be identified for discussion with Canton staff to resolve.
5. A calibration results review workshop will be held to present model results and discuss possible solutions to identified calibration issues, if any.

Task 540 – Wastewater System Evaluation

1. Conduct the existing system evaluation (2025/Baseline) using the validated wastewater model. The goal of this evaluation is to assess system hydraulic performance and identify deficiencies in the existing system using the Performance Criteria established in Task 501 and as summarized below.
 - a. Compare system performance to performance criteria:
 - i. Maximum force main velocity under wet weather conditions.
 - ii. Gravity sewer surcharging.
 - iii. Daily pump run times and number of starts per hour and per day.
 - iv. Pump station firm capacity under peak wet weather conditions scenario.
 - b. Review the existing system evaluation results with City Staff (virtually). At this meeting, we will also confirm future system modeling scenarios and identify current operational issues such as known maintenance issues that may be causing capacity restriction.
2. Conduct future system evaluations.
 - i. Future wastewater models will be developed for two planning horizons: 2035 (near-term), and 2070 (long-term). Wastewater flow projections developed in Task 300 will be used for these analyses.
 - ii. System upgrades identified from this analysis will be sized for the long-term scenario, while the near-term scenario will be used to determine phasing of these upgrades.
- b. Up to 3 additional modeling scenarios will be conducted to consider desired “what-if” scenarios, such as system resilience tests like extreme storm events or power outages, and corresponding system performance. The scenarios will be discussed and identified at the existing system evaluation meeting.

3. Prioritizing improvements will consider planned capital improvements as well as capacity expansions within the system. Using available GIS asset attribute data, City provided condition and maintenance data, and customer billing information, BV will develop a consequence of failure matrix to prioritize critical pressure system and gravity sewer repair, rehabilitation and replacement work.
4. Technical Memorandum
 - a. Prepare a draft Wastewater Collection and Conveyance System Evaluation TM.
 - b. Submit the TM to the City staff for review.
 - c. Address one round of City's comments for inclusion in the final report.

Deliverables:

- Wastewater Collection and Conveyance System Evaluation TM (Draft and Final)
- Updated Wastewater Collection and Conveyance System Model

Meetings:

- GIS and Wastewater System Operations Workshop (Hybrid)
- Model Validation Results Meeting (Virtual)
- Existing System Evaluation Results Meeting (Virtual)
- Future System Improvements Workshop (Hybrid)

Task 600. Wastewater Treatment Facilities Assessment

Canton WWTP was recently expanded to a hydraulic capacity of 6 mgd but is permitted for up to 7 mgd. The current average flows received by the plant range between 3.3 to 3.5 mgd. Given the current averages, permitted capacity, and growth seen from modeling the future scenarios, future capacity and treatment needs will be evaluated as part of the master plan.

Task 610. Condition Assessment

1. BV will conduct physical visual inspections for critical wastewater pump stations and interview City staff to document existing conditions and performance. Results of the inspection will be used to evaluate their current condition, reliability, functionality, maintainability, and obsolescence of parts. The inspections will focus on accessible assets with up to 10 lift stations chosen with City input. The new wastewater treatment plant and the low pressure system in the Great Sky subdivisions are outside the scope of the condition assessments.
2. Prior to the field inspections, BV will conduct a planning call to discuss the overall approach, available data, and scoring criteria. For consistency of results across different facilities in water and wastewater systems, BV will utilize standardized condition assessment templates to collect and deliver condition assessment results to the City. These templates will allow evaluation and grading of existing conditions based on a set of criteria, to calculate an asset's remaining useful life (RUL) against expected useful life for major asset groups based on AWWA's effective useful life tool for vertical assets. The field inspections will also document nameplate data for legible critical pumping equipment, and describe operating conditions, any functional deficiencies, and constraints for expansion. To complete Task 610 BV will perform the following:

- a. Document Review – Review maintenance data, as-builts, online and past reports to identify assets at each station and develop an asset registry to support data collection activities.
- b. Develop a Health and Safety plan to address confined space entry and working at heights.
- c. Perform physical visual and performance assessment of up to 10 pump stations to determine condition and RUL for critical assets. No destructive testing will be performed as part of this condition assessment.
- d. Develop a prioritized list of capital and maintenance recommendations.

Task 620- Treatment Capacity Needs

1. Review the wastewater treatment permit with the updated flow forecasts to identify the timeline for treatment capacity needs.
2. Conduct a visit to the Canton WWTP and meet with operating staff to become familiar with the system and to identify potential capacity issues.
3. Analyze data in Monthly Operating Reports to identify influent and effluent data trends.
4. Assess impacts for anticipated future arrangements.
5. Prepare graphs and tables to indicate the anticipated needs over the planning horizon, through 2070.

Task 630 – Discharge Limits and Treatment Goals

1. Perform a regulatory review and comparison to current discharge limits.
2. Develop a list of potential limits based on existing and future foreseeable regulations, including anticipated limits for Total Nitrogen (TN). Emerging contaminants as well as PFAS will be considered.
3. Review current operational data to understand current treatment system performance and compare to potential future limits.
4. Meet with EPD to discuss anticipated permit changes (one meeting).
5. Develop a draft list of recommended treatment goals for the Canton WWTP to target compliance with existing and future regulatory requirements and emerging contaminants identified in this task.

Task 640 – Facility Expansion Planning and Phasing Strategy

1. Evaluate existing treatment processes for meeting discharge limits and capacity treatment needs through the 2070 planning horizon.
2. Assess future capacity expansion needs and needed unit processes for future, considering current regulatory outlook, previous operating history, condition of unit processes and current performance.
 - a. Make recommendations for additional CIP projects as it relates to meeting future discharge limits.
3. Develop Expansion Plan and Phasing Strategy
 - a. Present timeline for phasing improvements from short-term through long-term planning horizon.
 - b. Prepare cash flow diagram for capital treatment investments over the planning period.

4. Expansion Plan and Phasing Strategy Workshop: Meet with City staff to review the expansion plan and phasing strategy developed and solicit input and feedback.

Task 650 – Wastewater Treatment Facilities Plan Technical Memorandum

1. Prepare a draft Wastewater Treatment Facilities Plan TM.
2. Submit the technical memorandum to the City staff for review.
3. Address one round of City's comments for inclusion in the final report.

Deliverables:

- Technical Memo documenting condition assessment of lift stations, including recommendations for condition-driven projects or replacement programs for incorporation into the CIP
- Wastewater Treatment Facilities Planning Draft TM

Meetings:

- Meeting with EPD to Discuss Future Regulations (Virtual)
- Existing System Evaluation Results Meeting (Virtual)
- Future System Improvements Workshop (Hybrid)
- Expansion Plan and Phasing Strategy Meeting (Hybrid)

Task 700 – Capital Improvements Plan

The CIP is the summary and prioritization of all recommendations in the Master Plan. This task also includes an American Association of Cost Estimators (AACE) Class 5 cost estimates to provide planning level costs that include factors for contingencies and engineering services.

Task 710: Draft Capital Improvements Plan

1. Prioritize capital improvements in a logical framework over time including drivers and triggers that could reshuffle the priority of the project.
2. Develop Class 5 costs for capital improvements.
3. CIP Review Meeting. The initial phasing and prioritization table will be shared and reviewed with the City.
4. Develop a one-page CIP Project Sheets that includes the location, project cost elements, need, project drivers and triggers for each capital improvements.
5. A system-wide map of recommended improvements and timing will also be developed as a large-scale map (24 x 36).

Task 720: Cash Flow

1. Using the CIP phasing plan, an annualized cost will be developed to anticipate cash flow for capital investments.
2. The cash flow can be compared to current rate structures to assess revenue sufficiency, which can be added to this project as an additional service.

Task 730: Recommendations TM

1. Prepare a draft Recommendations TM that documents the capital cost and capital improvement plan approach for the master plan report.
2. Submit the technical memorandum to the City staff for review.
3. Address one round of City's comments for inclusion in the final report.

Deliverables:

- CIP Project Sheets
- Map of CIP Projects (24" x 36")
- Recommendations TM (Draft)

Meetings:

- CIP Review Meeting (Virtual)

Task 800 – Master Plan Report

Task 810 – Report Template and Initial Chapters

1. Prepare template for technical memoranda deliverables, which will be set up as a chapter in the report rather than a stand-alone technical memorandum.
2. Prepare report document, including cover, table of contents, list of tables and figures, and abbreviations, introduction and executive summary.

Task 820 – Wastewater System Master Plan Report

1. The interim deliverable technical memoranda will be included as chapters in the report.
2. Develop the capital improvements plan chapter and related appendices.
3. Develop appendices for reference material and data sets.
4. Submit draft wastewater system master plan report to the City for review.
5. Meet with the City to discuss comments; address feedback and finalize the Wastewater System Master Plan report.

Task 830 – Present to the City Council

1. Provide brief presentation to the City Council for the adoption of the Final Master Plan Report.

Deliverables:

- Draft Master Plan Report
- Final Master Plan Report

Meetings:

- Review report comments (virtual)

Additional Services, Not Included in the Scope of Services:

Any work requested by the City that is not included in the Scope of Services outlined in this document, will be considered Additional Services or Supplemental Services. Additional services include items such as, but not limited to:

1. Deployment of temporary flow monitors to obtain additional data for model validation in the event additional data is needed beyond the SCADA information, this task will include identifying strategic locations in the system for installation of the pressure recorders, data download and review, and additional effort in validating the model to align with the data collected.
2. Identify, review and screen wastewater discharge options if a gap between existing and projected wasteload allocation is identified.
3. Preparation of wasteload allocation requests and related coordination with GA EPD.
4. Public meeting or stakeholder involvement meeting facilitation.
5. Financial rate study.
6. Field investigations, including condition assessments, surveys, etc. of water facilities.
7. GIS mapping services.
8. Presentations to the City Council or other elected officials, expect as noted in the Scope of Service.

Exhibit B Organizational Chart

The Org Chart below indicates the key BV team members.

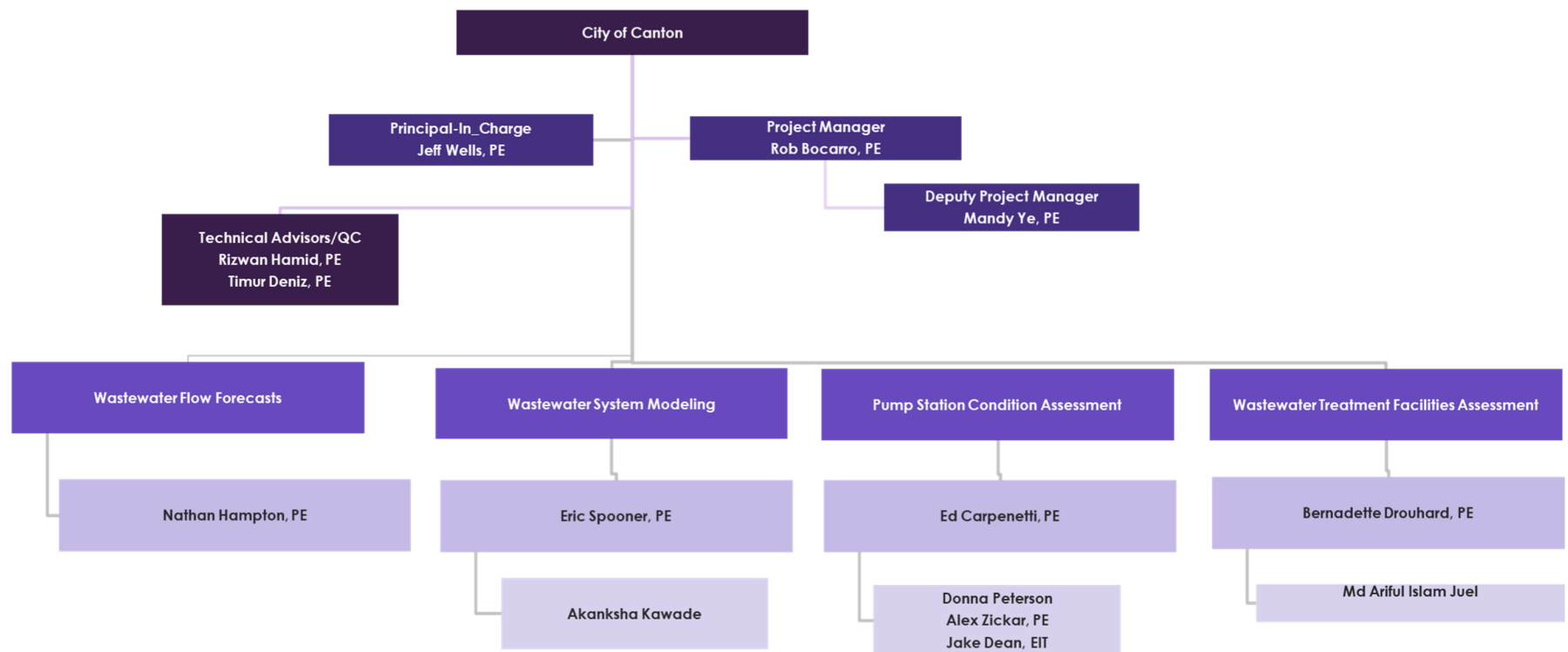


Exhibit C

Estimated Labor Hours and Associated Fee

The following estimate of labor and fee are responsive to Exhibit A - Scope of Services. The Scope of Services shown below is authorized upon execution of this task order.

Task	Description	Hours	Labor	Travel / Misc. Expenses	Total Price
100	Project Management	236	\$47,385	\$420	\$47,805
200	Data Request and Review	106	\$21,754	\$0	\$21,754
300	Wastewater Flow Projections	211	\$50,041	\$70	\$50,111
400	Wastewater System Climate Resilience	29	\$8,991	\$0	\$8,991
500	Wastewater Collection and Conveyance System Assessment	578	\$94,684	\$1,930	\$96,614
600	Wastewater Treatment Facilities Planning	553	\$111,066	\$2,620	\$113,686
700	Capital Improvements Plan	499	\$90,514	\$0	\$90,514
800	Master Plan Report	372	\$78,884	\$960	\$79,844
Totals		2,584	\$503,319	\$6,000	\$509,319

Exhibit D

Project Milestones

BV's services will commence upon written authorization from the City, which will constitute a Notice to Proceed (NTP) for the particular task. The schedule of Consultant's services will coincide with contractual milestones established between City and Consultant.

A draft milestone schedule is attached for reference. Within seven (7) calendar days of the Project Kick Off Meeting, Consultant will submit a preliminary schedule. Milestones will be established for each Phase.

