

**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 Task Order 12 for Canton Water Treatment Upgrade Feasibility Study to Black & Veatch in the Amount of \$83,545.00

Summary:

Black & Veatch has provided a proposal to provide a feasibility study to upgrade the existing WTP. The 2018 Canton Water Master Plan had called for construction of a new 10 mgd water treatment plant, at a different location than the current treatment facility, due to the space and access constraints of the existing site. As a new treatment facility will take several years to plan, design, permit and construct, the City would like to explore whether facility upgrades can increase the capacity of the existing 5.45 mgd water treatment plant. The feasibility study will look at expanding the existing water treatment plant to 8 mgd or determine the expansion potential of the facility. The findings of the study will be presented to City Council.

Budget Implications:Budgeted? ☒ Yes ☐ No ☐ N/ATotal Cost of Project: \$ 83,545.00 Check if Estimated ☐Fund Source: General Fund ☐ Water & Sewer ☒ Sales Tax ☐ Other: _____**Staff Recommendations:**

Staff recommends approval of Task Order 12 for Canton Water Treatment Upgrade Feasibility Study to Black & Veatch in the amount of \$83,545.

Reviews:Has this been reviewed by Management and Legal Counsel, if required? ☐ Yes ☐ No**Attachments:**

Professional Services Agreement

THIS SERVES AS A SUPPLEMENTAL AGREEMENT made as of _____, between the **City of Canton, Georgia, (OWNER)** and **Black & Veatch Corporation, (Consultant)**.

Owner and **Consultant** have previously executed a Professional Services Agreement dated December 20, 2018 and amended February 3, 2022, that defines general terms under which **Consultant** will furnish General Consulting Engineering Services and Project Engineering Services to **Owner**. **Owner** now wishes to engage **Consultant** to provide services in connection with the Project known as Task Order to. 12 - Canton Water Treatment Upgrade Feasibility Study. The Scope of Services is defined in Attachment A.

The fee for these services will be a Time and Expense Amount as outlined in Exhibit A of the Professional Services Agreement. Payments will be made monthly in accordance with the number of hours worked by the personnel of **the Consultant**. The amount will not exceed amount of Eighty-three thousand five hundred forty five dollars (\$83,545.00).

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

Owner:

City of Canton

Bill Grant

Mayor

Title

Signature

Attest:

Consultant:

Black & Veatch Corporation

William J. Wells

By (Typed Name)

Title

Signature

Attest:

Approved as to form

Robert M. Dyer

City of Canton

Attorney

ATTACHMENT A

PROPOSAL FOR

CANTON WATER TREATMENT UPGRADE FEASIBILITY STUDY

PREPARED FOR



City of Canton

7 AUGUST 2024



Exhibit A

Scope of Services

Project Purpose

The City of Canton (City) has requested Black & Veatch (B&V) to provide a feasibility study to upgrade the existing Canton WTP. The 2018 Canton Water Master Plan had called for construction of a new 10 mgd water treatment plant, at a different location than the current treatment facility, due to the space and access constraints of the existing site. As a new treatment facility will take several years to plan, design, permit and construct, the City would like to explore whether facility upgrades can increase the capacity of the existing 5.45 mgd water treatment plant. The feasibility study will look at expanding the existing water treatment plant to 8 mgd or determine the expansion potential of the facility. The findings of the study will be presented to City Council.

Background

The City's water treatment plant was originally constructed in the 1920s and has been expanded and improved over time. The City currently utilizes surface water from the Etowah River as its sole source of supply. Water is treated at the Canton Water Treatment Plant located at 150 Bobby E. Bishop Drive and distributed to the system with a high service pumping facility located at the plant. The City is currently permitted to withdraw 18.7-mgd (monthly average) and 23.0-mgd (maximum day) from the Etowah River (Permit No. GA0570001). However, the plant is only permitted to produce 5.45-mgd. The higher withdrawal rate is based on the City's ability to release water from the Hickory Log Creek Reservoir to supplement flow in the Etowah River. Based on recent drought analysis, Georgia EPD is indicating that the yield from the reservoir may need to be reduced.

Some interim projects at the water treatment plant include the completed flocculated system replacement, and the intake upgrade, which is under construction. The intake project includes a new intake screen, one additional intake pump, and adjustable frequency drives on the high service pumps. During the preparation of the 2018 Canton Water Master Plan, it was assumed that a new 8-10 mgd water treatment plant would be constructed. Hence there was no analysis of what work could be done at the existing water treatment plant to increase the treatment capacity beyond 5.45 mgd. Given that peak day plant flows have been as high as 4.8 mgd (88 percent of the plant capacity) in the summer of 2024, the City is concerned that the existing water treatment plant will soon exceed capacity. Furthermore, it will take several years to design, permit and construct a new water treatment facility. The City would like to have a study to explore whether the existing treatment facility can be upgraded to determine its expansion capability. The findings of the study will help the City with determining whether there are feasible options other than a new water treatment plant.

Aerial photos of the treatment plant and current intake are shown below.



Water Treatment Plant Improvements

In anticipation of building a new 10 mgd water treatment plant in the future, two projects were identified as needed interim projects to get the existing treatment facility through to the new plant. One project has been completed and has been in operation for over a year:

- Flocculation basin improvements. The horizontal paddle wheel flocculators had reached the end of their useful life and needed to be replaced. The project added 3-stage vertical paddle wheel flocculators with adjustable speed drives, installed on bridges over the two flocculation basins.

The existing intake has been rebuilt and reconfigured over time. The existing intake in use has a bar rack to attempt to protect the existing Flygt submersible pumps from damaging organic matter from the river. Problems have been experienced with heavy loads of leaves, wood, and other debris getting past the screen and causing operational difficulties with the raw water pumps. A screen replacement project is under construction and includes:



- Single tee-shaped wedge-wire gravity screen intake, connected to existing intake. The screen is rated for 6 mgd flow. The screen has been purchased for the project, and indications are that the screen can accommodate up to 8 mgd flow.
- Compressed air burst backwash system.
- One new raw water intake pump, with an adjustable frequency drive, to match the two existing intake pumps. The new intake pump will have a capacity of 4.32 mgd and will have an 88 HP motor.
- Adjustable frequency drives for the two high service pumps.

Existing Water Treatment Plant Properties

Since the existing water plant will be evaluated as to the feasibility of upgrading the flow through the plant, below is a table of the existing facility components and their sizes and properties. While these dimensions will need to be verified, that would be part of the feasibility study. The numbers below are based on a flow of 5.45 mgd (3,784 gpm).

Plant Structure	Number of Basins	Dimensions	Total Volume in ft ³	Total Volume in Gallons	Total Detention Time or Filter Rate
Rapid Mix	1	3'W x 64.83'L x 6'D	1,167	8,729	2.31 minutes
Flocculation Basins	2	12'W x 58'L x 12'D	16,704	124,946	33.01 minutes
Sedimentation Basins	3	30.33'W x 67.5'L x 18'D	110,553	826,935	3.64 hours
Filters	6	20'L x 10.5'W	210 ft ² per basin or 1,260 ft ² total		3.0 gpm/ft ²

Scope of Work

The City is seeking engineering services for a feasibility study to upgrade the existing Canton WTP. B&V will provide services for the feasibility of the plant upgrades, and for the updating of the water master plan. Consultant to provide the following services:

1. Project Administration and Management

- A. Project Management
 - i. Coordination of the project kickoff meeting and progress meetings.
 - ii. Monthly project reporting and invoicing.
- B. Deliverables
 - i. Meeting summaries.
 - ii. Project progress report summaries and invoices.

2. Feasibility of Existing Water Treatment Plant Upgrades

- A. B&V will review water treatment flow data to determine the average annual, peak month and peak daily treated flows and flows pumped to the distribution system from 2019 to 2024. B&V will estimate when the existing water treatment plant is likely to exceed capacity.
- B. The B&V team will review record data and drawings of the existing water treatment plant. A site visit will be arranged to interview operation staff and make a visual condition assessment of the water treatment plant. The following structures will be evaluated as to the capability to expand each individual process:
 - i. Intake screen and structure.
 - ii. Intake pumping.
 - iii. Rapid mix.
 - iv. Flocculation basins.
 - v. Sedimentation basins and solids removal.
 - vi. Filters.
 - vii. Clearwell storage and contact time.
 - viii. High service pumping.
 - ix. Solids handling.
 - x. Piping systems.
 - xi. Chemical feed systems.
 - xii. Electrical and instrumentation systems.
- B. B&V will review previous water audits submitted to EPD and interview operation staff to identify areas where there is a history of water main breaks or leaks.
- C. B&V will prepare a Technical Memorandum for the feasibility of expanding the existing water treatment plant. While the goal of this feasibility study would be to evaluate upgrading the existing plant to a capacity of 8 mgd, a secondary goal would be to determine if expansion to a different capacity (less than 8 mgd) is significantly more feasible. The Technical Memorandum will include options to upgrade including AACE Class 5 cost estimates. Options may include recommendations for rehabilitation, repair or replacement of the water distribution system.
- D. B&V will explore whether any of the recommended improvements may qualify for grant funding.

E. Deliverables

- i. PowerPoint slides for presentation of study findings to elected officials.
- ii. Draft and final Technical Memorandum with opinion of probable construction costs of the various options.

Exhibit B

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. If additional effort is requested, Consultant will notify the City and not proceed without written authorization (email or letter) by the City Representative.





BLACK & VEATCH

Building a world of difference.®

Canton Water Treatment Upgrade Feasibility Study

City of Canton

Project Task/Level of Effort Spreadsheet

Task Description		Senior Project Manager	Senior Engineering Manager	Principal Engineer	Engineering Manager	Estimator	Project Engineer	Engineer 2	CADD Technician	Project Controls	Project Accountant	Project Biller	Total	Total Expense	Total Subs	Total Task
		Hours	Cost	Cost	Cost											
	Billing Rate	\$295	\$340	\$225	\$200	\$280	\$155	\$135	\$115	\$160	\$90	\$115				
1.0	Project Administration & Management	9								9	13	13	44	\$0	\$0	\$6,760
2.0	Feasibility of Existing WTP Upgrades	29	58	36	18	17	77	85	20				340	\$840	\$5,500	\$76,785
Project Totals		38	58	36	18	17	77	85	20	9	13	13	384	\$840	\$5,500	\$83,545

Exhibit C

Project Milestones

Consultant'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.

Within seven (7) calendar days of receipt of the NTP, Consultant's will submit a preliminary Schedule for the Project Kickoff meeting. Milestones will be established for each Phase.

Feasibility of Existing Water Treatment Plant Upgrades

Milestone	Anticipated Completion Date
Kick Off Meeting	August 15, 2024
Water Plant Component Evaluation	September 12, 2024
Assessment of Treatment Component Alternatives	October 3, 2024
Progress Meeting	October 10, 2024
Draft Technical Memorandum	November 14, 2024
Final Technical Memorandum	November 29, 2024