



Hazen and Sawyer
1300 Altmore Drive, Suite 520
Atlanta, GA 30342

January 23, 2023

Sidney Forsyth, PE
Director
Cartersville Water Department
148 Walnut Grove Road, SE
Cartersville, GA 30120

Re: Cartersville WPCP Capacity and Expansion Study

Dear Sidney:

Hazen and Sawyer (Hazen) is pleased to submit the following letter proposal to perform an update to the *Cartersville Water Pollution Control Plant Facility Plan* (Hazen, 2017) with the focus of developing an expansion plan. If acceptable, this work will be performed under our Agreement for General Engineering and Consulting Services with the City of Cartersville, dated September 1, 2016.

Project Understanding

The City of Cartersville Water Pollution Control Plant (WPCP) is a 15-mgd wastewater treatment facility currently treating around 7 mgd of flow to the standards set forth in NPDES Permit GA0024091. The plant was recently upgraded to increase phosphorus removal capability and to replace aging infrastructure.

Prior to the expansion, Hazen performed a facility evaluation and developed a master plan for the plant. The City has indicated that new industries are coming to the Cartersville area and will require water and sewer services. Demand for sewer is estimated to increase approximately 4-5 mgd. As such, the City desires development of an expansion plan. Hazen will determine the estimated maximum capacity for the existing plant site, develop a timeline and flow/load triggers for phasing, determine the improvements required for expansion, and provide cost estimates, layouts, and construction timelines for the recommended improvements.

Scope of Work

The tasks will consist of:

- Task 1 – Data Collection and Analysis
- Task 2 – Capacity Assessment
- Task 3 – Facility Master Plan Update

Job no 1009-208

Task 1 - Data Collection and Analysis

Subtasks include:

- Conduct a project kickoff meeting and prepare meeting minutes.
- Collect, review, analyze, and summarize historical influent, effluent, solids handling, and plant operational data for the past three years, to determine if there have been any changes to influent flows, loads, and solids production trends.
- New design criteria will be developed if the changes will affect plant capacity analysis.
- Data Analysis Summary meeting.

Task 2 - Capacity Assessment

The Capacity Assessment will consist of the following:

- **Hydraulic Capacity:** A hydraulic model was created for the previous work and will be updated to determine the effect of flow increases on hydraulic capacity. The evaluation will identify hydraulic bottlenecks and future plant hydraulic capacities.
- **Treatment Capacity:** Each unit process will be evaluated for design capacity based on the current and anticipated future plant design criteria. The evaluation will identify treatment limitations. The existing BioWin model will be updated to reflect current conditions and will be used to evaluate alternatives.
- **Maximum Capacity Analysis:** Based on the hydraulic and treatment capacity analyses, Hazen will determine the maximum capacity that the plant could treat in the future according to the footprint available for new infrastructure.
- **Regulatory Environment:** Hazen will examine and summarize potential new regulations and requirements coming from the Georgia Environmental Protection Division (GA EPD) within the WPCP planning horizon that may affect plant capacity.
- **Recommendations:** Based on the results of the capacity analyses, Hazen will recommend upgrades or modifications to the plant as needed to accommodate the estimated maximum flows and loads.

Task 3 - Facility Master Plan Update

Based on the findings of Task 2, Hazen will write a memo which will serve as an amendment to the *Cartersville Water Pollution Control Plant Facility Plan* (Hazen, 2017). The report will present the following:

- Summary of Task 1 findings

- Revised design criteria (if applicable) – influent flow and load peaking factors
- Estimated maximum capacity for the existing property footprint
- Recommendations for infrastructure improvements required to meet future design capacity
- Phasing recommendations
- Site plan(s)
- Cost estimate(s)
- Construction timeline for proposed improvements

Assumptions

- The effluent wasteload allocation will not change from the current permit, i.e., the allowable effluent discharge concentration for permit parameters (BOD5, TSS, ammonia, Fecal Coliform, residual chlorine, phosphorus, etc.) will decrease with increasing flow.
- Influent parameter concentrations will be similar to current (no expected change in BOD, COD, or phosphorus). It is understood that there may be some additional ammonia and total dissolved solids load; an assumption will be made regarding influent loads of these parameters based on best available information.
- Timing of the new developments requiring additional capacity is approximately the 2nd quarter of 2025.
- The average design condition for the secondary process will be with the largest unit out of service.
- Cost estimates will be AACE Class 5 (-50% to +100% accuracy range).
- Level of detail for conceptual design will be limited to footprint of buildings and structures. This evaluation will not include sizing or design of individual equipment, piping, valves, control systems, etc.
- Meetings may be remote.
- None of the following will be required: field sampling, BioWin model recalibration, site visits, meetings with EPD.
- Reuse water as an option to supply the new industries will not be evaluated at this time.

Meetings

- Kickoff meeting
- Update meetings (anticipate 2)

Deliverables

- Memorandum summarizing the recommended facility upgrades

- Meeting agendas and minutes

Proposed Staff

The following are the proposed staff and roles:

- Chas Goblisch, PE – Project Manager
- Vivi Nguyen, PE – Lead Process Engineer
- Christine Yi, PE – Project Engineer
- Ahmed Yunus – Assistant Engineer
- Jeremy Jordan – CAD Support
- Kristen Smeby, PE – QC Review
- Ron Latimer, PE – Subject Matter Expert

Schedule & Compensation

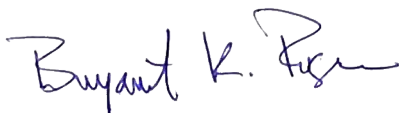
This Task Order is based upon completion within 4 months with assumed NTP date February 6, 2023.

Compensation for the Scope of Services outlined above will be in accordance with the terms specified in Hazen's Demand Services Agreement with a maximum not to exceed amount of \$98,700. Work in excess of this limit will not commence without prior written approval from CWD. A cost summary estimated by task is provided below.

Task	Hours	Budget
1: Data Collection and Analysis	130	\$23,700
2: Capacity Assessment	250	\$46,800
3: Facility Master Plan Update	157	\$28,200
	Total	\$98,700

Please call me at (404) 353-0571 if you have any questions regarding this proposal. We look forward to serving CWD through this very important project.

Very truly yours,



Bryant (Pat) Rogers, PE
Vice President

cc: Kristen Smeby, PE, Ron Latimer, PE, Vivi Nguyen, PE