

**CONTINUING MASTER AGREEMENT BETWEEN THE TOWN OF DUNDEE AND CHA CONSULTING
(RFQ 23-01 – OCTOBER 22, 2024)
TASK ORDER #1: WATER/WASTEWATER UTILITY MASTER PLAN**



**Town of Dundee
Scope of Services
2024 Utility Master Plan
October 28, 2024**



OWNER: Town of Dundee

CONSULTANT: CHA Consulting, Inc.

This Task Authorization for engineering services is made between the Town of Dundee (Town) and CHA Consulting, Inc. (Consultant). CHA is pleased to submit this scope to provide certain professional services to the Town for preparation of a 2024 Utility Master Plan.

This scope of services for the project identified herein, RFQ 23-01, pertains to the Master Continuing Professional Consulting Agreement for Architectural, Engineering, Planning, and Various Consulting Professional Services Between the Town of Dundee, Florida and Consultant, as modified by the Master continuing Professional Consulting Agreement for Architectural, Engineering, Planning, and Various Consulting Professional Services Between the Town of Dundee, Florida and Consultant, CHA Consulting, Inc., Contract Addendum.

A. Project Background and Description

The Town provides potable water distribution and wastewater collection services to its residential, commercial, and other customers within its utility service area. There are two (2) Water Treatment Plants (WTP) in the Town of Dundee: 1) Hickory Walk and 2) Riner. The potable water distribution system has an annual average demand of approximately 1.0 million gallons per day (MGD; based on Monthly Operating Reports, MORs). The potable water distribution system consists of approximately 49 miles of pipe that distribute potable water from WTPs to approximately 1,958 residential and 163 commercial customers. According to Southwest Florida Water Management District (SWFWMD) water use permit (WUP) number 20-005893.013 (expires in 2032), the Town is permitted to withdraw 917,500 gallons per day (gpd) and 1,202,000 gpd of groundwater on annual average and peak month basis, respectively.

The wastewater collection system consists of 14 miles of force main and 13 miles of gravity main (according to Towns *DiamondMaps* data) that collect wastewater (from approximately 925 residential and 54 commercial customers), 13 lift stations, and a wastewater treatment plant (WWTP) with a permitted treatment capacity of 0.70 MGD (permit number FLA180416, April 16, 2015 – April 15, 2025). The wastewater treatment process is categorized as Type I extended aeration, and consists of one bar screen, one flow splitter box, two aeration basins (700,000 gallons total volume), two clarifiers (282,000 gallons total volume, 2,436 square feet of total surface area), two chlorine contact chambers (32,000 gallons total volume), and two digestors (120,000 gallons total volume). The treated wastewater is discharged to an onsite three-cell rapid infiltration basin (RIB), with a permitted capacity of 0.70 MGD Annual Average Daily Flow, AADF, and a bottom surface area of 125,900 square feet. The WWTP provides secondary treatment with basic disinfection and has Class III reliability.

The Town has requested assistance from the Consultant for preparation of a 2024 Utility Master Plan to evaluate the existing potable water and wastewater infrastructure and determine the improvements required to accommodate future growth for planning years 2025, 2035, and 2045. The specific scope of services to be provided is set forth below.

B. Scope of Services**PHASE 100 – PROJECT ADMINISTRATION & MEETINGS****Task 101 – Project Administration**

This task consists of overall administration of the Project including contract and budget administration, invoicing (along with progress reports), scheduling, and coordination with the Town.

Task 102 – Project Meetings

The Consultant will prepare for and attend:

- a) One (1) kickoff meeting with the Town to develop a clear and mutual understanding of the scope elements, performance requirements, and critical success factors for the Project.
- b) Three (3) progress/coordination meetings with the Town staff to obtain feedback and discuss additional data needs.
- c) One (1) draft report review meeting with the Town to discuss findings and seek feedback from the Town staff.

Meeting summaries for each meeting will be shared with the Town within five (5) business days after the meeting.

PHASE 200 – REVIEW OF EXISTING CONDITIONS**Task 201 – Data Request & Review**

Consultant will prepare and submit a data request to the Town to obtain information necessary for completion of this scope of services. Such information may include previous capacity analysis reports, operational data and procedures, potable water high-service pump station historical discharge flows and pressures, historical wastewater treatment plant influent and effluent data (flows, discharge pressures), and wastewater lift station data (influent flows, discharge flows and pressures).

Task 202 – Facility Site Visits

Consultant, accompanied by Town operations staff, will perform one site visit to the WTPs and WWTP to view above-ground assets (pumps, piping, storage tanks, water and wastewater treatment unit operations and processes) to obtain insights on operational strategies, discuss challenges and needs with the plant operators, and take photos to include in the Utility Master Plan Report. As part of this effort, the Consultant will perform a high-level visual evaluation of the condition of wastewater lift stations (wet wells, pumps, pipes, valves, electrical system, overflow history), and the WWTP headworks, aeration basin, and clarifier. This information will be used by the Consultant to develop the Town's facility improvement needs.

Task 203 – Review, Update, and Calibration of Existing Potable Water Hydraulic Model

The Town has an existing *InfoWater Pro* hydraulic model for its potable water system. As part of this master plan, the hydraulic model will be updated as needed to reflect the existing configuration of the potable water system (pipe network, demands, base elevations, pumps). The Consultant will prepare and submit a *Field Pressure Data Collection Protocol* describing the details and requirements for installation of remote pressure loggers in the potable water distribution system by Town. The potable hydraulic model parameters will be adjusted to produce a reasonable match ($\pm 10\%$) between the simulated and observed values for flows from WTPs to the distribution system and for heads at the remote pressure measurement locations.

Task 204 – Development of Wastewater Hydraulic Model

The Town does not have an existing hydraulic model for the wastewater collection system. As part of this master plan, the pipe network shapefiles for the force mains from *DiamondMaps* will be used to create a hydraulic model for the force main system. The force main pipe network will then be updated as needed in consultation with the Town staff and operators to include in the wastewater hydraulic model any pipes that are not captured in *DiamondMaps*. The curves associated with the lift station pumps will be provided by the Town to use in the hydraulic model. The wastewater hydraulic model parameters will be adjusted to produce a reasonable match ($\pm 10\%$) between the simulated and observed values for lift station discharge heads and flows.

Task 205 – Development of Hydraulic Modeling Criteria

For this task, in consultation with the Town staff, hydraulic modeling criteria will be developed for the potable water distribution system and wastewater collection system. Such criteria include velocity and pressure requirements in the potable water distribution system for average day demand (ADD), maximum day demand (MDD), maximum day demand plus fire flow (MDD+FF), and peak hour demand (PHD) conditions. For the wastewater collection system, hydraulic modeling criteria include velocity and pressure requirements in the wastewater force main system. As part of this task, historical peaking factors for potable water and wastewater systems will be determined based on available data and used for developing design peaking factors for potable water and wastewater systems.

PHASE 300 – REGULATORY CONSIDERATIONS**Task 301 – Review of Existing Permits**

The Consultant will review the Town's Water Use Permit (WUP) with Southwest Florida Water Management District (SWFWMD) and the Florida Department of Environmental Protection (FDEP) domestic wastewater permit for the Town's WWTP.

Task 302 – Future Regulatory Considerations

The Consultant will review the upcoming regulatory considerations and future regulatory requirements for water and wastewater facilities. For the potable water system, this includes, but not limited to, regional water supply considerations, the Central Florida Water Initiative (CFWI) Rule, the Lead and Copper Rule Revision, the Microbial/Disinfection By-Products Rule Revision and potential emerging contaminant regulations. For the wastewater system, this includes the Senate Bills (SBs) 64 and 712.

The Consultant will develop a Town action plan table to identify the actions required to maintain compliance, which will be documented in the master plan report.

PHASE 400 – DEVELOPMENT OF FUTURE CONDITIONS**Task 401 – Review of Historical Water Demands, Wastewater Flows, and Planned Developments**

The Consultant will review the 5-year historical potable water demands, wastewater influent flows to the WWTP, and effluent flows from WWTP, the planned residential, commercial, and industrial developments where additional potable water may be demanded, or additional wastewater flows will be generated. Consultant will review the historical population growth rates and per capita potable water demands and per capita wastewater flows. The Consultant will discuss with the Town the feasibility and timing for future connections for identified developments. This timing will be used in the hydraulic model for setting up scenarios for planning years.

Task 402 – Potable Water Demand and Wastewater Flow Projections

The Consultant will update, as needed, the Town's latest population and potable water demand projections (which has been performed as part of another project) to reflect the latest changes in the identified planned developments. The Consultant will develop wastewater flow projections based on the updated population projections and historical per capita wastewater flows.

PHASE 500 – POTABLE WATER & WASTEWATER SYSTEM PLANNING**Task 501 – Future Potable Water System Hydraulic Modeling & Analysis**

Utilizing the calibrated potable water hydraulic model, the Consultant will develop modeling scenarios for planning years, 2025, 2035, and 2045. For each planning year, a steady state simulation will be performed for ADD, MDD, MDD+FF, and PHD conditions. Utilizing the hydraulic modeling criteria developed under Task 205, capital improvement programs (CIPs), for additional infrastructure pipes, pumps, storage) will be recommended such that the potable water demands and the hydraulic modeling criteria are met for each planning year. For each recommended CIP, an Engineer's Opinion of Probable Construction Cost (OPCC) will be developed. As part of this task, the treatment and hydraulic capacity of each WTP (aeration, chlorination, pumping capacity of well pumps and high service pumps, and storage) will be evaluated and recommendations will be made to address capacity increase requirements for each planning year. The CHA team had previously reviewed and commented on the estimated costs for projects in the existing CIP. As such, those will not be revisited as part of this master planning effort.

Task 502 – Future Wastewater System Hydraulic Modeling & Analysis

Utilizing the wastewater hydraulic model, the Consultant will develop modeling scenarios for planning years, 2025, 2035, and 2045. For each planning year, a steady state simulation will be performed for ADD and, MDD conditions. Utilizing the hydraulic modeling criteria developed under Task 205, CIPs (for additional infrastructure pipes, pumps, and wet wells) will be recommended such that the hydraulic modeling criteria are met for each planning year. For each recommended CIP, an Engineer's Opinion of Probable Construction Cost (OPCC) will be developed. As part of this task, the treatment and hydraulic capacity of the WWTP will be evaluated and recommendations will be made to address capacity increase requirements for each planning year. The Consultant will also compare the permitted capacity of the onsite Rapid Infiltration Basins (RIBs) to the projected required capacity for future planning years. It is not anticipated that consideration will be given to beneficial reuse of WWTP plant effluent as part of this master plan.

PHASE 600 – REPORT PREPARATION**Task 601 – Draft Utility Master Plan Report**

The Consultant will prepare a draft report summarizing the analyses results of the project and share with the Town for comments. Three (3) hard copies and electronic versions (Word and PDF) of the draft report will be provided to the Town. This report will include the following D-size (24" × 36") maps:

- a) Existing potable water distribution system.
- b) Existing wastewater collection system.
- c) Future potable water distribution system showing CIPs for future planning years including a table with description of each CIP (location, pipe length and diameter, pumping requirements, and OPCC).
- d) Future wastewater collection system showing CIPs for future planning years including a table with description of each CIP (location, pipe length and diameter, pumping requirements, and OPCC).

Task 602 – Final Utility Master Plan Report

After receipt of final comments from the Town, the Consultant will prepare a final report summarizing the analysis results of the project. Three (3) hard copies and electronic versions (Word and PDF) of the final report will be provided to the Town.

C. Deliverables

- a) Meeting summaries will be distributed within five (5) business day after any meeting.
- b) Presentation of preliminary findings and draft report.
- c) Three (3) hard copies and electronic versions (Word and PDF) of the draft report.
- d) Three (3) hard copies and electronic versions (Word and PDF) of the final report.

D. Schedule

The schedule for this project is presented below and will commence upon receiving a Notice to Proceed (NTP) from the Town.

Description	Start	End	Duration (Days)
Phase 100 – Project Administration & Meetings	11/15/24	09/13/25	302
Phase 200 – Review of Existing Conditions	11/15/24	02/13/25	90
Phase 300 – Regulatory Considerations	02/13/25	03/30/25	45
Phase 400 – Development of Future Conditions	02/13/25	03/30/25	45
Phase 500 – Potable Water & Wastewater System Planning	03/30/25	06/28/25	90
Phase 600 – Report Preparation	06/28/25	09/13/25	77

E. Compensation

Compensation will be a lump sum amount of **\$181,534.39**. Compensation for the services provided herein shall be due and payable monthly. The following table shows the cost breakdown for each Task described herein.

Phase	Lump Sum Fee
Phase 100 – Project Administration and Meeting	\$13,984.30
Phase 200 – Review of Existing Conditions	\$60,719.98
Phase 300 – Regulatory Considerations	\$12,633.49
Phase 400 – Development of Future Conditions	\$10,775.00
Phase 500 – Potable Water & Wastewater System Planning	\$67,182.52
Phase 600 – Report Preparation	\$16,239.10
Total Lump Sum Fee	\$181,534.39



F. Town’s Responsibilities

The Town staff responsibilities are as follow:

- a) Provide data required to complete the tasks as requested by the Consultant.
- b) Perform field equipment installation and testing for collection of pressure and flow data in the potable water and wastewater system.
- c) Perform pump drawdown tests for each wastewater lift station if needed.
- d) Attend the progress meetings with the Consultant.
- e) Provide comments and feedback on the draft report.

G. Services Not Included

- a) Reclaimed water system master planning.
- b) Water Use Permit modifications.
- c) Detailed design drawings or specifications.
- d) Construction phase services.
- e) Utility rate study.
- f) Grant applications.
- g) Participation in FDEP rulemaking.
- h) Wetlands and/or environmental investigations.

H. Assumptions

The Scope of Services and compensation arrangement outlined are based on the following assumptions:

- 1. The Town will provide field operations staff and equipment to perform the field pressure/flow tests and system monitoring.
- 2. The Town will provide review comments on the draft report within four (4) weeks of the receipt of the report from the Consultant.
- 3. The Town will provide review comments on any interim submittals within two (2) weeks of receipt from the Consultant.

I. Approval

OWNER

Town of Dundee

Name:

Title:

DATE: _____

CONSULTANT

CHA Consulting, Inc.



Name: Allen Dethloff, PE

Title: Project Team Leader

DATE: 10/30/2024