Via Email @ rcoslow@CITYOFEDGEWATER.ORG

July 30, 2024

Randy Coslow, Director of Environmental Services/City Engineer
City of Edgewater
P O Box 100
Edgewater, FL 32132

RE: CITY OF EDGEWATER – EDGEWATER WRF EXPANSION MASTER PLAN

Background – The City currently owns and operates a water reclamation facility, the Edgewater WRF. The existing facility is an existing 2.75 million gallons per day (MGD) annual average daily flow (AADF) permitted capacity advanced domestic wastewater treatment (AWT) plant consisting of influent screening, grit removal, biological nutrient removal (Bardenpho Process), chemical feed facilities, secondary clarification, tertiary filtration, high level disinfection, with dechlorination and post aeration for surface water discharge, and with aerobic digestion of biosolids to provide Class B stabilization and sludge dewatering via centrifuge. Effluent disposal is via either public access reuse within the City's reclaimed service area (R001), or via surface water discharge to the Mosquito Lagoon (D001). The facility also supplements the public access reuse system via surface water withdrawal from the borrow pit located south of the WRF.

Scope of Services – Halff is pleased to submit for your approval the following engineering proposal for providing master planning services for the future expansion of the Edgewater WRF. The existing WRF is currently permitted for 2.75 mgd, AADF. The Master Plan will provide guidance to the City for expanding the facility to an ultimate capacity of approximately 12-15 mgd, AADF. Expansion is anticipated to occur in multiple phases, with an initial expansion phase approximately doubling the current capacity. The Master Plan will provide for triggers for the timing of future phases of expansion and preliminary layouts for each phase of expansion. The Master Plan will also include population and growth projections as completed by the University of Florida Bureau of Economic and Business Research (BEBR), which will be utilized to schedule the future phases of WRF expansion.

Additional Considerations of the Plan:

- Master Plan will only consider future improvements to the WRF, not the collection or transmission facilities
- All non-WRF related facilities currently located on the property will ultimately be relocated offsite
- The City prefers that future expansion phases continue to utilize the Ovivo 5-State Bardenpho Oxidation Ditch technology
- Future effluent disposal will continue to be via either Public Access Reuse (PAR), surface water discharge, or via a proposed wetland discharge system west of I-75

- Effluent discharge parameters will continue to be 5/5/3/1 AWT
- Master Plan shall account for a future 24”-30” force main entering the site
- Future phases shall utilize disc filtration technology
- All electrical and/or operations buildings shall be located above the 500-year flood elevation
- Master Plan shall evaluate the future use of dual backup power systems for added reliability
- Master Plan shall provide recommendations for future biosolids handling via different technologies including centrifuge, screw press, fan press and belt filter press. Recommendation will be based upon anticipated assumed percent solids and a lifestyle cost comparison, and include input from City staff, but will not include a pilot at this time
- WRF shall continue to produce Class B biosolids through all phases of expansion
- Master Plan shall evaluate potential for adding dedicated disc filters and chlorine contact facilities for the existing surface water withdrawal point
- Halff will contract with BEBR for the purposes of conducting a City-specific report documenting service area population growth projections to be utilized in the Master Plan for planning for WRF expansion phasing. City Planning and Utility departments shall assist BEBR with access to GIS data, planning and zoning maps, building permits, and other necessary data
- Master Plan shall consider the potential future use of two offsite properties, located west of the WRF, one owned by the FDOT and one owned by the Volusia County School Board. These properties will potentially be utilized for “end of train” processes, such as reclaimed and reject storage pumping facilities
- Master Plan flow projections will continue to utilize the City’s current Level of Service (LOS) of 204 gpd/ERU

The Scope of Services is as outlined below:

HALFF will perform the following Phases under this contract.

PHASE 100 EDGEWATER WRF EXPANSION MASTER PLAN

Halff will produce a WRF Expansion Master Plan to be utilized by the City in planning for expansion of the existing WRF, from the present capacity of 2.75 mgd, AADF through buildout of the service area, in multiple phases, with an ultimate capacity of approximately 12-15 mgd, AADF. The Master Plan will identify the treatment components necessary at each phase of expansion and will include proposed site layouts and preliminary costs for each phase of expansion. The results of the Master Plan will be available for the City to utilize in updating wastewater impact fees, as well as scheduling major WRF improvements. The results of the Master Plan will also give the City a tool for negotiations with potential developers of land within the City’s service area, as relates to capital

improvements and associated impact fees and credits. This analysis shall generally include the following information:

1. Review of the City's Utility Service Area with the Public Services Department and City Planner for the purposes of determining the ultimate potential wastewater population to be served within the utility service area. Review of existing City operating records will be utilized to determine wastewater production rates within the existing service area. The population projections and usage rates will be utilized to forecast future wastewater generation.

2. Evaluation of the existing WRF infrastructure and determination and analysis of the proposed WRF infrastructure required for the treatment of wastewater from throughout the service area, as necessary to serve the ultimate service area buildout. The Plan will make recommendations for timing and sizing of future expansions, as well as providing preliminary cost estimates for the expansions.

Deliverables include:

- Edgewater WRF Expansion Master Plan Report detailing the WRF expansion phasing, including site layouts, both onsite and offsite, estimates for timing of expansion phasing, and estimates for the costs of each proposed phase of expansion.

FEE: $275,970.00

PHASE 200 BEBR EDGEWATER UTILITY SERVICE AREA POPULATION GROWTH PROJECTION STUDY

Halff shall subcontract with the University of Florida Bureau of Business and Economic Business Research to provide a City-specific study of growth projections for the City's utility service area.

Background – The University of Florida's Bureau of Economic and Business Research (BEBR) produces the official population estimates and projections for the State of Florida. BEBR's official projections are at state and county levels only, but BEBR also develops small-area population estimates and projections for local governments, water management and utilities. Because the City of Edgewater (City) requires population projections to support comprehensive planning and other uses, BEBR is submitting this proposal to the city to develop defensible small-area population estimates and projections.

This proposed project will develop small-area population estimates and projections. These will be generated using a GIS-based model which leverages property parcel data, land use, and other site specific considerations to develop

population estimates and projections consistent with BEBR's official city estimates and county population forecasts. The resulting estimates and projections are disaggregated to the property parcel level and can then be summarized by any geographic units desired (traffic analysis zone, commission district, school zone, etc.). BEBR will use the latest available data, including property parcels, land use, future land use, large, planned developments, road networks, public lands, census data, and BEBR estimates and projections. The model and its results will be documented, based on widely accepted professional standards, and defensible.

Scope of Services – This scope provides for the development of a small-area population estimation and projection model for the City of Edgewater. This model will be used by BEBR to estimate the current (2024) population and project population for 2025 through 2050 in five-year increments. Project deliverables will include GIS data (Esri File Geodatabase or Shapefile) of the results disaggregated to the parcel level, a summary spreadsheet, and technical documentation. The proposed tasks are presented below.

1. Population Estimation and Projection Model Development

Gather, standardize, combine, and process all the necessary data inputs to model population growth for the City of Edgewater.

1.1. Develop Build-out Submodel with Current Population Estimates

1.1.1. Create feature class of parcels with current residential units and maximum residential units at build-out. This will be accomplished using a combination of parcel data, future land use data, surveys of group quarters, development data, wetlands, public land ownership, and data on condominiums and mobile home parks. The data on future land use and developments/redevelopments will be provided by the City in a GIS format, as well as any available GIS data of areas city staff suggest are not developable (wetlands, floodplain, etc.), or where residential development will be limited in some way. Note that this will require discussions with City planning staff.

1.1.2. Apply census metrics for housing unit occupancy and household size from the 2020 decennial census and BEBR and census surveys of group quarters to estimate current (2024) population and forecast the maximum population at build-out.

1.1.3. Quality assure final feature class of parcel-level estimates of current and build-out housing units and population.

Note that it would be beneficial for this layer will be maintained by the City to enable quick and inexpensive future projection updates.

1.2. Develop Historical Growth Rates

Develop census tract-level growth trend calculations using data from the 1990, 2000, 2010, and 2020 Censuses and the new 2024 estimates in the Build-out Submodel. Historical and projected city and county population will be evaluated and factored into these calculations. Similar to its official county projection methods, BEBR will apply its standard techniques for growth trend calculations over multiple historical periods, exclude the highest and lowest values, and average the remaining calculations.

1.3. Develop Growth Driver Submodel

Spatial drivers to residential growth will be used as independent variables in a multivariate logistic regression for the City of Edgewater and surrounding areas. We will apply these values to create a probability for the development of undeveloped parcels or redevelopment of underdeveloped ones. The drivers used include:

1.3.1. Florida Department of Transportation roads and proposed roads
1.3.2. Selected commercial property drivers using property appraiser data
1.3.3. Residential property drivers using property appraiser data
1.3.4. Development drivers using large development boundaries
1.3.5. Surface water drivers using land cover data

1.4. Develop Small-area Population Projections

1.4.1. Assign growth drivers from the Growth Driver Submodel to the Build-out Submodel.
1.4.2. Run population forecasts for 2025, 2030, 2035, 2040, 2045, and 2050. These forecasts will be based on the growth trends with checks to prevent exceeding the build-out calculations.
1.4.3. Summarize population projections for the City and export to Excel.

1.5. Deliverables

1.5.1. GIS: The population estimates and projections will be provided in GIS format (file geodatabase or shapefile) at the property parcel level.
1.5.2. Spreadsheet: Parcel-level results will be summarized and exported to Excel format.
1.5.3. Project Documentation: A brief technical report will be prepared in PDF format to present the data, methods, and results.

FEE: $31,500.00

PHASE 300 PROJECT ADMINISTRATION

Halff will provide administrative services necessary to coordinate all aspects of the project.

FEE: $5,000.00

PHASE 9999 REIMBURSABLES

Costs for reimbursables, including printing, copying, blueprints, binding, mileage, etc., shall be billed at the rates shown in the attached Rate Schedule, or at cost.

FEE: $5,000.00

SUMMARY FEE SCHEDULE

PHASE 100	$	275,970.00
PHASE 200	$	31,500.00
PHASE 300	$	5,000.00
PHASE 9999	$	5,000.00
TOTAL	**$**	**317,470.00**

THIS PROPOSAL DOES NOT INCLUDE THE FOLLOWING ITEMS:

1. Final Engineering Design
2. Land Surveying
3. Hydraulic Modeling
4. Rate Studies
5. Permitting

Representation on Authority of Parties/Signatories. Each person signing this Agreement represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this Agreement. Each party represents and warrants to the other that the execution and delivery of the Agreement and the performance of such party's obligations hereunder have been duly authorized, and that the Agreement is a valid and legal agreement binding on such party and enforceable in accordance with its terms.

APPROVED

Engineer: Halff Associates, Inc.

Signature: _____

Name: _____

Title: _____

Date: _____

APPROVED

Client:

Signature: _____

Name: _____

Title: _____

Date: _____

CLIENT INFORMATION FORM

To assist Halff Associates, Inc., to prepare the requested proposal, please complete the information below:

PRINT NAME & TITLE: _____

COMPANY NAME: _____

BILLING ADDRESS: _____

_____

PHONE: _____

FAX: _____

E-MAIL: _____

BILLING CONTACT NAME & TITLE: _____

BILLING CONTACT EMAIL: _____

BILLING CONTACT PHONE: _____

CLIENT REPRESENTATIVE: _____

IS CLIENT THE OWNER OF THE SUBJECT PROPERTY?

YES: _____ NO: _____

(If no, Halff Associates, Inc., reserves the right to require a retainer prior to commencing services.)

Is the property accessible? _____

If gated/locked, who shall Halff Associates, Inc. contact to gain access to the property?

NAME AND PHONE NUMBER: _____

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS TRUE TO THE BEST OF MY KNOWLEDGE.

SIGNATURE: _____

DATE: _____