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CITY COUNCIL RESOLUTION NO. 2021-061

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LAKE CITY, FLORIDA, AUTHORIZING THE EXECUTION OF TASK ASSIGNMENT NUMBER SIX TO THE CONTINUING CONTRACT WITH JONES EDMUNDS & ASSOCIATES, INC., FOR PROFESSIONAL CONSULTING SERVICES AND ASSISTANCE WITH DEVELOPING A COMPREHENSIVE UTILITY MASTER PLAN; AUTHORIZING PAYMENT FOR THE CONSULTING SERVICES AT A NOT TO EXCEED COST OF $498,430.00.

WHEREAS, the City of Lake City, Florida (hereinafter the "City") entered into a Continuing Contract for Professional Services (hereinafter the "Continuing Contract"), with Jones Edmunds & Associates, Inc. (hereinafter "Jones Edmunds") as authorized by City Council Resolution No. 2019-024 with respect to certain studies, planning, design and construction of improvements to the City water system, wastewater system, reuse water, stormwater systems, gas system, Lake City Gateway Airport, City recreational facilities, City Hall, City safety facilities and streets (herein collectively the "City Projects"); and

WHEREAS, the Continuing Contract provides that Jones Edmunds shall perform services to the City only when requested to and authorized in writing by the City and that each request for services shall be for a specific project, with the scope of the work to be performed by and compensation to be paid to Jones Edmunds for each separate project and be defined by and embodied in a separate Task Assignment; and

WHEREAS, the utility advisory committee has recommended to the City Council that the City and the Board of County Commissioners of Columbia County, Florida should work together to obtain a comprehensive Utility Master Plan of the City's utilities; and

WHEREAS, the City desires to enter into Task Assignment Number Six with Jones Edmunds and receive assistance with developing a comprehensive Utility Master Plan, pursuant to the terms and conditions of Task Assignment Number

Six, a copy of which is attached hereto as "Exhibit A" and made a part of this resolution ("Task Assignment Number Six"), and in compliance with the Continuing Contract.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LAKE CITY, FLORIDA, AS FOLLOWS:

Section 1. The above recitals are all true and accurate and are incorporated herein and made a part of this resolution.

Section 2. The City is hereby authorized to execute Task Assignment Number Six with Jones Edmunds for the Additional Services.

Section 3. The City Manager and City Attorney are authorized to make such reasonable changes and modifications to Task Assignment Number Six as may be deemed necessary to be int eh best interest of the City and its citizens. The Mayor is authorized and directed to execute and deliver Task Assignment Number Six in the name and on behalf of the City, with such changes, amendments, modifications, omissions, and additions made by the City Manager and City Attorney, if any. Execution by the Mayor and Jones Edmunds shall be deemed to be conclusive evidence of approval of such changes, amendments, modifications, omissions, and additions if any.

PASSED AND ADOPTED at a meeting of the City Council this ____ day of April 2021.

CITY OF LAKE CITY, FLORIDA

By: _____
Stephen M. Witt, Mayor

ATTEST:

By: _____
Audrey E. Sikes, City Clerk

APPROVED AS TO FORM AND LEGALITY:

By: _____
Frederick L. Koberlein, Jr.,
City Attorney

EXHIBIT A

TASK ASSIGNMENT SIX TO THE CONTINUING CONTRACT BETWEEN THE CITY OF LAKE CITY, FLORIDA, AND JONES, EDMUNDS & ASSOCIATES, INC., FOR PROFESSIONAL SERVICES ASSISTING THE CITY WITH THE DEVELOPMENT OF A COMPREHENSIVE UTILITY MASTER PLAN.

THIS TASK ASSIGNMENT NUMBER SIX is made and entered into this ____ day of April, 2021, by and between the CITY OF LAKE CITY, FLORIDA, a municipal corporation, located at 205 North Marion Avenue, Lake City, Florida 32055 (herein referred to as "City") and JONES, EDMUNDS & ASSOCIATES, INC., a Florida limited liability company, having a mailing address of 730 NE Waldo Road, Gainesville, Florida 32641 (herein referred to as "Consultant")

RECITALS

A. City and Consultant have heretofore entered into a Continuing Contract during March 2019, for professional consulting services as authorized by City Council Resolution No. 2019-024 (the "Continuing Contract").

B. The Continuing Contract provides that Consultant shall perform services to the City only when requested to and authorized in writing by City and that each request for services shall be for a specific project, with the scope of the work to be performed by and compensation to be paid to Consultant for each separate project and be defined by and embodied in a separate Task Assignment.

C. The City is in need of additional assistance developing a comprehensive Utility Master Plan to expand utility services and intends to seek

financial assistance from grant sources as well as the Board of County Commissioners of Columbia County, Florida.

D. The City desires to enter into Task Assignment Six with Consultant for its assistance developing a comprehensive Utility Master Plan pursuant to the terms and conditions contained in Consultant's proposed Scope of Services (hereinafter "Supplemental Agreement"), a copy of which is attached hereto as "Exhibit A".

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements herein contained, the parties hereto agree as follows:

1. **RECITALS**: The above recitals are all true and accurate and are incorporated herein and made a part of Task Assignment Six.

2. **PROJECT**: The City hereby engages Consultant and Consultant agrees to furnish to the City the services and work as set forth in the Supplemental Agreement, attached hereto, within three hundred sixty (360) calendar days from the Consultant's receipt of a Notice to Proceed. A Notice to Proceed shall be required for each of the five (5) tasks identified in the Supplemental Agreement.

3. **COMPENSATION TO CONSULTANT**: City shall pay Consultant a fee for each of the five (5) tasks identified in the Supplemental Agreement as each task is completed for a total projected cost not to exceed $498,430.00. City shall be under no obligation to proceed with any of the tasks.

4. **PROVISIONS OF CONTINUING CONTRACT**: The terms, provisions,

conditions, obligations, and requirements of the Continuing Contract are incorporated in to, and made a part of, this Task Assignment and shall be binding on, and complied with by, Consultant.

5. **ATTORNEYS' FEES AND COSTS**. In the event of breach by either party of the Continuing Contract or Task Assignment, the breaching party shall be liable for and agrees to pay, all costs and expenses incurred in the enforcement of this Continuing Contract or Task Assignment Six, including reasonable attorneys' fees.

6. **ENTIRE AGREEMENT**. This Task Assignment Six and the Continuing Contract constitute the entire agreement between the City and Consultant and supersedes all prior written or oral understandings with respect to the project. Should any of the provisions of this Task Assignment and the Continuing Contract conflict with the provisions of the attachments hereto, the provisions of this Task Assignment and the Continuing Contract shall control. This Task Assignment Six may only be amended, supplemented, modified, or canceled by a duly executed written instrument.

7. **PARTIES BOUND**. This Task Assignment Number Six shall be binding upon and shall inure to the benefit of the City and Consultant, their successors and assigns.

8. **E-VERIFY**. As a condition precedent to entering into this Contract, and in compliance with Section 448.095, Fla. Stat., Contractor and its subcontractors shall, register with and use the E-Verify system to verify work authorization status

of all employees hired after January 1, 2021.

a. Contractor shall require each of its subcontractors to provide Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. Contractor shall maintain a copy of the subcontractor's affidavit as part of and pursuant to the records retention requirements of this Contract.

b. The City, Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated Section 448.09(1), Fla. Stat. or the provisions of this section shall terminate the contract with the person or entity.

c. The City, upon good faith belief that a subcontractor knowingly violated the provisions of this section, but Contractor otherwise complied, shall promptly notify Contractor and Contractor shall immediately terminate the contract with the subcontractor.

d. A termination of this Contract under the provisions of this section is not a breach of contract and may not be considered such. Any contract termination under the provisions of this section may be challenged pursuant to Section 448.095(2)(d), Fla. Stat. Contractor acknowledges that upon termination of this Contract by the City for a violation of this section by Contractor, Contractor may not be awarded a public contract for at least one (1) year. Contractor further acknowledges that Contractor is liable for any additional costs incurred

by the City as a result of termination of any contract for a violation of this section.

e. Contractor or subcontractor shall insert in any subcontracts the clauses set forth in this section, including this subsection, requiring the subcontractors to include these clauses in any lower tier subcontracts. Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.

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

CITY OF LAKE CITY, FLORIDA

By: _____
Stephen M. Witt, Mayor

ATTEST:
LEGALITY:

By: _____
Audrey E. Sikes, City Clerk

APPROVED AS TO FORM AND

By: _____
Frederick L. Koberlein, Jr.,
City Attorney

ATTEST:

JONES, EDMUNDS & ASSOCIATES, INC.

By: _____
Angela Witt,
Contracts Administrator

By: _____
Stanley F. Ferreira, Jr.,
Vice President

EXHIBIT A

SCOPE OF SERVICES

JonesEdmunds

City of Lake City Utility Master Plan

PREPARED FOR: Joseph Helfenberger, City Manager
City of Lake City
205 N. Marion Avenue
Lake City, FL 32055

DATE: April 9, 2021

SUBJECT: Utility Master Planning
Jones Edmunds Opportunity No. 95110-253-18

BACKGROUND

The City of Lake City (City) owns and operates utilities within the City limits of Lake City and in unincorporated Columbia County. The City's service area is defined by ordinance to be a five-mile radius from the intersection of Marion Avenue (US 441) and US 90. The City is working on modifying the ordinance to expand the service area boundary to within five miles of City limits. The City provides three utility services – water, wastewater, and natural gas – to nearly 9,000 customers, including those outside of the City's established service area.

Under this scope of services, Jones Edmunds will assist the City with the development of a comprehensive Utility Master Plan (UMP) encompassing all three of the City-provided utilities. The purpose of the UMP is to evaluate the existing utility systems and projected growth within the City to address the present and future needs of the customers. The UMP will include data collection, population projections, and model development, and will identify major infrastructure needs through a twenty-year planning horizon. This study will focus on the City's linear utility infrastructure including collection, transmission, and distribution systems in addition to storage or pumping needs within those linear systems. The goal of the UMP is to identify capital improvement projects, estimated construction costs, and recommended phasing for needed utility improvements and expansions over the planning period.

1 PROJECT MANAGEMENT AND EXISTING DATA COLLECTION

1.1 PROJECT INITIATION AND MANAGEMENT

Jones Edmunds will set up project financial files and prepare a Project Management Plan (PMP) that will be used throughout the project. The PMP will summarize the City's goals and critical success factors, project schedule, project budgets, communication plan, accounting/invoicing procedures, and project contacts list. Jones Edmunds will monitor

project progress (percent complete and schedule) and manage the project in conformance with the PMP throughout the contract.

1.2 KICKOFF MEETING

Jones Edmunds will develop a kickoff meeting agenda and conduct a virtual kickoff meeting with the City. During the kickoff meeting, the following will be discussed:

- Project purpose and objectives.
- Project schedule.
- Project team roles and responsibilities.
- Critical success factors and the City's vision for the project.
- Project data needs. Before the kickoff meeting Jones Edmunds will provide the City with a list of data needs. Anticipated data needs include, but may not be limited to the following:
    - Latest City water, wastewater, and natural gas GIS geodatabases.
    - For areas without known GIS geodatabase information on system components, City staff will mark up a provided map at or before the kickoff meeting with pipe type, size, as well as age and material if known.
    - Record drawings and/or specifications for lift stations, pump stations, wastewater treatment facilities, and the water treatment plant.
    - Record drawings and/or specifications for natural gas equipment including distribution metering, excess flow and automatic shutoff valves, pressure relief valves, pressure regulators, switching/pressure reducing stations, odorant equipment, and identification of any differential pressure lines/zones.
    - Available daily and monthly Supervisory Control and Data Acquisition (SCADA) pump run-time data for the past two years (2019-2020).
    - Monthly pump run-time data for the past two years (2019-2020).
    - Monthly operating reports (MORs) for the Price Creek Water Treatment Plant (WTP) for the last two years (2019-2020) in Excel format, if possible.
    - Previous five years (2015-2020) of discharge monitoring reports (DMRs) for St. Margarets Wastewater Treatment Facility (WWTF) and Kicklighter Water Reclamation Facility (WRF) in Excel format, if available possible.
    - Previous five years (2015-2020) of water quality data from the Price Creek WTP and for the distribution system.
    - Monthly water use data within the service area for the past five years (2015-2020).
    - Monthly water production reports for all wells for the last five years (2015-2020) in Excel format, if possible.
    - Unaccounted-for water reports for the last five years (2015-2020).
    - Natural gas meter data from primary and distribution meters for the past two years (2019-2020).
    - Active and inactive customer information including type of service and location in GIS.
    - Per capita level-of-service for water, wastewater, and natural gas.
    - Known planned commercial, industrial, and residential developments with projected water, wastewater, and natural gas demands.

- Community Planning Documents with Land Use (future and existing) and population projections.
- Recently completed, ongoing, and proposed capital improvement projects.
- Identification of natural gas supplier(s) with contact information for coordination of supply system maximum capacity and specific natural gas composition.
- Natural gas Distribution Integrity Management Program (DIMP) to communicate any previously identified pipeline threats.
- Other reports and documents as deemed necessary by City Utility staff.

1.3 Data Gap Analysis, Field Data Collection Plan and Workshop

Jones Edmunds will analyze all the data requested in Task 1.2, identify data gaps, and develop a data collection field plan for water, wastewater, and natural gas systems and a flow monitoring plan for the wastewater system. The data collection and flow monitoring plans will be prepared in a Technical Memorandum (TM), and Jones Edmunds will conduct a virtual workshop to review these documents with the City.

1.3.1 Wastewater

- Develop maps of sewersheds with lift stations and known force mains and major gravity transmission mains to be included in model.
- Develop maps and shapefiles identifying force main and major gravity main data gaps.
- Review existing geodatabase for transmission main routing and determine location of gravity mains and manholes for invert elevation data collection.
- Review existing lift station data to determine up to 25 lift stations for pump drawdown testing.
- Develop flow monitoring plan for up to 12 locations within gravity transmission mains including recommended locations for flow gages; locations may be adjusted slightly for field conditions during installation.
- The plan will include up to 60-days of wastewater flow monitoring which will be conducted during the months of June to September to capture the season with high rainfall and groundwater table conditions for evaluation of inflow and infiltration.

1.3.2 Water

- Develop maps of known pump stations and transmission and distribution mains to be included in model.
- Develop maps and shapefiles identifying transmission and distribution main data gaps.
- Review existing geodatabase for transmission and distribution main routing and determine location of transmission and distribution mains for line size confirmation.
- Select up to 10 locations for pressure data loggers to be installed and select up to 15 locations for hydrant flow and pressure testing to be performed. The pressure gauges will be installed for a period of up to two weeks, and the hydrant flow and pressure testing will be performed during that timeframe. The City will perform the hydrant flow and pressure testing.

1.3.3 Natural Gas

- Develop maps of known natural gas distribution equipment and distribution mains to be included in model.

- Develop maps and shapefiles identifying transmission and distribution main data gaps.
- Review existing geodatabase for transmission and distribution main routing and determine location of transmission and distribution mains for line size confirmation.
- Collect pressure data from existing field gauges to verify system pressure at key system locations.

DELIVERABLES:

- Meeting agendas, attendance sheets, and meeting minutes will be e-mailed to the City's Project Manager for distribution following the Kickoff Meeting and workshop.
- Status updates will be emailed monthly to the City's Project Manager.
- Lift station flow diagram presenting flow transmission pathways will be provided in PDF format.
- TM detailing the data collection field plan and the flow monitoring plan.

KEY ASSUMPTIONS:

- All data requested will be provided in electronic format (Word, Excel, GIS shapefile or geodatabase, and AutoCAD drawing files preferred; if not available, PDF) where available within 14 days of the Kickoff Meeting.

2 FIELD DATA COLLECTION

This task includes collecting all the field data described Task 1.3 which includes manhole elevation and condition data, lift station pump drawdown testing, gravity transmission main flow monitoring, water main pressure data logger installation, hydrant flow and pressure testing, and natural gas distribution equipment inspection and pressure verification.

2.1 MANHOLE DATA COLLECTION

- Collect manhole data including invert and rim elevations using a Real-Time Kinetic (RTK) Global Positioning System (GPS) system with sub-centimeter accuracy to collect at prioritized locations based on the data collection field plan TM.
- During the manhole survey, a Level 1 (surface level visual inspection) condition assessment using the National Association of Sanitary Sewer Companies (NASSO) Manhole Assessment Condition Program (MACP) standards will be performed. During the assessment each manhole will be visually assessed, and information will be collected including but not limited to materials of construction, observed structural condition, location details, photographs, and observations regarding infiltration will be obtained.
- The elevation data and condition assessments will be packaged into PDF reports and a GIS geodatabase.

2.2 LIFT STATION PUMP DRAWDOWN TESTING

- Collaborate with the City to develop a list of lift stations to obtain pump curves.
- Develop a list of lift stations to perform drawdown testing.
- Develop drawdown testing Excel spreadsheets for documenting the testing.
- Conduct lift station drawdown testing.

- Develop result and summary charts for each lift station and compare to the manufacturer's pump curves.

2.3 Wastewater Flow Monitoring

- Oversee subconsultant flow monitoring for a two-month period.
- Analyze collected flow monitoring data for use in refining flow allocation to gravity sewersheds.

2.4 Hydrant Flow and Pressure Testing

- Calibrate pressure data loggers prior to use.
- Oversee the installation of pressure data loggers by City Staff.
- Assist City Staff with fire hydrant flow testing, manually recording the test times and measurements of any imposed fire-flow rates and local static and residual pressures.

2.5 Natural Gas Distribution Equipment Inspection and Pressure Verification

- Field verify configurations at distribution metering, excess flow and automatic shutoff valves, pressure relief valves, pressure regulators, switching/pressure reducing stations, odorant equipment to validate adequacy of line and equipment sizes and expansion capacity.
- Verify system pressures by inspection of existing gauges during operation for use in model calibration.

DELIVERABLES:

- ArcGIS geodatabase of collected manhole and invert elevation data, and PDF reports of NASSCO Level 1 inspections performed on each manhole.
- Lift station drawdown test summary sheets in Excel and PDF format.
- Copies of raw data provided by the flow monitoring subconsultant.
- Copies of raw data from the water system pressure data loggers.
- Completed PDF reports from the hydrant flow and pressure tests.

KEY ASSUMPTIONS:

- Jones Edmunds will provide up to two weeks of staff support in the field for the data collection tasks; additional support or data collection will be performed by City Staff.
- Jones Edmunds will perform manhole data collection with City Staff assistance.
- City Staff will operate lift stations during drawdown testing. Lift station drawdown data not collected during the two weeks of field work will be provided by City Staff.
- Flow monitors will be deployed for no more than two months. The City will clean the gravity mains upstream and downstream of the proposed flow meter locations if required based on their condition.
- Jones Edmunds will prioritize the service areas for flow monitoring based on the gravity transmission systems identified with City Staff during the Data Collection Field Plan Meeting, sanitary sewer overflow data, and system criticality. Flow monitoring will be conducted by a subconsultant; up to 12 flow meters have been included in this Scope of

Services. If additional monitoring beyond what is identified is required, then an amendment to this scope may be needed or the data could be collected directly by the City.

- Jones Edmunds will provide pressure data loggers for City Staff to install at prescribed locations along water main. Additional pressure gauge data loggers beyond what is identified in the data collection field plan will be the responsibility of the City.
- City Staff will perform hydrant testing with Jones Edmunds staff present.
- Pressure data loggers will be deployed for no more than two weeks.
- Existing natural gas equipment has sufficient and accurate pressure gauges to provide pressure data at critical system locations. City Staff will provide locations and access for existing natural gas system equipment and pressure gauges.

3 MODELING

This task includes the expansion of City's existing wastewater model and the development of new water and natural gas models.

Jones Edmunds proposes the subtasks below.

3.1 FLOW AND DEMAND PROJECTIONS

Jones Edmunds will review the historic use and production data provided by the City to develop a summary of current water, wastewater, and natural gas demands on an annual average daily flow (AADF) basis. Jones Edmunds will also develop peaking factors used to adjust for maximum daily flow (MDF) and fire flow demand.

Jones Edmunds will use projected Countywide growth rates from the University of Florida Bureau of Economic and Business Research (BEBR) to estimate population growth within the City's Service Area. Jones Edmunds will also obtain information from the City on potential commercial, industrial, and residential developments not represented by the BEBR growth projections. Jones Edmunds will use this information, along with City level of service requirements, to develop projected water, wastewater, and natural gas demands over the next 20 years at 5-, 10-, and 20-year milestones.

Jones Edmunds will conduct a virtual workshop with City Staff to present estimated use and future demand projections and adjust prior the hydraulic modeling effort, if necessary.

3.2 FLOW MODELING

3.2.1 WASTEWATER

- Update the City's dynamic hydraulic model of the existing force main and gravity main transmission system using Bentley's SewerGEMS software. Model development will be based on the City's latest GIS data as provided by the City and collected in Tasks 1 and 2.
- Allocate existing and near-term projected flows generated to the lift station tributary sewershed basins based on the collection systems and wastewater service points within the model, water meter data, customer land use data, and overall wastewater system

flows. Flows will be allocated based on AADF and peaking factors will be used to adjust for MDF.

- Perform model verification using the available existing SCADA data and the limited pump drawdown testing conducted as part of Task 2.
- Perform hydraulic modeling evaluation to analyze the City's existing collection and transmission system with the near-term projected growth to determine capacity of these systems to handle projected flows. Jones Edmunds expects that extended period simulations (EPSs) will be conducted as part of this Scope of Services.
- Eight model scenarios will be conducted: current AADF and MDF, 5-year AADF and MDF, 10-year AADF and MDF, and 20-year AADF and MDF. We assume that peak hourly flow (PHF) will be included in the MDF scenarios.
- Develop draft system deficiency figures for the modeled scenarios.

3.2.2 Water

- Jones Edmunds will conduct hydraulic modeling of the City water transmission and distribution system using Bentley's WaterGEMs model software. The model will be based on the City's latest GIS data provided by the City and data collected in Tasks 1 and 2.
- The City will be responsible for conducting the hydrant pressure and flow testing and providing the data to Jones Edmunds for model calibration listed in Tasks 1 and 2.
- Jones Edmunds will create a baseline water model and calibrate the model to existing operating conditions. Three additional scenarios will be developed for each planning year to evaluate future conditions using the projected water demand.
- For the Services Areas, Jones Edmunds will use the models to assess system performance for year 2020, 2025, 2030 and 2040 scenarios. Jones Edmunds will model three scenarios for each of these four planning years including: Average Annual Daily Demand (AADD) Scenario (steady state), Maximum Daily Demand with Fire Flow Analysis (MDD+FF) Scenario (steady state), and Maximum Daily Demand inclusive of Peak Hourly Demand (MDD) Scenario (EPS).
- The existing facilities and future needs to be evaluated include the following: storage facilities, pumping facilities, distribution system, standby capacity/backup power capacity to provide continuous service during a power outage.

3.2.3 Natural Gas

- Jones Edmunds will conduct compressible flow modeling of the City natural gas transmission and distribution system using the AFT Arrow model software. The model will be based on the City's latest GIS data provided by the City and data collected in Tasks 1 and 2.
- Jones Edmunds will create a baseline natural gas model and calibrate the model for existing operating conditions. Two additional scenarios will be developed for each planning year to evaluate future conditions using the projected natural gas demand.
- For the Services Areas, Jones Edmunds will use the models to assess system performance for year 2020, 2025, 2030 and 2040 scenarios. Jones Edmunds will model two scenarios for each of these four planning years including: Average Annual Daily Demand (AADD) Scenario (steady state) and Maximum Daily Demand inclusive of Peak Hourly Demand (MDD) Scenario (EPS).

- The existing facilities and future needs to be evaluated include the following: supply facilities, odorant facilities, distribution system, and pressure and excess flow control facilities.

3.3 Capital Improvement Project Development and Prioritization

- Based on model results for the known proposed developments and existing flows, Jones Edmunds will develop proposed capital improvement projects for additional or replacement distribution, collection and transmission systems. Preliminary alternatives for these facilities will be developed for comparative purposes.
- Jones Edmunds will meet with City staff to select recommended capital improvement projects. The goal of the meeting is to workshop the improvement alternatives.
- Jones Edmunds will work with the City to prioritize existing and recommended capital improvement projects over the planning horizon. Prioritization will be designated Priority A, B, C, and D, with Priority A recommended improvements being completed within 5-year planning horizon, Priority B within the 5- to 10-year planning horizon, Priority C within the 10- to 20-year planning horizon, and Priority D beyond the 20-year planning horizon. Priority A, B, and C projects will include a summary of the project need, recommended solution, alternatives considered, implementation schedule, and a planning-level cost estimate.
- Jones Edmunds will work with the City to identify triggers for capital improvement projects including key growth criteria, regulatory criteria, and predecessor projects that may impact the improvement project. This will allow the plan to be adapted as the needs of the City change.
- Jones Edmunds will work with the City to develop an initial implementation schedule to reflect the prioritized list developed.

DELIVERABLES:

Meeting agendas, attendance sheets, and related handouts to allow City staff to review, interact, and comment. Meeting minutes will be e-mailed to the City's Project Manager for distribution following each meeting.

KEY ASSUMPTIONS:

- Lift station design data are available and will be provided by the City.
- Spatially located water meter demand data are available in GIS for service areas for allocation of water and wastewater flows.
- Jones Edmunds will use 2020 City Utility Standards as the evaluation criteria to evaluate the performance of the systems.
- The modeling, scenarios, and alternatives will focus on the City's linear utility infrastructure. Evaluations of the treatment systems and facilities including but not limited to water supply, water treatment, wastewater treatment, and effluent disposal are excluded from this scope of services.

4 INFILTRATION AND INFLOW ANALYSIS (OPTIONAL TASK)

The City would like to determine which portions of their wastewater collection system may be experiencing high levels of infiltration and inflow (I&I). This optional task, if selected by the City, will include an I&I analysis and findings from this task will be integrated into the UMP. The City's gravity collection system is comprised of nearly 100 miles of gravity main. Identifying I&I in a collection system can be time consuming and expensive to perform if only reliant on traditional field investigations such as CCTV inspections. The goal of this task will be to perform a comprehensive system wide evaluation of I&I in the City's collection system which will quantify and rank the amount of I&I in each LS basin and gravity sewershed, develop a prioritized list of areas with excessive I&I which require further field investigations.

4.1 I&I DATA ANALYSIS

The I&I analysis will be completed using a combination of data including SCADA pump runtime information, flow monitoring and rain gauge data, and other available hydrologic information such as rainfall and groundwater records.

The 12 flow meters included in Task 3 and LS pump runtime data will be utilized for I&I quantification in all the sewersheds. In addition to those sets of data, four rain gauges will need to be installed by the flow metering subconsultant to capture rain data during the 60-day data collection period.

We will use the parcel level flow data developed in Task 3 for each sewershed to estimate Base Sanitary Flow (BSF) to help corroborate results from the hydrograph decompositions. The collection system data will be used to summarize the gravity system in each sewershed and to normalize the flow results by inch-diameter-mile (IDM), which is a measure of leakable surface area.

Jones Edmunds will perform hydrograph decompositions on the flow hydrographs for up to 74 LS basins plus an additional 9 gravity sewersheds and extract the following data per area:

- BSF.
- Average dry-season Groundwater Infiltration (GWI).
- Average wet-season GWI.
- Qualitative Rainfall Derived Inflow and Infiltration (RDII) response-based daily flow volumes (low/medium/high) during and after rain events of 1 inch or greater compared to previous dry-day volumes.

We will normalize the results based on the IDM of the gravity collection system provided in the City's GIS layers. We will summarize the methodology and findings into the UMP. We will also conduct an online review meeting with the City to review the findings and methodology.

4.2 I&I Reduction Recommendations

Jones Edmunds will identify and rank the areas of the collection system on a neighborhood level for each LS basin and gravity sewersheds (areas of size than 20,000 LF of pipe) based on the calculated amounts of I&I for each area determined from Task 4.1. A prioritization list will be developed for each area for basins exceeding a defined Level of Service criteria for acceptable amounts of I&I.

The outcome of this study will include detailed recommendations for further field investigations in each priority area such as manhole inspections, CCTV inspections, or smoke testing to be performed by the City. The recommendations will also include alternatives for I&I reduction technologies that the City could use based on the findings from the field investigations. All recommendations will be summarized in the UMP.

DELIVERABLES:

- Summary of flow characterizations and I&I for each LS basin and gravity sewershed.
- Prioritized list of areas with excessive I&I.
- Recommendations for additional investigations in each priority area.

KEY ASSUMPTIONS:

- Four rain gauges will be installed during the 60-day flow monitoring period.
- The I&I study will not include pipe-by-pipe rehabilitation recommendations, but instead break the collection system neighborhood level (20,000 LF of pipe or less) recommendations for further investigation.

5 UTILITY MASTER PLAN

5.1 Cost Estimates of Recommended Improvements

- Prepare planning-level Engineer's Opinion of Probable Construction Costs for recommended water, wastewater, and natural gas system improvements. Costs will be presented in 2021 dollars. Costs associated with engineering and construction contingencies will be included.

5.2 Draft and Final Utility Master Plan

- Prepare the draft Utility Master Plan (UMP) summarizing the project effort for review and comment by the City (submitted in PDF format to City). The UMP will include:
    - Background information/master plan goals
    - Summary of data collection and evaluation efforts
    - Population/demand projections
    - Model development details
    - Description of modeled scenarios and results
    - Capital Improvement Plan
        - Capital improvement projects
        - Planning-level cost estimates

    - Recommended project phasing
    - Project fact sheets intended for grant applications

- Meet with the City to discuss the draft UMP and receive comments.
- Following the review meeting, finalize the draft UMP by incorporating the City's comments.

DELIVERABLES:

- Draft and Final UMP in PDF format.
- Final SewerGEMS, WaterGEMS, and AFT Arrow models and ArcGIS data collected and developed for the Plan.

KEY ASSUMPTIONS:

- The cost opinions' accuracy range will be a Class 4 estimate, in accordance with the Association for the Advancement of Cost Engineering International's Cost Estimate Classification System (Recommended Practice No. 18R-97). The classifications depend on the level of project definition, with Class 1 being the highest level of definition and Class 5 being the lowest level of definition. A conceptual design is expected to be a Class 4 estimate at the conceptual design phase, with a range of accuracy of -15 percent to +50 percent.

PROJECT SCHEDULE

Jones Edmunds will begin working on this project within two weeks of receipt of a signed notice to proceed. Completion of the project is expected to take one year. The estimated project schedule is show below.

Task	Duration (Days)	Days from NTP
Task 1 – Project Management and Existing Data Collection	60	60
Task 2 – Field Data Collection	90	150
Task 3 – Flow Model Development	120	270
Task 4 – Infiltration and Inflow Analysis (Optional)	60	330
Task 5 – Utility Master Plan	90	360

COMPENSATION

Jones Edmunds proposes to complete the Scope of Services as described herein for a lump sum fee of $498,430. A detailed fee schedule is provided below.

Task	Total Cost
Task 1 – Project Management and Existing Data Collection	$64,100
Task 2 – Field Data Collection	$173,640
Task 3 – Flow Model Development	$103,340
Task 4 – Infiltration and Inflow Analysis (Optional Task)	*$73,950*
Task 5 – Utility Master Plan	$83,400
Total Fee	**$498,430**
Total Fee (without Task 4)	$424,480