

MEMORANDUM

Date: January 7, 2021
To: Utility Advisory Committee
From: Joseph Helfenberger, City Manager
Re: Proposal for Water Route Study



I am asking for re-consideration of supporting the water route study proposed by Jones Edmunds on November 30, 2020 for the following reasons:

First, there are existing water capacity problems with supplying potable water to the prison. For example, when hydrants are being flushed at the airport, the water pressure is greatly reduced at the prison.

Second, a potable water extension to the NFMIP is needed regardless of whether any industrial development happens. There is a residential component to the development at the North Florida Mega Industrial Park (NFMIP) that is planned to take place soon and it will need potable water. This housing development will be on the west side of the NFMIP, closest to the City water plant. The range of housing projected is between 300 to 700 new residences. It is anticipated that a new housing development would occur much quicker than the industrial development and there is a critical shortage of housing in our community.

Third, there is a greater possibility that the NFMIP will be annexed into the City for future tax base if the City provides the potable water service that is needed in a timely manner. There is already 130,000 gallons per day of sewer capacity available and 30,000 CFS of natural gas available for the NFMIP. The residential property tax base would be estimated to increase in a range from \$51,900,000 to \$121,100,000 (Average residential home value in Columbia County (\$173,000) times the number of projected homes (300 to 700 homes) at full build out.

The study would provide an estimate of the time to design and construct the water extension and would also be helpful information when applying for grants and other funding sources for the project.

The water route study will need to be done for any master plan efforts and the cost of the study is not expected to change significantly depending upon the timing of the work. The cost is \$38,900 and it is expected to take approximately 90 days to complete the study from the time Jones Edmunds would be given authorization to begin.

I am recommending that the Utility Advisory Committee recommend to the City Council to approve this proposal.

November 30, 2020

Joe Helfenberger
City Manager
City of Lake City
205 N. Marion Street
Lake City, FL 32055

RE: Lake City Water Main Routing Study
Jones Edmunds Opportunity No.: 95110-XXX-20

Dear Mr. Helfenberger:

In accordance with your request, Jones Edmunds is pleased to submit this Scope of Services for the Lake City Water Main Routing Study to evaluate water main route alternatives to provide potable water utility service from the City's Price Creek Water Treatment Plant to customers of the North Florida Mega Industrial Park.

BACKGROUND

Columbia County (County) is developing the North Florida Mega Industrial Park (NFMIP) in conjunction with a private landowner, Weyerhaeuser, east of the City of Lake City (City). The construction of least one new business is anticipated by the end of 2021. The County is pursuing the permitting and construction of a raw water well but the timeline to completion is uncertain. This study will serve to provide recommendations for the City to provide potable water utility service from the Price Creek Water Treatment Plant (WTP) to the NFMIP, including pipe sizing, route alternatives, and cost estimating.

SCOPE OF SERVICES

The Scope of Services is to prepare a Water Main Routing Study technical memorandum that will detail the recommend pipe size, water main route alternatives, and an engineer's opinion of probable construction cost for the recommended route. The expected tasks to be completed under this Scope of Services are described below.

TASK 1: PROJECT MANAGEMENT AND KICKOFF MEETING

This task includes project initiation, project management, and the project kickoff meeting. Jones Edmunds proposes the subtasks below.

1.1 PROJECT INITIATION AND PROJECT MANAGEMENT

The purpose of this subtask is to facilitate coordination and communication between the City and Jones Edmunds and to report project progress to the City on an ongoing basis.

- Monthly status reports will be provided to the City's Project Manager.

- Set up project files and prepare the Project Plan that will be used throughout the project. The Plan will summarize the City's goals and critical success factors, project schedule, project budgets, communication plan, accounting/invoicing procedures, and project contacts list. This will be a tool for all project team members to assess the project's progress.
- Monitor project progress (percent complete and schedule) and manage the project in conformance with the Project Plan to the extent possible throughout the contract. Monthly invoices will be submitted in accordance with the contract requirements.

1.2 KICKOFF MEETING

A project kickoff meeting will be held virtually through Microsoft Teams. During the kickoff meeting, the following will be discussed:

- Project purpose and objectives – confirm City goals.
- Project schedule.
- Project team roles, responsibilities, and communication.
- Critical success factors.
- Project schedule.
- 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:
 - Latest City geodatabases of the following: water supply and transmission system, wastewater collection and transmission system, natural gas transmission system, and other utilities.
 - For areas without known 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 the Price Creek WTP and the potable water infrastructure in the vicinity of the NFMIP and Lake City Gateway Airport.
 - Pump curves for the Price Creek WTP high service pumps.
 - Available daily Supervisory Control and Data Acquisition (SCADA) pump run-time data and other available collected data for the past year such as recorded flows and pressures.
 - Monthly pump run-time data for the past year.
 - Number and type of connections and service-area population.
 - Level-of-service water flow in gallons per day and pressure in pounds per square inch for each known future development.
 - Monthly water use data within the service area for the past year.
 - Community Planning Documents with Land Use (future and existing) and population projections.
 - Other reports and documents as deemed necessary by City staff.

DELIVERABLES:

- Meeting agenda and meeting minutes will be e-mailed to the City's Project Manager.
- Status updates will be emailed monthly to the City's Project Manager.

KEY ASSUMPTIONS:

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

TASK 2: DATA COLLECTION/DATA GAP ANALYSIS

- Develop maps and shapefiles identifying water transmission main data gaps.
- Review available SCADA data.
- Review as-builts of WTP and transmission system, and pump curves.
- Evaluate current and future maximum day potable and fire flow demands along the potential routes and destination to determine necessary pipe diameter to transmit required flows and maintain required pressures.
- Determine if adequate water supply and permitted capacity are available to meet the estimated demands.
- Prepare a draft technical memorandum (TM) summarizing the collected data findings, demand projections, and water main sizing.
- Attend one virtual meeting with City staff to discuss the data review and pipe sizing.

DELIVERABLES:

- PDF map of water transmission main data gaps.
- Meeting minutes emailed to the City's project manager follow the review meeting.
- Draft TM will be emailed to the City's project manager in PDF format.
- Status updates will be emailed monthly to the City's Project Manager.

KEY ASSUMPTIONS:

- If NFMIP customer flow and pressure demands are not available, Jones Edmunds will assume LOS based on the types of businesses that have expressed an interest in the park, industry-standard demands, and a percentage of estimated developable acreage.

TASK 3: ROUTE EVALUATION AND MODEL SCENARIO DEVELOPMENT

Jones Edmunds will evaluate two route alternatives and model scenarios for a new water transmission main from the Price Creek WTP to the NFMIP. Considerations of the advantages and disadvantages of each route will include:

- Route length.
- Land or easement acquisition needs.

- Elevation.
- Potential utility conflicts.
- Construction requirements, i.e. length of directional drills versus open cuts.
- Potential future connections along the route.
- Potential for looping to minimize pressure drops.
- Wetlands along the route.

Jones Edmunds will develop model scenarios for each route based on the maximum daily flow and estimated pressures to determine the feasibility of each alternative. Jones Edmunds will update the draft TM to include a summary of the routing evaluation, including the relative advantages and disadvantages of each route and the proposed model parameters.

DELIVERABLES:

- PDF map of route alternatives.
- Status updates will be emailed monthly to the City's Project Manager.

KEY ASSUMPTIONS:

- City staff will provide preferred route alternatives for evaluation in electronic format (ArcGIS shapefile or geodatabase preferred; if not available, PDF) within 14 days of the Kickoff Meeting.
- This task does not include survey, geotechnical investigation, or environmental assessment. A desktop evaluation of existing geotechnical information and wetland boundaries will be performed.

TASK 4: HYDRAULIC MODEL DEVELOPMENT AND ALTERNATIVES ANALYSIS

This task evaluates the City's existing potable water supply system's ability to transmit water from the Price Creek WTP to customers at the NFMIP.

Jones Edmunds proposes the following:

- Develop a hydraulic model of the existing potable water transmission system in the vicinity of the NFMIP using Bentley systems' WaterGEMS 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 in Task 1 to the Price Creek WTP. Flows will be allocated based on AADF and peaking factors will be used to adjust for MDF.
- Verify the model to the extent feasible based on the available existing SCADA data and the provided pump curves and as-builts.

- Perform hydraulic modeling evaluation to analyze the City's Price Creek WTP and existing potable water transmission system with the two possible route scenarios. Model scenarios will be conducted for near-term MDF.
- Meet with City staff to review modeled route alternatives. The goal of the meeting is to select a recommended route.

DELIVERABLES:

- Meeting minutes will be e-mailed to the City's Project Manager for distribution following the route review.
- Draft TM will be emailed to the City's project manager in PDF format.

KEY ASSUMPTIONS:

- Up to three scenarios will be modeled.
- Model will be calibrated based on existing user and SCADA data as provided by the City.

TASK 5: CAPITAL IMPROVEMENT PROJECT COSTS AND WATER MAIN ROUTING STUDY DEVELOPMENT

5.1 COST ESTIMATES OF RECOMMENDED IMPROVEMENTS

- Prepare planning-level Engineer's Opinion of Probable Construction Costs for recommended water main size and route. Costs will be presented in 2020 dollars. Costs associated with engineering and construction contingencies will be included.

5.2 DRAFT AND FINAL WATER MAIN ROUTING STUDY

- Prepare the draft Water Main Routing Study summarizing the project effort for review and comment by the City.
- Meet with the City virtually to discuss the draft Study and receive comments.
- Following the review meeting, finalize the draft Study by incorporating the City's comments.

DELIVERABLES:

- Meeting minutes will be emailed to the City's project manager following the review meeting.
- Draft and Final Water Main Routing Study in PDF format.
- Final WaterGEMS and ArcGIS data collected and developed for the Study.

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).

PROJECT SCHEDULE

Jones Edmunds will begin working on this project within two weeks of receipt of a signed task order from the City. The estimated project schedule is as follows:

Task	Days	Days from NTP
Task 1 – Project Management and Kickoff Meeting	15	15
Task 2 – Data Collection and Data Gap Analysis	15	30
Task 3 – Route Evaluation and Scenario Development	15	45
Task 4 – Hydraulic Model Development and Alternative Analysis	30	75
Task 5 – Capital Improvement Project Costs and Water Main Routing Study Development	15	90
Total		90

PROJECT FEE

Jones Edmunds proposes to perform the Scope of Services as described herein for a lump sum fee of \$38,900.

Task	Total Cost
Task 1 – Project Management and Kickoff Meeting	\$4,800
Task 2 – Data Collection and Data Gap Analysis	\$5,700
Task 3 – Route Evaluation and Scenario Development	\$6,500
Task 4 – Hydraulic Model Development and Alternative Analysis	\$8,900
Task 5 – Capital Improvement Project Costs and Water Main Routing Study Development	\$13,000
Total Fee	\$38,900

Jones Edmunds appreciates your trust in our staff in continuing to serve the City of Lake City and we look forward to working with the City on this important project. If you have any questions or wish to discuss any aspect of the proposed Scope of Services, please contact us at (352) 377-5821.

Sincerely,



Jamie Sortevik Bell, PE, CFM
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