



PROFESSIONAL SERVICES AGREEMENT

(version 5-1-2020)

This AGREEMENT (“Agreement”) is entered by and between **Freese and Nichols, Inc.** (“Professional”), located at **11200 Broadway St., Suite 2320, Pearland, TX 77584** and the **City of League City** (“City”), a home-rule municipality, located at 300 W. Walker St., League City, Texas 77573 on the date set forth below.

Terms:

1. **Scope of Services:** Professional will perform the services as set forth in **Exhibit A**, which is attached and incorporated herein, and which can be generally described as **2022 Water and Wastewater Master Plan and Capital Recovery Fee Update**. Services related to design, bid, or construction of a public work shall conform to the requirements set forth in **Exhibit B**. If there is a conflict between the terms of this Agreement and Exhibits A or B, the terms of this Agreement will prevail.
2. **Term and Termination:** This Agreement shall commence on **August 15, 2022** and shall expire on **July 15, 2023**. City reserves the right to terminate this Agreement for convenience upon seven (7) days written notice to Professional. Upon such termination, City shall pay Professional, at the rate set out in **Exhibit A**, for services satisfactorily performed up through the date of termination. Notwithstanding any provision in this Agreement to the contrary, City will not be required to pay or reimburse Professional for any services performed or for expenses incurred by Professional after the date of the termination notice that could have been avoided or mitigated by Professional.
3. **Compensation:** Professional shall be paid for the services as set forth in **Exhibit A**. In no event shall the total compensation exceed **\$645,000** during the term of this Agreement. City shall tender payment (including progress/partial payments) for services only after such services are completed and are deemed to be acceptable under this Agreement, in the sole reasonable discretion of City. Professional must submit to City invoices for all services provided, which invoices must include details and dates of service. Payment by City shall be made within thirty (30) days of receipt of an invoice, except for any portion of the invoiced amount that City disapproves as not compliant under this Agreement, in the sole reasonable discretion of City. If City disapproves any amount submitted for payment by Professional, City shall give Professional specific reasons for disapproval in writing.
4. **Insurance:** Professional **is** required during the Contract Term to maintain insurance as set forth below:
 - (a) Comprehensive General Commercial Liability insurance covering bodily injury and property damage, with minimum coverage limits—exclusive of defense costs—of \$1,000,000 per occurrence and \$2,000,000 aggregate;
 - (b) Professional Liability (errors and omissions/malpractice) insurance with minimum coverage limits—exclusive of defense costs—of \$2,000,000 per occurrence; and
 - (c) If at any point during the Contract Term it is foreseeable that Professional will enter upon City premises:
 - (i) Worker’s Compensation coverage with statutory limits for the State of Texas, and
 - (ii) Commercial Automobile Liability coverage with minimum coverage limits—exclusive of defense costs—of \$1,000,000 per occurrence and \$2,000,000 aggregate.All policies must contain a waiver of subrogation against City. Comprehensive General Liability and Commercial Automobile Liability policies must name the City as Additional Insured. Professional shall pay all insurance deductibles and deductibles must not exceed \$10,000 unless approved in advance by City.

Professional shall provide City Certificates of Insurance evidencing these insurance requirements prior to the start of work.

5. **Liquidated Damages:** Professional acknowledges that time is of the essence in performing this Agreement. City and Professional (collectively, the “Parties”) agree that if Professional is late in performing any service designated as Time Critical on the Scope of Services attached to this Agreement, City will suffer loss, damages, or other harm from Professional’s delay. The Parties agree that the amount of loss, damages, or harm likely to be incurred as a result of Professional’s delay is incapable or difficult to precisely estimate, and therefore the Parties desire to stipulate the amount of such loss, damages, or harm. Accordingly, Professional shall have deducted from any amounts owed under this Agreement liquidated damages equal to the number of calendar days of the delay(s) times the daily rate, which rate shall be one-tenth of one percent (0.1%) times the compensation shown in the Scope of Services for such Time Critical service. The Parties further agree that: (i) the liquidated damages specified herein are not a penalty but rather bear a reasonable relationship to, and is not plainly or grossly disproportionate to, the probable loss likely to be incurred by City as a result of Professional’s delay; (ii) one of the reasons for City and Professional to agree to such amounts is the uncertainty and cost of litigation regarding the question of actual damages; and (iii) City and Professional are sophisticated business parties and negotiated this Agreement at arm’s length.
6. **Independent Professional:** Professional is an independent Professional and is not an employee, partner, joint venture, or agent of City. Professional understands and agrees that he/she will not be entitled to any benefits generally available to City employees. Professional shall be responsible for all expenses necessary to carry out the services under this Agreement and shall not be reimbursed by City for such expenses except as otherwise provided in this Agreement.
7. **Intellectual Property:** This Agreement shall be an Agreement for services and the parties intend and consider any work created as a result of this Agreement, including any and all documentation, images, products or results, to be a work (the “Work”) for hire under federal copyright law. Ownership of the Work shall belong to and remain the exclusive property of City. The Work may be edited at any time within City’s discretion. If the Work would not be considered a work-for-hire under applicable law, Professional hereby assigns, transfers, and conveys any and all rights, title and interest to City, including without limitation all copyrights, patents, rights of reproduction, rights to ownership, and right to secure registrations, renewals, reissues and extensions thereof. As the sole copyright holder of the Work, City maintains and asserts the rights to use, reproduce, make derivative works from, and/or edit the Work in any form of medium, expression or technology now known or hereafter developed, at any time within City’s discretion. Professional shall not sell, disclose or obtain any other compensation for the services provided herein or the Work. If the Work is one to which the provisions of 17 U.S.C. § 106A apply, Professional hereby waives and appoints City to assert on Professional's behalf Professional's moral rights or any equivalent rights regarding the form or extent of any alteration to the Work (including, without limitation, removal or destruction) or the making of any derivative works based on the Work, including, without limitation, photographs, drawings or other visual reproductions of the work, in any medium, for City’s purposes.
8. **Confidentiality:** During the course of the services to be provided under this Agreement, Professional may become privy to confidential information of City. Professional agrees to treat as confidential the information or knowledge that becomes known to Professional during performance of this Agreement and to not use, copy, or disclose such information to any third party unless authorized in writing by City. This provision does not restrict the disclosure of any information that is required to be disclosed under applicable law. Professional shall promptly notify City of any misuse or unauthorized disclosure of City’s confidential information and upon expiration of this Agreement shall return to City all confidential information in Professional’s possession or control. Professional shall further comply with all information security policies of City that may apply and shall not make any press releases, public statements or advertisement referring to the services provided under this Agreement or the engagement of Professional without the prior written approval of City.

9. **Warranties and Representations:** Professional warrants and agrees that Professional shall perform its services and conduct all operations in conformity with all applicable federal, state, and local laws, rules, regulations, and ordinances. For any service performed on premises owned or controlled by City, Professional warrants and agrees that Professional will perform said services in compliance with all City rules, including but not limited to, prohibitions related to tobacco use, alcohol, and other drugs.
10. **Licenses/Certifications:** Professional represents and warrants that it will obtain and maintain in effect, and pay the cost of, all licenses, permits or certifications that may be necessary for Professional's performance of this Agreement. If Professional is a business entity, Professional warrants, represents, covenants, and agrees that it is duly organized, validly existing and in good standing under the laws of the state of its formation; and is duly authorized and in good standing to conduct business in the State of Texas, that it has all necessary power and has received all necessary approvals to execute and deliver the Agreement and is authorized to execute this Agreement according to its terms on behalf of Professional.
11. **Performance/Qualifications:** Professional agrees and represents that Professional has the personnel, experience, and knowledge necessary to qualify Professional for the particular duties to be performed under this Agreement. Professional warrants that all services performed under this Agreement shall be performed consistent with generally prevailing professional or industry standards.
12. **Conflict of Interest:** Professional warrants, represents, and agrees that Professional presently has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with Professional's performance of the services hereunder. Professional further warrants and affirms that no relationship or affiliation exists between Professional and City that could be construed as a conflict of interest with regard to this Agreement.
13. **INDEMNIFICATION: PROFESSIONAL SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS CITY , AND EACH OF ITS OFFICIALS, OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, ACTIONS, SUITS, DEMANDS, PROCEEDINGS, COSTS, DAMAGES AND LIABILITIES, INCLUDING WITHOUT LIMITATION ATTORNEYS' FEES AND REASONABLE LITIGATION COSTS, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM ANY ACTS OR OMISSIONS OF PROFESSIONAL OR ANY AGENT, EMPLOYEE, SUBPROFESSIONAL, OR SUPPLIER OF PROFESSIONAL IN THE EXECUTION OR PERFORMANCE OF THIS CONTRACT, TO THE EXTENT THE CLAIM ARISES FROM NEGLIGENCE, WILLFUL ACT, BREACH OF CONTRACT OR VIOLATION OF LAW.**
14. **Force Majeure:** Neither party shall be liable to the other for (i) any delay in performance; (ii) any other breach; (iii) any loss or damage; or (iv) any contribution to or aggravation of any of the foregoing; arising solely from uncontrollable forces such as fire, theft, storm, war, or any other cause that could not have been reasonably avoided by the party's exercise of due diligence.
15. **Notices:** Any notice given under this Agreement by either party to the other may be effected either by personal delivery in writing or by mail, registered or certified postage prepaid with return receipt requested. Mailed notices shall be addressed to the addresses of the Parties as they appear in the contract. Notices delivered personally shall be deemed communicated at the time of actual receipt. Mailed notices shall be deemed communicated three (3) days after mailing.

16. **Texas Family Code Child Support Certification:** Pursuant to Section 231.006 of the Texas Family Code, Professional certifies that it is not ineligible to receive the award of or payments under the Agreement and acknowledges that the Agreement may be terminated, and payment may be withheld if this certification is inaccurate.
17. **State Auditor:** Professional understands that acceptance of funds under the Agreement constitutes acceptance of the authority of the Texas State Auditor's Office, or any successor agency (collectively, the "Auditor"), to conduct an audit or investigation in connection with those funds. Professional agrees to cooperate with the Auditor in the conduct of the audit or investigation, including without limitation providing all records requested. Professional will include this provision in all contracts with permitted subprofessionals.
18. **Jurisdiction:** Any disputes under this Agreement shall be brought in a court of competent jurisdiction in Galveston, Texas and governed by Texas law.
19. **Alternative Dispute Resolution:** To the extent that Chapter 2260, Texas Government Code, is applicable to this Contract and is not preempted by other applicable law, the dispute resolution process provided for in Chapter 2260 and the related rules adopted by the Texas Attorney General Pursuant to Chapter 2260, shall be used by City and Professional to attempt to resolve any claim for breach of contract made by Professional that cannot be resolved in the ordinary course of business. The Director of Finance of City shall examine Professional's claim and any counterclaim and negotiate with Professional in an effort to resolve such claims. This provision shall not be construed as a waiver by City of its right to seek redress in the courts.
20. **Entire Agreement:** This Agreement contains the entire understanding between the Parties and supersedes all prior agreements, arrangements, and understanding, oral or written between the Parties relating to this Agreement. This Agreement may not be modified except by mutual written agreement of the Parties executed subsequent to this Agreement.
21. **Eligibility to Receive Payment:** Professional certifies that, as a matter of state law, it is not ineligible to receive the Agreement and payments pursuant to the Agreement and acknowledges that the Agreement may be terminated, and payment withheld if this representation is inaccurate.
22. **Payment of Debt/Delinquency to State:** Professional certifies that it is not indebted to the City of League City and is current on all taxes owed to the City of League City. Professional agrees that any payments owing to Professional under the Agreement may be applied directly toward any debt or delinquency that Professional owes the City of League City regardless of when it arises, until such debt or delinquency is paid in full.
23. **Products and Materials Produced in Texas:** If Professional will provide services under the Agreement, Professional covenants and agrees that in performing its duties and obligations under the Agreement, it will purchase products and materials produced in Texas when such products and materials are available at a price and delivery time comparable to products and materials produced outside of Texas.
24. **Risk of Loss:** If applicable, all work performed by Professional pursuant to the Agreement will be at Professional's exclusive risk until final and complete acceptance of the work by City. In the case of any loss or damage to the work prior to City's acceptance, bearing such loss or damage will be Professional's responsibility.
25. **Publicity:** Professional shall not use City's name, logo or likeness in any press release, marketing materials or other public announcement without receiving City's prior written approval.
26. **Legal Construction/Severability:** In the event that any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision, and this Agreement shall be construed as

if such invalid, illegal or unenforceable provisions had never been contained in it. To this end, the provisions of this Agreement are declared to be severable. The Parties may mutually agree to renegotiate the Agreement to cure such illegality/invalidity or unconstitutionality if such may be reasonably accomplished.

27. **Limitations:** The Parties are aware that there are constitutional and statutory limitations on the authority of City to enter into certain terms and conditions of the Agreement, including, but not limited to, those terms and conditions relating to liens on City's property; disclaimers and limitations of warranties; disclaimers and limitations of liability for damages; waivers, disclaimers and limitations of legal rights, remedies, requirements and processes; limitations of periods to bring legal action; granting control of litigation or settlement to another party; liability for acts or omissions of third parties; payment of attorneys' fees; dispute resolution; indemnities; and confidentiality (collectively, the "Limitations"). Any terms and conditions related to the Limitations will not be binding on City except to the extent authorized by the laws and Constitution of the State of Texas.
28. **Sovereign Immunity:** The Parties agree that neither the execution of the Agreement by City nor any other conduct, action or inaction of any City representative relating to the Agreement constitutes a waiver of sovereign immunity by City.
29. **Authority:** Professional warrants and represents that Professional has full power and authority to enter into and perform this Agreement and to make the grant of rights contained herein. The person signing on behalf of City represents that he/she has authority to sign this Agreement on behalf of City.
30. **Non-Waiver:** The Parties specifically agree that neither the occurrence of an event giving rise to a breach of contract claim nor the pendency of a claim constitute grounds for the suspension of performance by Professional. No covenant or condition of this Agreement may be waived except by written consent of the waiving party. Forbearance or indulgence by one party in any regard whatsoever shall not constitute a waiver of the covenant or condition to be performed by the other party.
31. **Prohibition on Boycotting Israel:** Pursuant to Section 2270.002 of the Texas Government Code, by executing this Agreement Professional verifies that Professional: (1) does not boycott Israel; and (2) will not boycott Israel during the term of this Agreement.
32. **Prohibition Against Business with Iran, Sudan or Foreign Terrorists Organizations:** Professional warrants, covenants, and represents that Professional is not engaged in business with Iran, Sudan, or any company identified on the list referenced in Section 2252.152 of the Texas Government Code.

(signature block on next page)

Executed on _____ . *(date to be filled in by City Secretary)*

FREESE AND NICHOLS, INC. - "Professional"

Richard Weatherly, P.E.
Principal/Vice President

CITY OF LEAGUE CITY – "City"

John Baumgartner – City Manager

Attest:

Diana Stapp, City Secretary

Approved as to Form:

Office of the City Attorney

Exhibit A

Scope of Services/Description of Products/Payment Schedule
(32 number of pages, including this page)

Refer to attached EXHIBIT A - SCOPE OF WORK and Fee Schedule for Project

August 4, 2022

Christopher Sims, PE
Director of Engineering
City of League City
500 West Walker Street
League City, Texas 77573



**RE: SCOPE AND FEE PROPOSAL FOR WATER AND WASTEWATER MASTER PLAN AND
CAPITAL RECOVERY FEE UPDATE**

Dear Mr. Sims:

Freese and Nichols is pleased to provide the attached proposed scope and fee, Exhibit A dated August 4, 2022 to the City of League City for a Water and Wastewater Master Plan and Capital Recovery Fee Update.

We are ready to initiate work upon execution of a contract. If you have any questions, please do not hesitate to call us at (713) 600-6824 or via e-mail at richard.weatherly@freese.com. Thank you for considering Freese and Nichols; we are looking forward to working with you on this study.

Sincerely,

A handwritten signature in blue ink that reads "Richard Weatherly".

Richard Weatherly, PE
Principal/Vice President
Freese and Nichols, Inc.

Included Documents:

Exhibit A – Engineering Scope of Services for Water and Wastewater Master Plan and Capital Recovery Fee Update

- **Attachment 1** – Subconsultant Proposal: Ardurra Group, Inc.
- **Attachment 2** – Subconsultant Proposal: ADS Environmental Services, LLC
- **Attachment 3** – Subconsultant Proposal: NewGen Strategies and Solutions, LLC

CC:

Jody Hooks
Xavier Pulido, EIT

EXHIBIT A
SCOPE OF SERVICES AND RESPONSIBILITIES OF CLIENT
Water and Wastewater Master Plan and Capital Recovery Fee Update

PROJECT UNDERSTANDING

Freese and Nichols, Inc. (FNI) will conduct a Water and Wastewater Master Plan and Capital Recovery Fee (CRF) Update (Project) for the City of League City (City).

The City previously updated their Water and Wastewater Master Plans in 2018. These studies utilized the City's 2017 Land Use Assumptions Report for water demand and wastewater flow projections. During the 2018 project, the City's water distribution system model in WaterGEMS and wastewater collection system model in SewerGEMS hydraulic modeling software were updated. This Project will update the City's existing water and wastewater master plans and hydraulic models and develop capital improvement plans (CIP) for 5-year, 10-year, and buildout planning periods. This update process will include, but not be limited to, incorporation of the latest available land use data, latest GIS, information on upcoming developments and recently constructed water and wastewater infrastructure, as well as field collected data on wastewater collection system flows. FNI will work with Ardurra Group on the water master plan update tasks. FNI will work with ADS Environmental Services, LLC on the wastewater flow monitoring task.

The City updated their water and wastewater capital recovery fees in 2019. This Scope of Work for the 2022 Water and Wastewater Capital Recovery Fee Update will address the requirements, as per Chapter 395 of the Texas Local Government Code, for the update of water and wastewater capital recovery fees in League City, Texas. Key study elements include the preparation of land use assumptions, the development of capital recovery fee eligible capital improvement plans and associated CIP costs, the calculation of the maximum allowable capital recovery fee per service unit and, the update of the service unit equivalency table. FNI will work with NewGen Strategies and Solutions to conduct the credit analysis that will be utilized during the maximum allowable capital recovery fee calculation.

A public process facilitated through a Capital Improvements Advisory Committee (CIAC) will assist to guide the preparation of the land use assumptions, capital improvement plans as well as provide recommendations to the City Council of capital recovery fee collection rates. A public hearing process will conclude the study and update of capital recovery fees in League City. FNI understands that the City of League City requires only one (1) reading of the ordinance updating the capital recovery fees.

This Project will produce two reports:

1. A combined Water and Wastewater Master Plan Update report, and
2. A Capital Recovery Fee Update Report

The project tasks are broken down in **Table 1** below:

Table 1: Project Tasks for Water and Wastewater Master Plan and Capital Recovery Fee Update

Task	Description
A	Project Management and Data Collection
B	Land Use Assumptions, Water Demands, and Wastewater Flow Projections
C	Water Model Update, Validation, and System Analyses
D	Wastewater Flow Monitoring and I/I Analyses
E	Wastewater Model Update, Validation, and System Analyses
F	Water and Wastewater Capital Improvement Plans
G	Water and Wastewater Capital Recovery Fees and Report
H	Water and Wastewater Master Plan Report

ARTICLE I

BASIC SERVICES: FNI shall render the following professional services in connection with the development of the Project:

TASK A: PROJECT MANAGEMENT AND DATA COLLECTION

A1. Project Kick-off Meeting

FNI will meet with City staff to review the scope and schedule of the project and critical project milestones. FNI will provide a data request memorandum outlining data needed for the Water and Wastewater Master Plan and CRF Update.

A2. Data Collection and Review

FNI will coordinate with City staff on obtaining data required for the Water and Wastewater Master Plan and CRF Update, including information on water and wastewater projects currently under design and construction, existing and future land use, population and development information, any update to GIS files, water and wastewater facility information and operational data, historical water production data, information on water meters and billing, cost data for recently constructed projects, etc.

A3. Project Communication

Throughout the project, monthly status reports will be submitted that summarize the progress and document upcoming tasks. The monthly status updates will outline any upcoming key decisions which require input from or discussion with the City.

A4. Additional Project Meetings: Up to Two (2)

In addition to the meetings included in the scope, FNI staff will be available for up to two (2) additional in-person or virtual project meetings with the City to discuss progress, data needs, and topics of interest.

TASK B: LAND USE ASSUMPTIONS, WATER DEMANDS, AND WASTEWATER FLOW PROJECTIONS

B1. Define Master Plan and Capital Recovery Fee Service Areas

FNI will coordinate with the City to update the water and wastewater master plan service areas and the water and wastewater capital recovery fee service areas as needed.

B2. Update Land Use Assumptions and Population and Service Unit Equivalent Projections

Population and land use assumptions will be updated for the water and wastewater service areas for the 5-year, 10-year, and buildout planning periods utilizing the City's available land use and planning data. FNI will coordinate with the City and developers as needed for the latest projections.

FNI will utilize the 10-year land use assumptions developed as part of this task for the capital recovery fee land use assumptions. The equivalent capacity of water meters will be utilized to establish the required service unit equivalents (SUEs) per Chapter 395 of the Local Government Code for both existing and 10-year growth conditions for the capital recovery fee update.

B3. Develop Water Demand and Wastewater Flow Projections

FNI will analyze historical water demands, wastewater flows, and field collected flow monitoring data and develop per-capita residential and non-residential planning criteria for future water demands and wastewater flows projections. Projected water demands and wastewater flows will be developed for existing, 5-year, 10-year, and buildout planning periods for both water and wastewater service areas.

- Water demand projections will include average day, maximum day, and peak hour demands
- Wastewater flow projections will include annual average day and peak wet weather flows

B4. Meet with the City to Review Land Use Assumptions and Water Demand and Wastewater Flow Projections

FNI will meet with the City to review land use assumptions and projected population, water demands, and wastewater flows. Service unit equivalent projections to be utilized during the capital recovery fee update process will also be discussed. FNI will address comments from City staff and make revisions as necessary.

TASK C: WATER MODEL UPDATE, VALIDATION, AND SYSTEM ANALYSES

C1. Update Demand Allocation

FNI will utilize meter billing, water production, and pumping data provided by the City to update the existing water demand allocation throughout the water service area. FNI will spatially locate water meter locations for active accounts in GIS so the demands can be allocated to the appropriate model nodes.

C2. Update Water Distribution System Hydraulic Model

The City's existing water distribution system hydraulic model is in the Bentley WaterGEMS modeling software. FNI will utilize available data from the City's most recent GIS, as-built drawings, construction plans, and operations data to update the model.

C3. Perform Water Model Validation

FNI will perform model validation utilizing data provided by City staff that reflects actual system

operation. FNI will utilize the data to compare model predictions to field conditions and will adjust parameters as necessary to better reflect field conditions.

C4. Conduct Existing and Future Water System Modeling and Analyses

FNI will conduct existing and future water system analyses for the existing, 5-year, 10-year, and buildout planning periods utilizing the established criteria. FNI will conduct hydraulic modeling analyses with the objectives of identifying areas of constant concern, such as chronically low pressure, high pressure, residence time, high velocity, or flow reversals and identifying pumping system and transmission system capacity and capability to deliver peak flows.

C5. Meet to Review Water Model Update, Validation, and System Analyses

FNI will meet with City staff to discuss the water model update process and validation. Existing and future water system analyses will also be discussed.

TASK D: WASTEWATER FLOW MONITORING AND I/I ANALYSES

D1. Flow Monitor Field Inspections

FNI will select preliminary flow monitor sites, produce mapping, and review with City staff. FNI will conduct field inspections of the selected flow monitor locations to confirm suitability for flow monitoring. Items to be investigated include accessibility, hydraulic conditions, and debris depth. FNI will notify City staff of any sites that require cleaning prior to flow monitoring.

D2. Conduct Wastewater Flow Monitoring

FNI team will install and calibrate sixteen (16) temporary velocity/depth type flow meters and four (4) rainfall gauges at the agreed upon locations. Temporary flow meters shall remain in place for a minimum of sixty (60) days.

D3. Update Flow Monitor Basin Delineation

FNI will update the flow monitor basins as needed to reflect infrastructure installed since 2018 and updated or consolidated flow monitor locations.

D4. Evaluate Wastewater Data and Characterize Inflow and Infiltration (I/I)

FNI will evaluate the wastewater system field testing data and prepare flow and depth hydrographs for each monitoring location. The flow data will be summarized showing average dry weather flow and peak wet weather flows at each flow monitor site. Rainfall events will also be summarized for total depth and duration. Inflow and infiltration (I/I) will be calculated throughout the system, and figures will be prepared showing the I/I by flow monitor basin.

D5. Meet to Review Wastewater Flow Monitoring Data and I/I Analyses

FNI will meet with City staff to discuss the flow monitoring and field testing results, including the results of the I/I analyses.

TASK E: WASTEWATER MODEL UPDATE, VALIDATION, AND SYSTEM ANALYSES

E1. Update Wastewater Collection System Hydraulic Model

The City's existing wastewater collection system model is in the Bentley SewerGEMS modeling software. FNI will utilize available data from the City's most recent GIS, as-built drawings, construction plans, and operations data to update the model.

E2. Update Wastewater Flow Allocation

FNI will utilize lift station runtime data and monthly water meter billing data provided by the City to update the existing wastewater flow allocation throughout the service area. FNI will spatially locate water meter locations for active accounts in GIS so the flows can be allocated to the appropriate model nodes.

E3. Perform Dry and Wet Weather Wastewater Model Validation

FNI will perform dry and wet weather wastewater model validation by comparing the model output with observed flow monitoring and other available operational data. Comparison graphs and mapping will be provided to document model validation results.

E4. Conduct Existing and Future Wastewater System Modeling and Analyses

FNI will conduct existing and future system analyses of the wastewater system utilizing the validated wastewater model and the wastewater flow projections developed during this project. The analyses will inform the sizing the phasing of capital improvements to provide conveyance and treatment capacity in the wastewater system.

E5. Meet to Review Wastewater Model Update, Validation, and System Analyses

FNI will meet with the City to discuss the wastewater model update and validation. Existing and future system analyses will also be discussed.

TASK F: WATER AND WASTEWATER CAPITAL IMPROVEMENT PLANS

F1. Develop Water Distribution System Improvement Recommendations

FNI will utilize the results of the existing and future model scenario analyses to identify improvements in the water distribution system network, elevated and ground storage, and pumping facilities to serve existing and future needs. Additionally, FNI will utilize model results to develop improvement recommendations to serve areas that are currently not developed. FNI will produce mapping showing recommended improvements for the 5-year, 10-year, and buildout planning periods as well as improvements needed to correct existing system deficiencies.

F2. Develop Wastewater Collection System Improvement Recommendations

FNI will utilize the results of the existing and future model scenario analyses to identify improvements to eliminate excessive surcharging and overflows in the collection system resulting from existing inflow and infiltration and increased wastewater flow from projected future development. Additionally, FNI will utilize model results to develop improvements to serve areas that are currently not developed. FNI will produce mapping showing recommended improvements for the 5-year, 10-year, and buildout planning periods as well as improvements needed to correct existing system deficiencies.

F3. Develop Water and Wastewater Capital Improvement Plans (CIPs)

FNI will develop water and wastewater capital improvement plans (CIPs) consisting of project descriptions, prioritization, justification, phasing, and planning level costs for each proposed project in current dollars including engineering and contingencies. Large scale citywide maps will be produced showing proposed project locations.

F4. Identify Existing and Proposed Water and Wastewater Improvements Eligible for Capital Recovery Fees

FNI will identify which of the proposed water and wastewater CIP projects are eligible for capital recovery fees based on available capacity to serve the projected 10-year growth. FNI will also review recently completed water and wastewater improvements and determine which projects are eligible for future cost recovery from the projected 10-year growth. Maps will be prepared showing the existing and proposed water and wastewater capital improvement plan projects to be included in the capital recovery fee calculation.

F5. Meet to Review Water and Wastewater System Capital Improvement Plans

FNI will meet with City staff to discuss the proposed 5-year, 10-year, and buildout water and wastewater capital improvement plans. Existing and proposed capital recovery fee eligible projects will also be identified and discussed. FNI will revise the CIP according to comments and recommendations from City staff.

TASK G: WATER AND WASTEWATER CAPITAL RECOVERY FEES AND REPORT

G1. Calculate Water and Wastewater Costs Eligible For Capital Recovery Fees

FNI will calculate the portion of the existing and proposed 10-year water and wastewater CIP project costs eligible for capital recovery fees based on the portion of the project's capacity required to serve growth in the 10-year planning period.

G2. Meet with City Finance Staff and Calculate Maximum Allowable Capital Recovery Fees

- a. FNI will calculate the maximum allowable water and wastewater capital recovery fees based on the existing and proposed capital improvement costs to support 10-year growth conditions. A capital recovery fee assessment schedule will be developed based on water meter equivalency factors. Per TLGC §395.014 and §395.015, FNI will perform an analysis to determine the credit based on utility service revenue that should be included in the calculation of the maximum allowable capital recovery fee.
- b. FNI will meet with City finance staff to discuss the credit analysis and collect data needed to perform the credit analysis.

G3. Conduct Survey of Benchmark Cities to Obtain Latest Water and Wastewater Capital Recovery Fees

FNI will conduct a survey of benchmark cities and obtain the latest water and wastewater capital recovery fees and prepare graphics showing comparisons with proposed League City capital recovery fee recommendations.

G4. Meet to Review the Capital Recovery Fee Analysis Results

FNI will meet with the City to review the results of the water and wastewater capital recovery fee analysis including the calculated maximum assessable fees.

G5. Develop Draft Water and Wastewater Capital Recovery Fee Update Report

FNI will prepare a Draft Water and Wastewater Capital Recovery Fee Update Report showing land use assumptions, water and wastewater capital recovery fee eligible capital improvement projects and costs, and maximum allowable water and wastewater capital recovery fees. An electronic PDF copy will be submitted to the City for review. Per TLGC §395.054, *"On or before the date of the first publication of the notice of the hearing on the amendments, the land use assumptions and the capital improvements plan, including the amount of any proposed amended impact fee per service unit, shall*

be made available to the public.”

G6. Meet to Review the Draft Water and Wastewater Capital Recovery Fee Update Report

FNI will meet with the City to review City staff’s comments on the Draft Water and Wastewater Capital Recovery Fee Update Report.

G7. Present Capital Recovery Fee Analysis Results to Capital Improvements Advisory Committee

Following review by City Staff, FNI will present the land use assumptions, water and wastewater capital recovery fee eligible CIP projects, and water and wastewater capital recovery fee analysis results to the CIAC. FNI will also include an educational presentation for the Capital Improvements Advisory Committee (CIAC) on the purpose of capital recovery fees, the process of developing capital recovery fees, and the role of the CIAC during the capital recovery fee process. Per TLGC §395.056, *“The advisory committee created under Section 395.058 shall file its written comments on the proposed amendments to the land use assumptions, capital improvements plan, and impact fee before the fifth business day before the date of the public hearing on the amendments.”*

G8. Develop Presentation and Attend Public Hearing on Land Use Assumptions, CIPs and Capital Recovery Fee Calculations

Per TLGC §395.054, *“A public hearing must be held by the governing body of the political subdivision to discuss the proposed ordinance, order, or resolution amending land use assumptions, the capital improvements plan, or the impact fee.”* FNI will develop a presentation for the public hearing summarizing the land use assumptions, water and wastewater CIPs, and capital recovery fee calculations. FNI will attend the public hearing on capital recovery fees and be available to answer questions. Any costs associated with City of League City public hearing notices are not included in this contract.

G9. Additional Presentations (Up to 4)

In addition to the presentations in tasks G7 and G8, FNI will make up to four (4) additional presentations to the CIAC, City Council, or the Transportation and Infrastructure Committee.

G10. Finalize Capital Recovery Fee Update Report

FNI will incorporate City comments and prepare a Final Water and Wastewater Capital Recovery Fee Update Report and deliver an electronic PDF copy to the City. The final report will include a copy of the adopted ordinance updating the water and wastewater capital recovery fees.

TASK H: WATER AND WASTEWATER MASTER PLAN REPORT

H1. Prepare Draft Water and Wastewater Master Plan Update Report

FNI will prepare a Draft Water and Wastewater Master Plan Update Report documenting the water and wastewater hydraulic model update and calibration, analyses, results, and recommendations. The Draft Master Plan Report will include descriptions of population and demand/flow projections, hydraulic modeling analyses, system evaluation, and CIP development. An electronic PDF version of the report will be submitted to the City for review.

H2. Meet to Review Draft Water and Wastewater Master Plan Report

FNI will meet with the City to review City staff’s comments on the Draft Water and Wastewater Master Plan Report.

H3. City Council Presentation

FNI will prepare a presentation on the results of the master plan and present to City Council.

H4. Finalize Water and Wastewater Master Plan Update Report

FNI will incorporate City comments and submit an electronic PDF Copy of the final report to the City.

Summary of Meetings

- Project Kickoff Meeting
- Up to nine (9) coordination meetings with City staff with topics including:
 - Review Land Use Assumptions and Water Demand and Wastewater Flow Projections
 - Review Water Model Update, Validation, and System Analyses
 - Review Wastewater Flow Monitoring Data and I/I Analyses
 - Review Wastewater Model Update, Validation, and System Analyses
 - Review Water and Wastewater System Capital Improvement Plans
 - Meet with City Finance Staff to Discuss Credit Analysis & Collect Data Needed
 - Review Capital Recovery Fee Analysis Results
 - Review Draft Water and Wastewater Capital Recovery Fee Update Report
 - Review Draft Water and Wastewater Master Plan Report
- Up to two (2) additional coordination meetings with City staff

Summary of Presentations

- One (1) presentation to CIAC on Land Use Assumptions, CRF CIP, Maximum Assessable CRF, and educational material regarding capital recovery fees.
- One (1) presentation at the Public Hearing on Land use Assumptions, CIP, and Capital Recovery Fees
- Up to four (4) additional presentations to the CIAC, City Council, or Transportation and Infrastructure Committee

Summary of Deliverables

- Draft Water and Wastewater Capital Recovery Fee Update Report
- Final Water and Wastewater Capital Recovery Fee Update Report
- Draft Water and Wastewater Master Plan Update Report
- Final Water and Wastewater Master Plan Update Report

Summary of Fee for Engineering Services

FNI proposes to perform the basic services outlined in the above sections for a total **lump sum project fee of \$645,000**, as shown in **Table 2**.

Table 2: Summary of Fee for Engineering Services

Task	Description	Lump Sum Fee
A	Project Management and Data Collection	\$36,630
B	Land Use Assumptions, Water Demands, and Wastewater Flow Projections	\$46,300
C	Water Model Update, Validation, and System Analyses	\$79,100
D	Wastewater Flow Monitoring and I/I Analyses	\$155,560
E	Wastewater Model Update, Validation, and System Analyses	\$78,000
F	Water and Wastewater Capital Improvement Plans	\$101,640
G	Water and Wastewater Capital Recovery Fees and Report	\$115,620
H	Water and Wastewater Master Plan Report	\$32,150
Total		\$645,000

ARTICLE II

SPECIAL SERVICES: FNI shall render the following professional services, which are not included in the Basic Services described above, in connection with the development of the Project: **N/A**

ARTICLE III

ADDITIONAL SERVICES: Any services performed by FNI that are not included in the Basic Services or Special Services described above are Additional Services. Additional Services to be performed by FNI, if authorized by Client, are described as follows:

- Extension of flow monitoring beyond 60 days
- Field survey and verification of water and wastewater infrastructure
- Additional meetings with CIAC, Council, or additional stakeholders

ARTICLE IV

TIME OF COMPLETION: FNI is authorized to commence work on the Project upon execution of this Agreement and agrees to complete the services in accordance with the following schedule:

- Draft Water and Wastewater Capital Recovery Fee Update Report Available to Public – **230 days after NTP**
- Final Water and Wastewater Capital Recovery Fee Update Report to City staff – **15 days after Council adoption of capital recovery fee ordinance**
- Draft Water and Wastewater Master Plan Update Report to City staff – **280 days after NTP**
- Final Water and Wastewater Master Plan Update Report to City staff – **15 days after receiving City comments**

If FNI’s services are delayed through no fault of FNI, FNI shall be entitled to adjust contract schedule consistent with the number of days of delay. These delays may include but are not limited to delays in Client or regulatory reviews, delays on the flow of information to be provided to FNI, governmental approvals, etc.

ARTICLE V

RESPONSIBILITIES OF CLIENT: Client shall perform the following in a timely manner so as not to delay the services of FNI:

- A. Client recognizes and expects that change orders may be required to be issued during construction. The responsibility for the costs of change orders will be determined on the basis of applicable contractual obligations and professional liability standards. FNI will not be responsible for any change order costs due to unforeseen site conditions, changes made by or due to the Client or Contractor, or any change order costs not caused by the negligent errors or omissions of FNI. Nothing in this provision creates a presumption that, or changes the professional liability standard for determining if, FNI is liable for change order costs. It is recommended that the Client budget a minimum of 5% for new construction and a minimum of 10% for construction that includes refurbishing existing structures.
- B. Designate in writing a person to act as Client's representative with respect to the services to be rendered under this Agreement. Such person shall have contract authority to transmit instructions, receive information, interpret and define Client's policies and decisions with respect to FNI's services for the Project.
- C. Provide all criteria and full information as to Client's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations; and furnish copies of all design and construction standards which Client will require to be included in the drawings and specifications.
- D. Assist FNI by placing at FNI's disposal all available information pertinent to the Project including previous reports and any other data relative to design or construction of the Project.
- E. Arrange for access to and make all provisions for FNI to enter upon public and private property as required for FNI to perform services under this Agreement.
- F. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by FNI, obtain advice of an attorney, insurance counselor and other consultants as Client deems appropriate for such examination and render in writing decisions pertaining thereto within a reasonable time so as not to delay, or cause rework in, the services of FNI.
- G. Provide such accounting, independent cost estimating and insurance counseling services as may be required for the Project, such legal services as Client may require or FNI may reasonably request with regard to legal issues pertaining to the Project including any that may be raised by Contractor(s), such auditing service as Client may require to ascertain how or for what purpose any Contractor has used the moneys paid under the construction contract, and such inspection services as Client may require to ascertain that Contractor(s) are complying with any law, rule, regulation, ordinance, code or order applicable to their furnishing and performing the work.
- H. Give prompt written notice to FNI whenever Client observes or otherwise becomes aware of any development that affects the scope or timing of FNI's services, or any defect or nonconformance of the work of any Contractor.

- I. Furnish, or direct FNI to provide, Additional Services as stipulated in Attachment SC, Article III of this Agreement or other services as required.
- J. Bear all costs incident to compliance with the requirements of this Article V.

ARTICLE VI

DESIGNATED REPRESENTATIVES: FNI and Client designate the following representatives:

Client's Designated Representative – Name: Christopher Sims, PE
Address: 500 W Walker St, League City, TX 77573
Phone: 281-554-1440
Email: christopher.sims@leaguecitytx.gov

Client's Accounting Representative –

FNI's Designated Representative – Name: Richard Weatherly, PE
Address: 11200 Broadway Street, Suite 2320, Pearland, TX 77584
Phone: 713-600-6824
Email: Richard.Weatherly@freese.com

FNI's Accounting Representative – Name: Lisa Broussard
Address: 2711 North Haskell Avenue, Suite 3300, Dallas, TX 75204
Phone: 972-331-6021
Email: lisa.broussard@freese.com

Exhibit A-1
Further Description of Engineering Services and
Related Matters Detailed Scope of Services
For
City of League City
Water & Wastewater Master Plan and Capital Recovery Fee Update

Project Understanding

The City of League City's current Water Master Plan was performed in 2017/2018 by Ardurra Group. Since the completion of these plans, significant improvements to water infrastructure have occurred including through the construction and planned construction of thousands of feet of waterline and some older systems have been replaced and/or rehabilitated. These significant improvements, coupled with the fact that it has been 5 years since the last master plan was completed necessitates the commissioning and completion of an updated water master plan for the purposes of a subsequent determination of the maximum capital recovery fee.

In general, Ardurra understands the City's objective and expectations are that the water and wastewater master planning projects shall move forward concurrently to the end that the City meets all of the legal requirements and prerequisites for implementing or amending impact fees in accordance with Chapter 395 of the Texas Local Government Code and that the Determination of Maximum Capital Recovery Fee Update for 2023-2033. The development of the Land Use Assumptions and growth projections is not a part of Ardurra's scope and will be provided by Freese & Nichols, Inc. (FNI) as the PRIME consultant.

The proposed general work is broken down into the following major tasks:

1. General Project Management
2. Water Master Plan Update

1.0 Project Management

- 1.1 Conduct a project initiation meeting to identify critical success factors, brainstorm potential solutions, and establish a clear set of objectives for the project based on client input and consultation with senior technical experts;
- 1.2 Coordinate with FNI and City staff and project personnel to complete project tasks and meet project objectives.

- 1.3 Participate in progress meetings with FNI and City staff as required and provide appropriate and necessary documentation.
- 1.4 Develop and maintain a project schedule with detailed milestones.
- 1.5 Provide quality control reviews and technical reviews of all evaluations and recommendations, technical memoranda, and reports.
- 1.6 Work with FNI Project Manager to coordinate reviews of final report. Work with internal project team to document and incorporate FNI and City comments.

2.0 Water Model and Master Plan Update

2.1 Review Historic Documents

Existing information, including data analyses, will be reviewed to understand City needs. The relevant data and reports supplied by the City will be reviewed as follows:

- 2.1.2 Customer complaint database and previous reports relating to flow, pressure, and/or water quality.
- 2.1.3 Main break records.
- 2.1.4 Most recent City fire flow testing data.
- 2.1.5 Operation data including distribution system water quantity and quality, pump station pumping records and plant production (past 2-3 years of records).
- 2.1.6 Pipe type/age in distribution system.
- 2.1.7 Existing City GIS system for model conversion including new developments under construction.
- 2.1.8 City Staff Involvement
 - Provide copies or access to the reports and data sets listed above.
 - Participation in Workshop #1.

2.2 Demand Allocations and Projections

Existing demand will be allocated based on water billing data and existing water production and pumping data. Land use assumptions updated during this study (by FNI) will be utilized.

- 2.2.1 Review and Update Projections – Ardurra will coordinate with FNI on updating planning criteria and water demand projections. This activity includes a brief review of the data, assumptions, process and results of

the water demand projections. A meeting will be scheduled with the City to verify existing demands and discuss their plans for future water demands.

- 2.2.2 Development Review – Open, developable land in the service area will be assigned a demand for these areas in accordance with the land use plan (by FNI).
- 2.2.3 Redevelopment Review – Redevelopment review will be completed by FNI as part of the land use assumption update. Ardurra will allocate updated demand accordingly.
- 2.2.4 Estimate Future Demands - Combine current updated demand data (acquired from billing data), with demand projections for undeveloped and redevelopment areas to determine a best estimate of projected demand for intermediate demand scenarios between existing and build-out conditions. Depending on the difference between existing demands and ultimate demand projections, develop up to four demand scenarios as follows:
- Present (baseline)
 - 5-year Projection
 - 10-year Projection
 - 20-year Projection
- 2.2.5 These projected demands will be prepared as average annual demand throughout the City. Demands will be applied to vacant parcels and parcels identified as viable redevelopment candidates based on the land use.
- 2.2.6 Demand scenarios will include a reasonable/conservative estimate for use in future planning for new developments. A table will be prepared using current demand as a baseline for comparison. Demand values will be distributed as a single demand split to one or more model junctions.
- 2.2.7 City Staff Involvement
- Interactive meetings regarding model inputs and operation
 - Planning meeting to determine expected development and determine demand projections
 - Provide billing data history

- Provide operation data for pressures, flows, and tank levels
- Provide annual WTP production

2.3 Model Improvement

The model improvement task includes a comprehensive review of the existing model configuration and operation with modifications provided to reflect changes that have taken place in the system or in the system operations since the last master plan. New data sources will also be incorporated into the revised system.

The updated model will be capable of evaluating changes in projected water demands, pressure criteria, and fire flows, and the impacts of improvements to the distribution system. Operational improvements will be made to the model based on new data on operation and on improved model demand distribution, diurnal pattern assignments, physical layout, C-factors, and major facility operations.

2.3.1 Update System/GIS – The first component of this project involves upgrading the hydraulic model to better represent current system conditions. The pipe configuration in the model will be verified through direct comparison to the GIS and the model will be updated to reflect the current state of the distribution system, as detailed in the GIS.

2.3.2 Distribute Demands - The budget developed for this task approach assumes that the demands from each parcel will be proportionally split, using model tools, to the existing model nodes on either end of the main linking these nodes. This proportional split will be made using geocoded customer billing points.

Current water demands will be used for establishing the baseline model. There are three components of a complete demand allocation that will be further developed using available data:

- Average Demands - The annual average demand for every customer will be linked to each parcel. This volume will be developed by taking a year of data from the billing system and assigning it directly to the meter location or parcel via geocoding or another viable method. The demand values will be assigned as described above using tools provided in the modeling software suite.
- Peaking Factors –Use the available AMI, operation data, and production data to identify the peak and minimum demand periods and associated factors. These factors will be applied universally to all demands to develop maximum and minimum day scenarios. These different demand conditions will be simulated using the scenario management capabilities of the model and by changing the base operating parameters for different alternatives that will then be associated with the appropriate scenarios.

Scenarios will be created for average, minimum day, maximum day, and peak hour demand conditions. These scenarios will typically be operated in extended period mode. The peak hour demand condition will be simulated as the highest hour on maximum day, unless the peak hour demand is consistently shown to not occur on maximum day. In this case, the project team and the City will decide on the best course of action to simulate this condition. These scenarios will be created as children of the “Base” model that will simulate actual, best known current conditions.

- Unaccounted-for-water (UFW) – Billing data for an extended period will be compared to operation data to estimate the unaccounted-for-water volume UFW will be distributed across the system based on discussions with City staff. Traditionally, UFW demand is simply divided by the number of model nodes and distributed evenly to each node.

2.3.3 Revise Diurnal Patterns - A representative diurnal demand pattern will be developed for each customer type (if possible) under different conditions.

2.3.4 Verify Facility Operations - Assess the capabilities and limitations of the existing hydraulic model, and identify required system improvements. Pump operations will be reviewed so they reflect current operations at each pumping location. Control valve operation and settings will be verified with operational staff so that these devices are modeled as they are operated. If operational settings change seasonally, these changes will be noted and appropriate scenarios created to model the range of conditions so that maximum day and minimum day demand scenarios are appropriately handled from a control standpoint. Units will be modified as needed for pumps, controls, etc.

2.3.5 Scenario Management - Recommendations for how the scenario management capabilities of the model will be used to support a wide range of modeling activities will be developed. This will include recommendations for applying both the scenario management tools and facility sets to achieve the intended operations for different model runs. The recommended and agreed upon scenario tree within the delivered model will be created. The different modeled scenarios will include descriptions on the conditions that each scenario represents.

2.3.6 The total system demands that will be modeled to simulate long-term build-out of vacant parcels throughout the service area is expected to be represented in four base demand alternatives:

- Base: Existing Condition
- Intermediate 1 - 5-year
- Intermediate 2 - 10-year

- Ultimate - 20-year
- 2.3.7 The system demand alternatives will also include the following subsets that will be represented using either global factors or different diurnal patterns:
- Average Day
 - Maximum Day
 - Peak Hour (may be simulated as part of maximum day if appropriate)
 - Minimum Day
- 2.3.8 The model will be operated in the following different analysis modes:
- Extended Period Simulations – Review of tank and reservoir use and capability to maintain desired pressures and other “level-of-service” indicators during expected operations, such as water age. All “normal” runs – average day, maximum day, minimum day – for all scenarios will be made in extended period mode.
 - Steady State – Adequacy of pumping and conveyance for maintaining system pressure based on TCEQ standards, including 35 psi for average conditions, with a 20-psi minimum at point of delivery. High pressure will also be evaluated.
- 2.3.9 The distribution system components will vary from run to run consistent with the modeled time frame. This will be performed using facility sets instead of, for example, using open/closed status of pipes to change the modeled features from one scenario to another. Facility sets will be based on database queries rolled up into a single query set for each time frame. Model time frames consistent with the different future demand scenarios will be created as follows:
- Base conditions (existing features only)
 - CIP facilities (existing, less features to be removed, plus features to be added at specified times in the CIP, for up to three modeled future scenarios)
 - Ultimate (existing facilities plus all CIP projects, less existing facilities to be removed)
 - Operation Recommendation scenarios: Overall Modeling objectives include:

- Identifying areas of constant concern, such as chronically low pressure, high pressure, residence time, high velocity or flow reversals.
- Identifying pumping system and transmission system capacity and capability to deliver peak flows.
- Identifying water quality issues/concerns through the use of hydraulic modeling is not included in this scope of work.
- City Staff Involvement
 - Provide necessary GIS and operation data
 - Assist in determining demand locations for large customers
 - Work with Engineer on verification of facility operations

2.4 Model Verification

After review of the model configuration has been completed and modifications to model inputs have been performed and confirmed by the City, the hydraulic model will be verified. The verification process depends on data collected from the distribution system that reflects actual operation that will be used to compare model predictions to field conditions and to adjust model parameters if necessary to better reflect field conditions.

2.4.1 Operational Review - An operational review with City staff will be used to verify that the model results agree with their experience. Operational parameters verified will be high pressures areas, low pressures areas, tank fill and empty rates and pump station operations specifically ability to pump against system head.

2.4.2 Adjust Model Parameters – Model C-factors and pump and facility operations will be adjusted to within accepted accuracy to represent the operation of the City water system.

2.4.4 City Staff Involvement

- Assistance in adjusting model to accurately represent facility and system operation in the model.

2.5 Model Analysis

The model analysis task includes a complete review of current conditions using the verified distribution system model. These simulations will evaluate the behavior and adequacy of the system under both current and future flow conditions, and subsequently identify potential improvements. Using the verified model, create operation scenarios that utilize the existing system layout.

- 2.5.1 Establish Criteria – Ardurra will utilize the criteria established during this project.
- 2.5.2 Identify Immediate Issues – Consider existing system and current demands and determine where the established hydraulic levels of service are not being met with the existing system. Review the deficiencies listed in the previous Master Plan to determine if these items have been addressed. Use this information to document deficiencies and develop potential projects to address them. Prepare list for inclusion in the capital improvement plan.
- 2.5.3 Identify Long Term Issues – Consider ultimate build-out demand with pipe degradation and identify long-term issues. Develop potential long term improvements to address the deficiencies in the system, review with City staff, and evaluate these for inclusion in the long-term plan. Develop a table with recommended improvements, time frame, and conditions that would trigger initiation.
- 2.5.4 Identify Capital Projects - Identify the resulting list of capital improvement projects for use by the City in its planning process. Include preliminary prioritization based on city established process, budget cost and timing for each of the elements of the final plan. Prepare draft CIP data sheets for each project.

2.5.5 City Staff Involvement

- Provide input during all phases of project development and evaluations
- Participation in Workshops
- Assistance with valve identification, model inputs and locational information as needed
- Review of operation plan
- Provide City established evaluation and prioritization criteria for CIP projects

2.6 Project Development

The previous tasks will generate a list of potential projects. All the available documents, reports, data, and model results will have been reviewed and recommendations will be developed under this task. This task will develop the recommended plan for system improvements, and how they will be incorporated into the City's CIP.

- 2.6.1 Calculate Project Costs - Project costs will be developed for all the

identified projects. The number of projects is assumed to be no more than 20 and the cost numbers will be developed based on a unit cost basis. The unit costs for a variety of construction projects will be developed with input from the City staff. Recent construction projects in the City will be used to develop these unit costs. Costs should be loaded with City's implementation costs including design, management, bonding, etc.

- 2.6.2 Prioritize CIP - The Distribution System Master Plan recommendations developed will be prioritized. A timeline and budget level cost for the recommended improvements will be developed. Following the development of this draft CIP, facilitate a workshop to review the final recommendations. Results will be provided to the City for input into the CIP. Provide projected priority, projected year of construction and cost. Prepare draft CIP project sheets and use model to prioritize.
- 2.6.3 Prepare Reports – Finalize all draft report sections for incorporation into the master plan report..
- 2.6.4 City Staff Involvement
 - Provide unit cost information
 - Participation in the workshop
 - Provide recent League City construction costs
- 2.7 Development of Water Capital Recovery Fee – Ardurra will provide the following in support of the Capital Recovery Fee determination for the water system:
 - 2.7.1 Identify Existing and Proposed Water Improvements Eligible for Capital Recovery Fees and their costs (pro-rated or whole) depending on the 10 year eligibility period.
 - 2.7.2 Update Service Unit Equivalent (SUE's) for Water systems in accordance Chapter 395 of the LGC.

3.0 Deliverables

- 3.1 Attendance/Participation in up to six (6) workshops with the City
- 3.2 Updated and validated WaterGEMS model
- 3.3 Water Master Plan report sections to include:
 - 3.3.1 Demand projections including intermediate and build-out demands for average day

conditions

3.3.2 Model Improvements including refined system demands, updated diurnal patterns for different customer types and large customers, distribution system operational adjustments, model simulations for average day, max day, peak hour, and min day for each planning year.

3.3.3 Model Verification – model verification results and comparisons to existing operation.

3.3.4 Model Analysis – List of short term and long term potential improvements to meet growth

3.3.5 Planning level costs for CIP project recommendations as well as CRF eligible portions of each project.

4.0 Schedule

4.1 Provide water model by December 1, 2022

4.2 Provide CIP by January 1, 2023

4.3 Provide report documentation by February 1, 2023

5.0 Limitations

Ardurra will be providing model results only to FNI to be imported into standard templates for GIS figure generation. Ardurra will review draft figures for incorporation into the appropriate sections of the report. Ardurra will not be providing GIS figures for this effort.

6.0 Level of Effort and Fees Presented in Tables A-1.

**Table A-1
Further Description of Engineering Services and
Related Matters Detailed Scope of Services
For
City of League City
Water & Wastewater Master Plan and Capital Recovery Fee Update**

Summary of Services and Fees

Task No.	Task Description	Lump Sum Amount
1	Project Management & Coordination	
	Project Management	\$5,240.00
	Progress Meetings	\$8,520.00
	Expenses/Reimbursables	\$250.00.00
	Subtotal	\$14,010.00
2	Water Master Plan Update	
	Review Historic Documents & Data	\$6,700.00
	Demand Allocations and Projections	\$17,440.00
	Model Improvements	\$13,640.00
	Model Verifications	\$9,260.00
	Model Analysis	\$15,380.00
	Project Development	\$15,860.00
	Development of Water CRF	\$12,280.00
	Expenses/Reimbursables	\$500.00
	Subtotal	\$91,060.00
Total		\$105,070.00

August 3, 2022

Freese and Nichols, Inc.
Kendall Ryan
11200 Broadway Street
Pearland, TX 77584

RE: City of League City, TX – ADS Temporary Flow Monitoring Proposal

Dear Mr. Ryan,

Thank you for the opportunity to work with Freese and Nichols on the temporary flow monitoring study for League City, TX. This proposal is for 16 flow monitors and 4 rain gauges for 60 days and corresponding I/I Analysis & Report. ADS will perform the services for this project as outlined in the section titled Proposed Scope of Work and our pricing is outlined in the final section.

Please let me know if you have any questions or if there is any additional information that we can provide. Our team is also available for a conference call if needed. I can be reached by e-mail or at 214-399-4292 should you need to discuss this in more detail.

Regards,

John P. Jenkins

John P. Jenkins
Business Development Manager
ADS Environmental Services
jjenkins1@idexcorp.com

Proposed Scope of Work

ADS Environmental Services (“ADS”) will provide all of the necessary components required to conduct a temporary flow monitoring study in League City, TX under the direction of Freese and Nichols (“FNI”) for a period of 60 days. For a turnkey, temporary monitoring project, the work will be performed as set forth below:

Phase I – ADS Mobilization and Installation

1. **Kick-Off Meeting.** Phase I should begin with a kick-off meeting between representatives of FNI and ADS. The purpose of the kick-off meeting is to discuss safety, confirm project scope, establish lines of communication, set milestones and set the project schedule. Throughout the project, ADS staff will communicate with FNI prior to visiting any sites for any maintenance activities.
2. **Site Location/Investigation.** ADS will work with FNI to confirm the suitability of locations for the monitor installations. ADS representatives will schedule a site investigation meeting with the appropriate Client staff to complete this process. The proposed flow monitoring locations will be located, inspected and verified for hydraulic suitability. ADS will also check for debris in the manhole that could impact data quality and coordinate any required cleaning efforts with the Client. Additionally, ADS field crews will look for evidence of erratic flow patterns. If the site conditions allow, monitor installation will occur at the same time as the investigation. If not, ADS will coordinate with FNI to discuss alternative monitoring locations. Final site locations to be approved by FNI.
3. **Site Installation.** ADS will utilize a standard two-person field crew for field work and comply with OSHA Standards for confined-space entry. A Site Safety Plan will also be completed as part of the Investigation/Installation phase of the project.
4. **Site Reports.** Site reports will be generated upon completion of the installations. The site reports will include a sketch of the general location, pictures, physical characteristics and diameters of the monitoring locations, manhole depths, level and velocity measurements and other information and comments pertinent to the location (such as any special access, traffic or safety issues).
5. **Equipment.** ADS will utilize Triton+ area/velocity flow monitors and RainAlert III rain gauges throughout the duration of this project. A typical monitor installation in a sanitary sewer pipe will include a Peak Combo sensor that includes a pressure depth sensor to detect surcharge and provide redundant depth information, a Doppler velocity sensor and an ultrasonic depth sensor mounted at or near the invert. Depending on the flow depth, a down-looking ultrasonic sensor may also be mounted at the crown of the pipe.
6. **Monitor Activation.** Once installed, the flow monitors and rain gauges will be activated and set to take readings at 5-minute intervals. Wireless data transmission will typically be set to

occur every 24 hours. ADS field crews will take manual depth and velocity readings to confirm the monitors are collecting accurate data based on the actual existing hydraulic conditions at each location.

Phase II – ADS Flow Monitoring and Maintenance

1. Flow Monitoring. Once the monitors are installed and verified to be in working order, ADS will monitor the flow for a period of 60 days (“monitoring period”). This initial monitoring period can be extended based on mutual consent and written agreement of additional work and pricing for such additional work.
2. Data Collection and Equipment Maintenance. The ADS Data Analyst will review the data weekly throughout the monitoring period. Field crews will return to the monitoring locations as determined by routine data reviews to perform site maintenance and site confirmations as needed. This includes cleaning depth and velocity sensors in addition to conducting level and velocity confirmations as needed. As an ISO 9001 certified company, ADS personnel adhere to standardized procedures for all field work to maximize the quality and usefulness of the final data.
3. Site Confirmations. ADS will provide, at a minimum, two (2) confirmations to ensure the collected monitoring data is accurate. These typically occur at installation and near the end of the project. Additional confirmations will be performed during the monitoring period as needed.
4. Demobilization. Field crews will continue data collections, maintenance and confirmations as needed until the end of the monitoring period and removal of the equipment is authorized.

Phase III – Data Analysis and Reporting

1. Data Analysis. Upon completion of the flow monitoring period, the ADS Data Analyst assigned to the project will finalize the analysis of the data. The Data Analyst will calculate flow using the Continuity Equation from the recorded depth and average velocity data. As part of the data finalization process, the analyst will utilize scatter plots (depths vs. velocity readings) to verify data accuracy and repeatability.
2. Data Access. ADS will provide FNI access to the finalized data through the ADS PRISM portal.
3. Final I/I Report Deliverables:
 - o Overview of the Project
 - o Site Installation Reports
 - o Dry Weather Overview and Analysis – diurnal curves (Stevens-Shutzbach Method)
 - o Peaking Factor Analysis
 - o Rainfall Analysis DDF or Similar Rainfall Frequency Statistics

- o Rain Dependent Inflow Infiltration (RDII) Analysis
- o Scattergraphs with Best-Fit and ISO-Q Lines Plotted
- o Volumetric Analysis (Normalized/LF of Pipe and Un-Normalized)
- o Final (QA/QC) CSV data packet

Data Delivery and Final Report. ADS will provide a final data report to FNI within 60 days of the end of the monitoring period (and any approved extensions). The Final Data will be available through PRISM software and in the format of an Excel or .CSV file. PRISM access to the data will be provided for 12 calendar months after the completion of the monitoring period.

FNI Responsibilities

ADS is requesting that the Client and/or Consultant perform the following functions in connection with this project:

1. Provide access to the proposed monitoring locations. This includes, but is not limited to, exposing manholes and clearing easements for accessibility by truck/van, if necessary.
2. Assist in obtaining any special permits.
3. Provide any available GIS and mapping information to be used for installations, data analysis and reporting.
4. Provide any information concerning bypasses, overflows, base flows, critical surcharge areas, and maintenance habits that may affect flow monitoring data.
5. Provide any available basin size information in-order to calculate the Normalized Volumetric Analysis (i.e. Upstream LF of Pipe or Basin Acres).

End of Proposed Scope of Work

ADS Proposal/Pricing

Mobilization & Installation

Item Description	Quantity	Unit Price	Total
Mobilization of Crews and Equipment	1	\$8,100.00	\$8,100.00
PRISM - Setup, Training and Wireless Services	1	Included	Included
		Total	\$8,100.00

Temporary Flow Monitoring (Operation & Maintenance)

Item Description	No. of Meters	Duration (Days)	Total
Triton+ Flow Monitors	16	60	\$89,841.00
RainAlert III Rain Gauges	4	60	\$8,133.00
		Total	\$97,974.00

Data Analysis & Reporting

Item Description	Quantity	Unit Price	Total
I/I Analysis & Report	1	\$10,000.00	\$10,000.00
		Total	\$10,000.00

Grand Total for the 60-Day Program: \$116,074.00

Notes:

1. This proposal is valid for 60 days.
2. Mobilization is invoiced upon contract execution.
3. ADS will invoice monthly for work completed.
4. No prevailing wages or W/MBE requirements assumed.
5. Light traffic and standard control requirements assumed. No night work assumed.
6. Special traffic scenarios are not included (additional staff for flaggers, main highway operations, etc.).
7. Any special permits and police escorts, if required, will be the responsibility of the Client.
8. Services will be provided in accordance with the terms and conditions of the Master Subconsultant Agreement between Freese and Nichols, Inc. and ADS Environmental Services executed on November 13, 2014. Any additional or conflicting terms and conditions included in this proposal shall not apply.

End of Proposal



275 W. Campbell Road
Suite 440
Richardson, TX 75080
Phone: (972) 680-2000

June 27, 2022

Mr. Richard Weatherly, P.E.
Freese and Nichols, Inc.
10497 Town and Country Way
Suite 500
Houston, TX 77024

Subject: Proposal to Update Water and Wastewater Capital Recovery Fees for City of League City, TX

Dear Mr. Weatherly:

Based on our conversations, NewGen Strategies and Solutions, LLC (“NewGen”) is pleased to provide this proposal to assist you and your client, the City of League City, TX (“City”), in updating the City’s water and wastewater capital recovery fees. It is our understanding that as part of the planned Capital Recovery Fee Update Project, the City wishes to calculate the credit for utility service revenues as allowed for under Chapter 395 of the Texas Local Government Code. As part of this effort, our Project Team will work with you to ensure that the credit, and the resulting maximum assessable capital recovery fee, are calculated in accordance with state statutes.

Firm Overview

NewGen was created by a group of senior consultants who have previously worked together in regional and national firms. The NewGen name is an abbreviation for a *new generation* of consultants with the business objective and purpose of providing high quality management and economic consulting services to the municipal utility industry. Our team includes nationally recognized experts that offer financial, economic, strategy, and due diligence services to our clients.

Our tag line, “Thoughtful Decision Making for Uncertain Times,” succinctly describes our capability to provide our clients solutions and recommendations tempered with our keen insight into the growing role of stakeholders, resource availability, environmental concerns, cost of providing utility services, and economic conditions.

Project Work Plan

The Project Team for this effort will be led by Mr. Chris Ekrut.

Per our understanding of the project, the following outlines our anticipated scope of services. Once notice to proceed is provided, the Project Team will work with you and City staff to refine and finalize the proposed work plan.

Task 1 – Data Request and Information Gathering

In preparation for completing the financial calculations, the Project Team will review publicly available information and City information on file with Freese and Nichols. Following this review, NewGen will issue a data request to City staff to gather any other information needed to calculate the capital recovery fees for each of the requested fee types.

Mr. Richard Weatherly, P.E.

June 27, 2022

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This data will include, but is not limited to, operating, financial, management, policy, and ordinance data. In addition, as necessary, the Project Team will conduct informal discussions with City staff during our review of the data received to ensure that the Project Team understands the information provided.

Task 2 – Preparation of Draft Financial Calculations

The Project Team will review the updates to the Land Use Assumptions and Capital Recovery Fee Capital Improvements Plans for each infrastructure type. Based on these updated plans and estimates, the Project Team will calculate the Maximum Assessable Water and Wastewater Capital Recovery Fees.

In calculating capital recovery fees, NewGen utilizes a proven econometric forecasting model that allows for the recognition of the timing of revenues, disbursements, interest income, funding from existing reserves, cash capital financing, and debt capital financing.

Additionally, as part of preparing the calculations, the Project Team will prepare debt interest cost and funding assumptions. NewGen will also provide support to Freese and Nichols as requested.

Task 3 – Review Meeting

After completing Task 2, members of the Project Team will conduct a briefing conference call with Freese and Nichols (and City staff if desired) to discuss the draft results of the calculations. Included in these discussions will be the development of alternative funding scenarios and other input assumptions used within the forecasting model.

Task 4 – Finalization of Maximum Allowable Capital Recovery Fees

Following feedback from Freese and Nichols and/or City staff as well as any revisions to Land Use Assumptions and Capital Recovery Fee Capital Improvements Plans, the Project Team will finalize the calculations. The resulting maximum rate options will be produced along with related schedules for inclusion in the Final Report.

Task 5 – Presentations to Committee and/or Council Meetings

The Project Team will be available to attend and present at one (1) meeting with the Capital Improvements Advisory Committee and one (1) City Council to discuss the analysis conducted, the financial projections prepared, and the Project Team's findings from the project.

Cost of Services

As a subconsultant to Freese and Nichols for this project, NewGen will perform the services described in Tasks 1 through 5 for a lump sum fee of \$28,500, inclusive of up to two (2) public meetings.

If this proposal is accepted, the resulting agreement is subject to cancellation with thirty (30) days prior written notice provided to NewGen. In the event of cancellation, all labor and expense charges incurred by the Project Team through the date of cancellation will be considered due at the time notice of cancellation is delivered, regardless of work product and/or engagement status.

Additionally, you agree that the services rendered by NewGen will be performed in accordance with instructions or specifications received by Freese and Nichols and/or the City and will be provided with the degree of skill and judgment exercised by recognized professionals performing services of similar nature and consistent with the applicable industry best practices.

Mr. Richard Weatherly, P.E.

June 27, 2022

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All payments made under this engagement should be remitted to:

NewGen Strategies and Solutions, LLC
275 W. Campbell Road, Suite 440
Richardson, Texas 75082

Conclusion

Again, we appreciate Freese and Nichols' consideration of our Firm to assist in performing this important engagement for the City. If you have any questions regarding this letter and/or require additional information, please feel free to contact Chris Ekrut via email at cekrut@newgenstrategies.net, or by phone at (972) 232-2234. We thank you for this opportunity and look forward to assisting you.

Sincerely,

NewGen Strategies and Solutions, LLC

DocuSigned by:

Chris D. Ekrut

FB62F346CFA8440...
Chris D. Ekrut

Partner and CFO

PSA Exhibit B

Not Applicable to this
Professional Services
Agreement

PHASE REQUIREMENTS

I. Design Phase Services are considered "Time Critical" and subject to Liquidated Damages as outlined in Item 5 of the Professional Services Agreement. This phase must conform to the following submittal types and requirements:

A. 30% Submittals should, at a minimum, include the following:

1. Plans that contain the following information:
 - a. Cover Sheet
 - b. Field Survey Plan Sheet
 - c. Design Plan Sheets that show Existing Conditions and proposed concepts with the existing and proposed work clearly identified
 - d. Demo Plan
 - e. Typical Cross-Sections
2. List of preliminary Utility Conflicts and contact information for appropriate utilities.
3. Updated Design Schedule
4. Preliminary Opinion of Probable Costs (OPCC)
5. Permitting recommendations/requirements
6. Traffic Impact Analysis (if needed)
7. Draft H&H Study and/or Preliminary Engineering Report (if needed)
8. Preliminary Land Acquisition Information (if needed)
9. Preliminary Geotechnical findings (if needed)
10. Preparation of Exhibits and attendance at Public Meeting (if needed)

B. 60% Submittals should, at a minimum, include the following:

1. Plans that contain the following information:
 - a. Cover Sheet w/ index
 - b. General Notes
 - c. Sheet Layout
 - d. Typical Cross-Sections
 - e. Survey Control
 - f. Demo Plan
 - g. Grading Plan (if needed)
 - h. Tree Protection and/or Landscape Plan (if needed)
 - i. Traffic Control Plan (if needed)
 - j. Proposed Drainage Area Map and calculations
 - k. Plan and Profile drawings with Station Numbers for Water, Sewer, Storm, Street
 - l. Intersection Details
 - m. Sidewalks, Traffic Signage, & Pavement Marking Plans
 - n. SW3P Plan Sheet(s) and Details
 - o. Standard CoLC Details applicable for project
 - p. Project Specific Requirements/Details/Notes such as
 - 1) Electrical Plans/Details
 - 2) Structural Plans/Details
 - 3) Signal Plans/Details
2. Final ROW Documents for Land Acquisition (if needed)
3. Completed Geotechnical Report (if needed)
4. List of Updated Utility Conflicts and contact information for appropriate utilities.

5. List of needed Permits, draft applications for needed Permits
6. List of Technical Specifications that are needed for Project
7. Updated Design Schedule
8. Preliminary Construction Schedule
9. Updated Preliminary OPCC
10. Preparation of Exhibits and attendance at Public Meeting (if needed)

C. 90% Submittals should, at a minimum, include the following:

1. Updated Design Plans noted above
2. Submittal Letter addressing previous comments made on 60% Review
3. Project Manual – Spec Book, Bid forms, etc.
4. SW3P Manual with appropriate documentations/signatures as applicable
5. Updated OPCC
6. Approved Permits
7. Final List of Utility Conflicts and contact information for appropriate utilities.

D. Resubmittals

1. Phase submittals that do not comply with the requirements set forth above may be rejected in the sole absolute discretion of City. Rejected submittals must be resubmitted for review after all comments have been addressed.
2. Professional will have \$400 deducted from its Compensation for each review by City of a phase submittal after two prior reviews for that same phase.

II. Bid Phase Services should, at a minimum, include the following:

- A. **100% Construction Plans submitted for final City signatures (a Digital Copy w/ signed cover sheet to be submitted prior to posting for bids).**
- B. **Completed Project Manual**
- C. **Completed SW3P Manual**
- D. **Final OPCC**
- E. **Updated Construction Schedule**
- F. **Preparation of Exhibits and attendance at Public Meeting (if needed)**
- G. **Assist with the advertisement of the project (if needed)**
- H. **Address any RFI during Bid process (if needed)**
- I. **Attend and Assist in running a Pre-Bid Meeting (if needed)**
- J. **Provide Addendums to Bid Documents (if needed)**
- K. **Once Bids are opened, prepare Bid Evaluation, check references, and provide recommendation of award to City**

III. Construction Phase Services should, at a minimum, include the following:

- A. **Preparation of Exhibits and attendance at Public Meeting (if needed) prior to Project Start**
- B. **Attendance at Construction Progress Meetings (if needed)**
- C. **Periodic Site Visits (minimum 1 visit per month of construction)**
- D. **Review, Track, and make recommendations related to RFIS, Material Submittals, Change Orders, etc.**
- E. **Address found Design Conflicts in the Field**
- F. **Provide paper & digital copies of As-Builts**