PROFESSIONAL ENGINEERING SERVICES AGREEMENT

THIS AGREEMENT is made and entered into by and between the **City of Coppell, Texas**, hereinafter referred to as "City", and **Birkhoff, Hendricks & Carter, LLP**, hereinafter referred to as "Engineer", to be effective from and after the date as provided herein.

The City desires to engage the services of the Engineer to complete engineering services for:

Part A: Water and Wastewater System Master Plan Update, and

Part B: Water, Wastewater and Roadway Impact Fee Review and Update

hereinafter referred to as the "Project"; and the Engineer desires to render such engineering design services for the City under the terms and conditions provided herein. That for and in consideration of the covenants contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

I. Employment of the Engineer

The City hereby agrees to retain the Engineer to perform professional engineering services in connection with the Project; Engineer agrees to perform such services in accordance with the terms and condition of this Agreement.

II. Scope of Services

The parties agree that Engineer shall perform such services as expressly set forth and described in Exhibit “A”, which is attached hereto and thereby made a part of this Agreement. The parties understand and agree that deviations or modifications, in the form of written changes may be authorized from time to time by the City. Engineer shall have no further obligations or responsibilities for the project except as agreed to in writing. Engineer’s services and work product are intended for the sole use and benefit of Client and are non-intended to create any third party rights or benefits, or for any use by any other entity or person for any other purpose.

Engineer shall perform his or her professional engineering services with the professional skill and care ordinarily provided by competent engineers practicing in North Central Texas and under the same or similar circumstances and professional license. Professional services shall be performed as expeditiously as is prudent, considering the ordinary professional skill and care of a competent engineer.

III. Schedule of Work

The Engineer agrees to commence services immediately upon execution of this Agreement, and to proceed diligently with said service, except for delays beyond the reasonable control of Engineer, to completion, as described in the Completion Schedule attached hereto as Exhibit "B" and thereby made a part of this Agreement.

IV. Compensation and Method of Payment

The parties agree that Engineer shall be compensated for all services provided pursuant to this Agreement in the amount and manner described and set forth in the Payment Schedule attached hereto as Exhibit "C" and thereby made a part of this Agreement. Engineer further agrees that it will prepare and present such monthly progress reports and itemized statements as are described in said Exhibit "C". City agrees to pay invoices upon receipt. Statement for services shall include a line for previous payments, contract amount, and amount due current invoice.

V. Information To Be Provided By The City

The City agrees to furnish, prior to commencement of work, all information requested by Engineer that is available to the City.

VI. Insurance

Engineer agrees to procure and maintain for the duration of the contract Professional Liability Insurance ($3,000,000), Worker's Compensation, General Liability and Automobile Insurance.

VII. Assignment and Subletting

The Engineer agrees that neither this Agreement nor the services to be performed hereunder will be assigned or sublet without the prior written consent of the City. The Engineer further agrees that the assignment or subletting of any portion or feature of the work or materials required in the performance of this Agreement shall not relieve the Engineer from its full obligations to the City as provided by this Agreement.

VIII. Contract Termination

The parties agree that City or the Engineer shall have the right to terminate this Agreement without cause upon thirty (30) days written notice to the other. In the event of such termination without cause, Engineer shall deliver to City all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by Engineer in connection with this Agreement. Engineer shall be entitled to compensation for any and all services completed to the satisfaction of City in accordance with the provisions of this Agreement prior to termination.

IX. Engineer's Opinion of Cost

The parties recognize and agree that any and all opinions of cost prepared by Engineer in connection with the Project represent the best judgment of Engineer as a design professional familiar with the construction industry, but that the Engineer does not guarantee that bids solicited or received in connection with the Project will not vary from the opinion by the Engineer.

X. Construction

On projects that include construction, the Owner recognizes that the Contractor and Subcontractors will be solely in control of the Project site and exclusively responsible for construction means, methods, scheduling, sequencing, jobsite safety, safety programs, and compliance with all construction documents and directions from Owner or Building Officials. Construction contracts are between the Client and the Construction Contractor. Consultant shall not be responsible for construction related damages, losses, costs, or claims; except only to the extent caused by Consultant's sole negligence.

XI. Ownership of Documents

Original drawings, specifications and reports are the property of the Engineer; however, the Project is the property of the City. City shall be furnished with such reproductions of drawings, specifications and reports. Upon completion of the services or any earlier termination of this Agreement under Article VIII, Engineer will revise drawings to reflect changes made during construction as reported by the City and contractor, and will furnish the City with one set of construction record drawings in accordance with terms provided in Exhibit "A" – Engineering Services.

All deliverables shall be furnished, as an additional service, at any other time requested by the City when such deliverables are available in the Engineer's record keeping system.

XII. Complete Contract

This Agreement, including the exhibits hereto numbered "A" through "D" constitutes the entire agreement by and between the parties regarding the subject matter hereof, and supersedes all prior or contemporaneous written or oral understanding. This agreement may only be amended, supplemented, modified or canceled by a duly executed written agreement.

XIII. Mailing of Notices

Unless instructed otherwise in writing, Engineer agrees that all notices or communications to City permitted or required under this Agreement shall be addressed to City at the following address:

James D. Meier, P.E.
Assistant Director of Public Works – Operations
Address: 816 S. Coppell Rd. Coppell, TX. 75019
Phone: 972-304-3680
Email: james.meier@coppelltx.gov

City agrees that all notices or communications to Engineer permitted or required under this Agreement shall be addressed to Engineer at the following address:

Derek B. Chaney, P.E., R.P.L.S.
Birkhoff, Hendricks & Carter, L.L.P.
Address: 11910 Greenville Ave., #600, Dallas, Texas 75243
Phone: (214) 361-7900
Email: dchaney@bhcllp.com

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the addressee on the date such notice or communication is posted by the sending party.

XIV. Texas Board of Professional Engineers & Land Surveying Contact Information

Recipients of professional land surveying services under this agreement may direct complaints regarding such services to the Texas Board of Professional Engineers & Land Surveyors, 1917 South Interstate 35, Austin, Texas 78741, Phone (512) 440-7723.

XV. Contract Amendments

This Agreement may be amended only by the mutual agreement of the parties expressed in writing.

XVI. Indemnification Clause

CONSULTANT AGREES TO INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS CITY COUNCIL, OFFICERS, EMPLOYEES, AND AGENTS, FROM AND AGAINST ALL LIABILITY, CAUSES OF ACTION, CITATIONS, CLAIMS, COSTS, DAMAGES, DEMANDS, EXPENSES, FINES, JUDGMENTS, LOSSES, PENALTIES OR SUITS, WHICH IN ANY WAY ARISE OUT OF, RELATE TO, OR RESULT FROM CONSULTANT'S PERFORMANCE UNDER THIS CONTRACT WHICH ARE CAUSED BY THE INTENTIONAL WRONGFUL ACTS OR NEGLIGENT ACTS OR OMISSIONS OF CONSULTANT, SUBJECT TO THE LIMITATIONS IN TEXAS LOCAL GOVERNMENT CODE § 271.904 (A) AND TEXAS CIVIL PRACTICE AND REMEDIES CODE, § 130.002 (B).

XVII. Effective Date

This Agreement shall be effective from and after execution by both parties hereto, with originals in the hand of both parties.

WITNESS OUR HANDS AND SEALS on the date indicated below.

CITY OF COPPELL, TEXAS
A Texas Home-Rule Municipal Corporation

By: _____

Date: _____

ATTEST

By: _____

BIRKHOFF, HENDRICKS & CARTER, LLP
A Texas Limited Liability Partnership
Texas Board of Professional Engineers & Land Surveyors
Engineering Firm No. 526
Land Surveying Firm No. 100318-06

By: _____
Derek B. Chaney, P.E., R.P.L.S., Partner

Date: 12/22/2025

Reviewed By: _____

EXHIBIT "A"

ENGINEERING SERVICES

PART A: WATER AND WASTEWATER SYSTEM MASTER PLAN UPDATE
PART B: WATER, WASTEWATER AND ROADWAY IMPACT FEE UPDATE

GENERAL PROJECT BACKGROUND AND DESCRIPTION

A summary of the major scope items to be included is as follows:

PART A: WATER AND WASTEWATER SYSTEM MASTER PLAN UPDATE

- **Water Demand Study**

  Complete a water demand study to evaluate historical water usage trends from the summer of year 2023, and the winter and summer of year 2024, to determine minimum and maximum daily water usage, establish a per capita usage water design demand, and develop a 72-hour pattern (unitless diurnal curve) of water usage.

- **Water Distribution System Master Plan Update**

  Update the existing and buildout hydraulic water distribution system models, including the addition of existing water lines and facilities improved or constructed since the previous model update, and incorporation of the per capita usage rates and usage patterns established by the water demand study. Final deliverables shall include an updated full-size system map, and a written report summarizing the findings, results and recommendations.

- **Secondary Water Supply Source Conceptual Feasibility Study**

  Conduct a conceptual feasibility study to evaluate opportunities for securing a secondary source of treated water supply, including sizing of associated ground storage and pumping capacity that may be necessary to integrate the secondary water supply with the City's existing water distribution system. The City's current source of treated water supply is solely provided by the City of Dallas at the Village Parkway Pump Station. The City also has three (3) emergency interconnections with the Cities of Lewisville and Grapevine. However, it is our understanding that these interconnections have capacity and/or pressure limitations which may prevent them from being a viable long-term solution in the event of a major disruption to the primary supply source. An inherent benefit of securing a secondary supply source is to provide redundancy in the event of a restriction or shutdown of the current supply feed from the City of Dallas. The study will also consider the City's current and ultimate water demands and determine any necessary increase to the maximum rate of available water supply as it approaches buildout development conditions.

- **Wastewater Collection System Master Plan Update**

  Update the existing and buildout hydraulic wastewater models, to include existing sanitary sewers 10-inch and larger in diameter, and to incorporate any upgrades completed to the City's existing lift stations since the most recent model update. If available, review and analyze recent wastewater flow monitoring data collected by City-owned temporary or permanent flow meters, compare the observed flows to the modeled flows, and adjust model assumptions accordingly, if necessary. Final deliverables shall include an updated full-size system map, and a written report summarizing the findings, results and recommendations.

PART B: WATER, WASTEWATER AND ROADWAY IMPACT FEE UPDATE

- **Review and Update of Water, Wastewater and Roadway Impact Fees**

  Assist the City with determining necessary actions in connection with its periodic update of the land use assumptions and capital improvement plans established for the most recent Water and Wastewater Impact Fee Update, adopted in 2020. As required by state law (Texas LGC Chapter 395), the City is required to update the land use assumptions and capital improvement plan at least every 5 years. However, LGC Chapter 395 also provides provisions for determining that no update of land use assumptions, capital improvement or impact fees are needed. Provide guidance for the City in making a determination on these matters, and for publishing any associated public notices.

- **Water, Wastewater and Roadway Impact Fee Update (if required)**

  If the advisory committee determines that an update of land use assumptions, capital improvement plans, and impact fees are required, and upon direction by the City in writing, proceed with conducting an analysis of water, wastewater and roadway impact fees. Assist City staff with necessary scheduling and attending of required meetings and actions, including advisory committee presentations, and public hearings as required by the LGC for updates to impact fees.

PART C: ADDITIONAL SERVICES

- **Water Pressure Data Coordination and Collection**

  Coordinate with the City to identify selection of suitable locations for collecting water pressure data using pressure sensing water meters to be furnished and installed by the City. The data collected will be used for water model calibration as described below.

- **Water Model Calibration**

  Utilize pressure data collected in conjunction with other system data (including EST levels, pump rates, etc.) to calibrate the updated existing hydraulic water model.

SCOPE OF SERVICES

PART A: WATER AND WASTEWATER SYSTEM MASTER PLAN UPDATE

I. Water Demand Study

A. Coordinate with the City's SCADA system integrator to request and obtain the following data in tabular (Excel or compatible) format:

1. Hourly water levels for each elevated storage tank.
2. Hourly flow rates for the discharge meter at the high service pump station.
3. Hourly flow rates for water supply billing meters.
4. The water SCADA data will be provided for the following periods:
   - January 2025 to February 2025 (Winter Demands)
   - June 2025 to September 2025 (Summer Demands)

B. Coordinate with the City to request and obtain monthly water meter billing consumption records for residential, non-residential, industrial, and any unique water demand customers within the distribution system for the year 2025.

C. Review summer non-residential water usage from City provided water billings. If available, review data provided for golf courses, athletic fields, parks, commercial and industrial user's water billing consumption. Determine the unit demand rate on a "gallon per acre" basis for retail, commercial, industrial, and recreational uses.

D. Review multi-family water usage based on water meter billing consumption data provided by the City for existing multi-family developments and determine the appropriate multifamily unit demand rate.

E. Record information will be compiled by hour for residential and non-residential use to calculate maximum daily and maximum hourly residential per-capita demand rates.

F. A summary of the calculated per-capita rates will be presented to the City via email, and if requested, will be followed up with a virtual or in-person meeting at the City offices to discuss the findings.

G. Considering input received from the City, establish the recommended design per unit demand rates to be applied in the hydraulic water model update.

H. Develop a system-wide (all user categories) diurnal water demand curve over a 72-hour period of maximum daily water usage.

I. Summarize findings from water demand study in a letter report and transmit to the City in digital format.

II. Water Distribution System Master Plan Update

A. Coordinate and attend a project kickoff meeting virtually or in person at City Hall.

B. With the City's input, confirm the planning boundary to be applied for the water system master plan update.

C. Convert the existing and buildout hydraulic water models to the current release of InfoWater Pro (ArcGIS-based) modeling software.

D. Update the existing water model to reflect existing facilities constructed or improved since the completion of the most recent model updates associated with the 2020 Water Impact Fee, and as required to properly evaluate the system. For major facilities (including pump stations, and ground and elevated storage tanks), as-built construction record drawings shall be provided by the City to facilitate associated additions or updates to the hydraulic model.

E. Expand the City's existing water system model (currently includes pipes 12-inch diameter and larger) to an "all pipes" model. The "all pipes" model will include all known City water mains in the distribution system, regardless of size. The basis for alignment and configuration of additional pipes to be modeled shall be the water system GIS data to be provided by the City.

F. Populate the newly added water lines in the model with pipe diameters and associated pipe roughness coefficients (C-Factors).

G. Populate the newly added water nodes/junctions at intersecting water lines with elevations based on topographic contour data to be provided by the City.

H. Troubleshoot the expanded "all pipes" model to resolve connectivity and other similar issues as necessary to achieve a successful model simulation run.

I. If necessary, modify the layout and alignments of future water lines and facilities to be consistent with the City's Water System Planning Boundary and Future Thoroughfare Plan.

J. Coordinate with the City Staff to obtain current water system operational set points, including high service pump on/pump off settings, and elevated tank levels associated with those pumps settings. Update existing model scenario pump controls to match the operational set points provided.

K. Develop water demand and population spreadsheets, based on existing and projected land use assumptions as provided by the City. Calculate water demands based on design per capita usage rates established by the water demand study.

L. Coordinate with the City to determine the maximum delivery rate for the secondary treated water supply conceptual feasibility study (Section III).

M. Load the updated 72-hour diurnal demand curve established by the water demand study to the water model.

N. Distribute the calculated hydraulic system demands to the exiting and buildout water models.

O. Simulate the existing and buildout hydraulic water models using a 72-hour Extended Period Simulation (EPS) and evaluate the results.

P. Run models based on maximum daily demand and analyze results to check facility sizes, line sizes, and operation of elevated storage tanks. Update future facility and water line sizes, as necessary.

Q. Complete a fire flow analysis based on maximum daily demand conditions.

R. Prepare a Capital Improvement Plan (CIP) to address deficiencies identified based on the existing hydraulic model analysis. Formulate engineer's opinions of probable project costs and recommended implementation schedule.

S. Update the Water System Master Plan Map to reflect updates to existing and future systems for the Water Master Plan Update, including:

1. Streets, parcels, and 100-year floodplain provided by the City as the base map.
2. Updated water line sizes and model ID numbers
3. Updated junction nodes and model ID numbers
4. Existing and recommend future elevated tanks and ground storage reservoirs
5. Existing and recommended future pump station layouts
6. CCN boundaries for the City and adjoining entities (if available)
7. Location of existing and/or future pressure reducing valves, if required

T. Prepare written Water Master Plan Report, including methodology of the analysis, findings, recommendations, exhibits, 10-year CIP summary, and fire flow analysis reports.

U. Submit preliminary Water Master Plan report and map to the City for review in digital format. If requested, attend meeting at City Hall to discuss the City's review comments.

V. Address review comments from the City and finalize the Water Master Plan report and map. Submit final report to the City in digital and hard copy format in accordance with the deliverables listed in Section IX.

W. If requested by the City, prepare and provide a presentation of the findings to the City Council.

III. Secondary Water Supply Source Conceptual Feasibility Study

A. Attend one meeting virtually or in person at City Hall with the City's engineering and public works staff to discuss the conceptual feasibility study scope and expectations.

B. Analyze the City's existing water supply delivery point to confirm adequacy for buildout demand conditions, and with input from the city, determine the water supply demand requirements for the secondary supply system. Potential options may include, but are not limited to:

- Full replacement of supply need
- 50% of maximum daily demand rate
- Average daily demand rate

C. Request plans and other information available from the City for the three (3) existing emergency interconnections with the Cities of Grapevine and Lewisville. Based on the information available, make determination as to the capability of the existing intersections as it relates to maximum delivery rates, and water pressures.

D. Gather data and available information for current and prospective providers for treated water supply, including coordination with the City Staff to obtain available contact information for the treated water supply providers. Based on input from the City, the entities anticipated to be considered are:

- Trinity River Authority (TRA)
- Upper Trinity Regional Water District (UTRWD)
- City of Dallas (Dallas Water Utilities)
- City of Irving
- City of Flower Mound (via pass-thru)
- City of Lewisville (via pass-thru)
- City of Grapevine (via pass-thru)
- City of Carrolton (via pass-thru)
- DFW Airport

Based on initial information and data gathering, one or more of the above-mentioned suppliers may be eliminated from further conditions at this time. Submit request for information to the treated water supply selected for further consideration suppliers for the following:

1. Existing treated water supply availability and maximum delivery rate.
2. Future treated water supply availability, anticipated timing and maximum delivery rate.
3. Existing and future system mapping for the treated water supply network.

4. Demand charge or capital buy-in cost for joining the treated water supply system, if applicable.

E. Assess the initial information provided by the treated water suppliers, and prepare a memo summarizing the findings, and recommendations to be provided to the City. At this stage, up to three (3) options will be selected for further consideration in the secondary treated water supply conceptual feasibility study. If requested, attend a virtual or in-person meeting with the City to discuss the findings and selected options.

F. Using the maximum delivery rate determined in Part III.B, develop conceptual improvements for the secondary water supply delivery system, including:

1. Onsite improvements, including the point of connection to the existing distribution system, anticipated facilities (e.g., ground storage reservoir, booster pumps, etc.) and disinfection equipment (e.g., chlorine analyzing, injection, etc.).

2. Offsite improvements, including the conceptual route and sizing of the treated water supply pipeline required to transfer water from the supplier to the secondary supply delivery point.

G. Prepare a conceptual location map to graphically display the location of the City's existing water distribution system, service area, known system information for the selected treated water supply providers, and conceptual onsite and offsite system improvements.

H. Develop conceptual engineer's opinion of probable project cost for each alternate water supply system option, including the onsite and offsite infrastructure cost, land rights acquisition, capital buy-in cost, and associated engineering and professional fees.

I. Prepare preliminary design memo summarizing the findings, and recommendations from the conceptual feasibility study. Submit to the City in digital format for review.

J. If requested, attend one in-person or virtual meeting to discuss findings with the City.

K. Address comments provided by the City and publish the final study memo to the City in digital format.

L. If requested by the City, prepare and provide a presentation of the findings to the City Council.

IV. Wastewater Collection System Master Plan Update

A. With the City's input, confirm the planning boundary to be applied for the wastewater system master plan.

B. Obtain current digital CAD or ArcGIS mapping data for the existing wastewater collection system from the City.

C. Develop a basemap identifying the existing wastewater collection system to be modeled, which will generally include sanitary sewer pipes and manholes for lines 10-inch and larger in diameter and lift stations and force mains.

D. Provide the basemap to the City to facilitate a request for the following information:

1. As-built construction record drawings for projects to be added to the model.
2. Pump curves and supporting data for the existing lift stations.

E. Convert current models residing in InfoSewer Pro hydraulic modeling software platform to the current release of InfoWorks hydraulic modeling software. Troubleshoot the converted model as required to obtain a working model.

F. Delineate divides for major wastewater drainage basins, and wastewater subbasins (i.e., subcatchments), which form the basis for loading of wastewater design flows into the model.

G. Develop wastewater design flow assumptions (per capita for residential, and per unit area/acres for non-residential) for the land uses as shown by the City's Future Land Use Plan.

H. Develop tabulation of population and wastewater design flows based on existing, and buildout land use assumptions and population projections as provided by the City.

I. Use the established wastewater design flow assumptions to calculate and apply the hydraulic wastewater loadings to the existing and buildout model scenarios.

J. Utilize diurnal curves developed from historical wastewater flow monitoring studies previously completed by the City.

K. Develop and apply wet-weather hydrographs to the existing and buildout base loading models.

L. Run existing and buildout models using a 48-hour extended period simulation (EPS). The EPS scenarios will include both wet-weather and dry-weather flows.

M. Validate the existing model flows by checking against the City's billing flow meter data at the point of entry to the downstream regional wastewater system. Coordinate with the City to obtain relevant billing meter data from the regional provider.

N. Analyze the existing model results. Evaluate capability of existing wastewater collection lines, lift stations and force mains to convey peak wet weather wastewater flows. The existing system will be evaluated to determine if a free-flow or surcharged condition exists. Existing collection system lines shown to surcharge will be evaluated and recommendations provided for inflow/infiltration reductions, rehabilitation, replacement or paralleling.

O. Prepare a Capital Improvement Plan (CIP) to address deficiencies identified based on the existing hydraulic model analysis. Formulate engineer's opinions of probable project costs and recommended implementation schedule.

P. Analyze buildout model results. Evaluate and determine required sizes for future wastewater collection lines, lift stations and force mains to convey the buildout peak wet weather wastewater flows. Recommended buildout system improvements will be based on a free-flow condition.

Q. Prepare a Wastewater System Master Plan Map showing the modeled existing and buildout wastewater collection system components, and other features including:

1. Streets, parcels, and 100-year floodplain provided by the City as the base map.
2. City Limits, Sewer CCN and Planning Boundary
3. Color coded major sewershed basin delineations
4. Modeled wastewater collection lines, with pipe diameters and model ID numbers
5. Modeled manholes and model ID numbers
6. Existing and future lift stations and force mains, including capacity requirements and pipe sizes
7. Existing points of discharge or points of entry to the regional wastewater system.

R. Prepare written Wastewater Master Plan report, including methodology of the analysis, findings, recommendations, exhibits, and 10-year CIP summary.

S. Submit preliminary Wastewater Master Plan report and map to the City for review in digital format. If requested, attend meeting at City Hall to discuss the City's review comments.

T. Address review comments from the City and finalize the Wastewater Master Plan report and map. Submit final report to the City in digital and hard copy format in accordance with the deliverables listed in Section IX.

U. If requested by the City, prepare and provide a presentation of the findings to the City Council.

PART B: WATER, WASTEWATER AND ROADWAY IMPACT FEE REVIEW & UPDATE

V. Review of Water, Wastewater and Roadway Impact Fees

A. As required by Texas LGC Chapter 395.052, conduct a review of the land use assumptions and water and wastewater capital improvement program (CIP) projects included in the previous water, wastewater and roadway impact fee report adopted in 2020. Gather pertinent information from the City to be included in the review, including:

1. Current Comprehensive Plan and associated future land use plan.

2. Status of water, wastewater and roadway system CIP projects listed in the 2020 Impact Fee Report (not started, in-progress, or complete).

3. Water, Wastewater and Roadway Impact Fee amounts collected by the City per year for the period between 2020 and 2025.

4. Current count of existing water meters, categorized by meter size and classified as domestic or irrigation.

B. Coordinate with Roadway Impact Fee subconsultant (Lee Engineering) as required to obtain their input and feedback as it relates to review of the Roadway Impact Fees.

C. Prepare memo summarizing findings from review, including updated tables, current system maps, and a recommendation based on the available information and LGC requirements.

D. Attend one meeting with City Staff at City Hall to review and discuss findings from the review of impact fees.

E. Assist the City with guidance in establishing an advisory committee (typically the Planning and Zoning Commission) as must be appointed to review and advise the governing body as to the need to update or revise land use assumptions, CIP, and impact fees.

F. Attend one meeting with the advisory committee to inform them of their role in the process and provide a summary of the findings from the review of the land use assumptions and CIP. Provide guidance for the advisory committee in making a determination as to one of the following courses of subsequent action in accordance with LCG Chapter 395:

1. NO UPDATE OF LAND USE ASSUMPTIONS, CAPITAL IMPROVEMENTS PLAN OR IMPACT FEES IS NEEDED. ***(Proceed to Section V.G)***

2. PERIODIC UPDATE OF LAND USE ASSUMPTIONS AND CAPITAL IMPROVEMENTS REQUIRED. ***(Proceed to Section VI.)***

G. Provide support to City Staff for following the necessary requirements, including assistance with preparing public notices as required by applicable Texas LGC rules for a determination that no update of land use assumptions, capital improvements plans, or impact fees are needed.

VI. Update of Water, Wastewater and Roadway Impact Fees (if required)

The consultant shall proceed with Section VI. only upon receipt of written authorization from the City.

A. Water and Wastewater Impact Fee Analysis

1. Impact Fee Study to include City's proposed and eligible existing recovery waterlines, pump stations, ground storage reservoirs, elevated storage tanks, wastewater collection lines and lift stations. The water and wastewater impact fees will be based on a single service area.

2. Coordinate with the City staff to confirm completed improvement and move those projects to the capital recovery project list. Review, update, and add where necessary, capital projects eligible for recovery in the impact fee program. Coordinate with the City to request and retrieve eligible costs associated with identified impact fee recovery projects.

3. Development of a 10-year Water System CIP and 10-year Wastewater System CIP, responding to growth in the land use assumptions (to be provided by the City), including formulation of engineer's opinions of probable costs and implementation schedule. The 10-year CIP's will be based on land use and growth assumptions provided by the City of Coppell.

4. Develop and utilize 10-year water and wastewater models as the base models for the Impact Fee Analysis. For each CIP project identified, analyze the capacity currently utilized, total capacity available, the capacity utilized over the impact fee period.

5. Review of the existing living unit equivalent (LUE) for the impact fee. Update water meter equivalency based on latest AWWA standards for water meters.

6. Calculate the water and wastewater impact fee based on the list of eligible existing and proposed projects, using actual or estimated construction cost of existing projects, and projected cost of projects on the 10-year CIP, living unit equivalent and the utilized capacity of the facilities during the 10-year period.

7. Prepare Water and Wastewater Impact Fee Update report, including a summary of land use assumptions, schedules, opinions of probable project costs, capacity tabulations, CIP exhibits and the calculation of the maximum water and wastewater impact fee.

B. Roadway Impact Fee Analysis *(Services to be provided by Subconsultant- Lee Engineering)*

1. Collect available base map, demographic, and roadway project data (thoroughfare plan and cross-section standards) provided by the City. Complete an inventory of the existing arterial and collector roadways and compile the data for use in this project.

2. Review traffic survey zones and map of the City and identify possible service areas. The goal in developing the service area boundaries will be to intake the service areas as large as allowed by State law and to share major projects between service areas where possible. It is anticipated only one roadway service area will be required.

3. Review Land use data provided by the City and compile it into a format for developing the roadway impact fees. The number of vehicle trips generated by the existing land uses and average trip lengths, if necessary, will be calculated.

4. Review projected land use, population and employment data and identify new PM peak hour trips and vehicle-miles of travel, if necessary, that will be generated in the next 10 years and at ultimate build-out of the City.

5. Review the proposed 10-year roadway improvement plan to ensure that projected traffic demands will be served. Any modifications or additions to the plan to meet projected demands will be identified. Only projects that are eligible for roadway impact fee handing will be included. Other eligible projects such as traffic signal installations and recoupment projects will also be identified.

6. Develop engineer's opinion of probable project cost for the roadway improvement projects. The data will be compiled and assigned to service areas for use in calculating roadway impact fees.

7. Utilizing the City provided existing land use data and the growth assumptions, develop service unit generation data under existing, 10-year, and build-out (ultimate) conditions. Develop a Service Unit Equivalency table based on this data.

8. Based on the project cost data, projected growth data and service unit equivalents, a maximum fee per service unit will be calculated for each service area. The maximum fee per service unit will be 50 percent of the total projected cost of implementing the capital improvements plan.

9. Prepare Roadway Impact Fee report that documents the study procedures and results.

C. Compile the preliminary Water, Wastewater, and Roadway Impact Fee Update report content into a single document and submit to the City for review.

D. Address comments from the City, finalize the Water, Wastewater, and Roadway Impact Fee Update report, and submit to the City in digital and hard copy format in accordance with the deliverables listed in Section IX.

E. Attend up to two (2) meetings with the City staff at City Hall to discuss project approach, review identified projects, study findings, interim reports and present final conclusions and recommendations.

F. Coordination as necessary with the City staff to collaborate and provide content for inclusion in the Capital Improvement Advisory Committee presentations.

G. Establish project schedule for adoption of Updated Impact Fees by City Council.

H. Attend the following meetings at City Hall:

1. Up to two (2) meetings to present Updated Land Use Assumptions and Capital Improvement Plans to the Advisory Committee.

2. One City Council Meeting for public hearing on adoption of the Updated Impact Fees.

3. One City Council Meeting for adoption of Updated Impact Fees, if necessary.

PART C: ADDITIONAL SERVICES

VII. Water Pressure Data Coordination and Collection

A. Coordinate with City staff to locate suitable locations for placement of up to eight (8) pressure sensing water meters to collect water pressure data throughout the water distribution system. It is anticipated that two pressure sensing meters will be located in each quadrant of the City for the purposes of data gathering for this project. All cost associated with the furnishing, installing and maintaining the pressure sensing water meters shall be the responsibility of the City.

B. If necessary, perform field survey to tie the location and elevation of the pressure sensing water meters at their installed locations.

C. Coordination with the City to obtain a login to allow remote access to observe and download the recorded pressure data. On a weekly basis, observe the pressure data via remote access, to confirm the pressure data is trending within the expected ranges.

D. Following the collection of 4-weeks of water pressure data, the data shall be downloaded and organized in tabular format for further use in the water model calibration effort covered in Part VIII.

E. Prepare graphic exhibits showing the location of each pressure recorder to be included in the written summary on model calibration results as described in Part VIII.

VIII. Water Model Calibration

A. Obtain operational setpoints from the City, including the high service pump on/pump off settings associated with elevated tank levels. Compare the City provided operational settings with the modeled operational settings and adjust the model settings as necessary.

B. Obtain from the City the following water system SCADA data in tabular format for the one-week period selected from the pressure meter deployment for model calibration:

1. Operation status and discharge flow rates, if available, for all high service pumps
2. Elevated storage tank and ground storage reservoir levels
3. Treated water supply flow rates from regional water provider meter stations

C. Input the model with locations, elevations, and recorded pressure data for each pressure recorder location.

D. Utilize the InfoWater Pro Hydraulic Calibrator for model calibration. Adjustments to be made through calibration may include minor losses, pipe roughness coefficients (C-factors) and distribution of water usage demands within the model.

E. Model pressure results within 15% of field recorded data will be considered calibrated and within model tolerances and accuracy. Calibration of the existing water distribution system model will conclude at the direction of the City or when established funds are expended.

F. Prepare graphic exhibits of the recorded versus calibrated modeled pressure results at each pressure recorder location.

G. Prepare a written summary of results, findings and conclusions from the water model calibration for inclusion in the Water Master Plan Update report.

H. If requested, attend one meeting virtually or in-person at City offices to review and discuss the findings from model calibration.

I. Prepare and submit a separate letter report to the City summarizing the model calibration and other relevant information as listed in the "Hydraulic Modeling Letter Requirements" as provided by the City's Insurance Services Office (ISO) consultant.

IX. Reproduction

A. Prepare and deliver two (2) bound copies of the final Water Distribution System and Wastewater Collection System Master Plan reports.

B. Prepare and deliver two (2) bound copies of the final Water, Wastewater and Roadway Impact Fee report.

C. Prepare and deliver one full-size copy of the Water Distribution System and Wastewater Collection System Master Plan Maps mounted on hard backing.

X. Water and Wastewater Model Maintenance

Provide up to three (3) years of water and wastewater model maintenance, as directed by the City. The three-year period for model maintenance shall begin following the final submittal of the Water and Wastewater Master Plan Updates reports, and shall conclude at the direction of the City, at the end of three (3) years, or when established funds are expended.

Model maintenance may include but is not necessarily limited to the following:

A. Provide hydraulic modeling, as directed by the City.

B. Complete "What-If" scenarios as directed by the City, including providing a written memo summarizing the model findings, if requested.

C. Determine impact of proposed developments to the City's water distribution system or wastewater collection system as directed by the City

D. Add pipe networks associated with new developments to the model as directed by the City.

PART D: TERMS AND CONDITIONS FOR ELECTRONIC FILE TRANSFERS

Electronic files are transmitted on the terms and conditions below:

By opening, accessing, copying or otherwise using the transmitted electronic files, these terms and conditions are accepted by the user.

1. The electronic files are compatible with the following software packages operating on a PC using Windows operating systems:
   - AutoCAD Civil 3D 2024 , Civil 3D 2024
   - Innovyze InfoWater Pro 3.0 with ESRI Arc Pro 2.7
   - Innovyze Infoworks
   - MS Office 365
   - Bluebeam Revu (PDF) Ver 10 - Ver 2020
2. Birkhoff, Hendricks & Carter, LLP does not make any warranty as to the compatibility of these files beyond the specified release of the above-stated software.
3. Because data stored on electronic media can deteriorate undetected or be modified, Birkhoff, Hendricks & Carter, LLP will not be held liable for completeness or correctness of electronic media.
4. The electronic files are instruments of our service. Where there is a conflict between the hard copy drawings and the electronic files, Birkhoff, Hendricks & Carter, LLP's hard copy file will govern in all cases.
5. Electronic files may only be modified in accordance with the Texas Engineering Practice Act for modifying another Engineer's design.

PART E: EXCLUSIONS

The intent of this scope of services is to include only the services specifically listed herein and no others. Services specifically excluded from this scope of services include, but are not necessarily limited to the following:

1. Preparation of land use assumptions for the master plans and impact fees
2. Final determination of the planning boundaries for master plans
3. Consulting services by others not included in Scope of Services
4. Public Meetings beyond those listed in this Scope of Services
5. Fiduciary responsibility to the City
6. Wastewater model calibration
7. Wastewater flow monitoring
8. Water Quality Analysis
9. Legal Services

EXHIBIT "B"

COMPLETION SCHEDULE

PART A: WATER & WASTEWATER MASTER PLAN UPDATE

Notice to Proceed with Engineering ..... January 2026

Complete Water Demand Study ..... March 2026

Submit Preliminary Master Plan Reports ..... October 2026

Submit Final Master Plan Reports ..... December 2026

PART B: WATER, WASTEWATER & ROADWAY IMPACT FEE UPDATE

Conduct Review of Water, WW & Roadway Impact Fees ..... July 2026

Submit Preliminary Impact Fee Reports (if required)..... December 2026

Submit Final Impact Fee Reports (if required) ..... February 2027

PART C: ADDITIONAL SERVICES

Water Model Calibration ..... July 2026

EXHIBIT "C"

PAYMENT SCHEDULE

Payment for engineering services described under Part A (Section I, II, III, and IV) shall be based on a lump sum amount of $210,600.00.

Payment for engineering services described under Part B (V and VI) and Part C (VII, VIII, IX, and X) shall be on an hourly basis of salary cost times a multiplier of 2.49 for time expended on the task. Field survey crew shall be based on $195.00 per hour, inclusive of all equipment rentals and software licensing; plus mileage charged at the IRS established rate. Expenses shall be at invoice cost times a multiplier of 1.15. A model software licensing fee shall be applied at a rate of $175.00 per week for services rendered in connection with Section X, Water and Wastewater Model Maintenance.

The maximum overall fee established herein shall not be exceeded without written authorization from the City, based on an increased scope of services. The following is a summary of the estimated charges for the various elements of the proposed services:

Part A – WATER & WASTEWATER MASTER PLAN UPDATE (LUMP SUM)		
I:	Water Demand Study	$18,600.00
II:	Water System Master Plan Update	$67,800.00
III:	Secondary Water Supply Conceptual Feasibility Study	$57,600.00
IV:	Wastewater System Master Plan Update	$66,600.00
	Subtotal Part A (Lump Sum)	***$210,600.00***
Part B –WATER/WW & ROADWAY IMPACT FEE REVIEW & UPDATE (HOURLY)		
V:	Review of Water, Wastewater & Roadway Impact Fees	$17,800.00
VI:	Update of Water, Wastewater & Roadway Impact Fees (if required)	$87,400.00
	Subtotal Part B (Hourly)	***$105,200.00***
Part C –ADDITIONAL SERVICES (HOURLY)		
VII:	Water Pressure Data Coordination and Collection	$8,700.00
VIII:	Water Model Calibration	$24,900.00
IX:	Reproduction	$1,200.00
X:	Water and Wastewater Model Maintenance	$20,000.00
	Subtotal Part C (Hourly)	***$54,800.00***
	TOTAL, NOT TO EXCEED CONTRACT AMOUNT	**$370,600.00**

EXHIBIT "D"

INFORMATION TO BE PROVIDED BY THE CITY

The City shall provide the following information:

1. Digital mapping in ArcGIS or AutoCAD format for the existing water and wastewater systems.
2. As-built construction record drawings for the wastewater collection lines, lift stations, and force mains to be added to the hydraulic model.
3. Pump curves for the City's existing wastewater lift stations and water pump stations.
4. Water utility meter billing consumption data as listed in Part A.II, for the Water Demand Study.
5. Water distribution system operational set points for pumps and elevated storage tanks.
6. Planning boundary for water and wastewater master plans.
7. Future Thoroughfare Plan.
8. Future Land Use Plan.
9. Buildout population projections.
10. 10-year land use assumptions for impact fees.
11. Comprehensive Plan.
12. Construction Plans for existing emergency water system interconnections with the Cities of Grapevine and Lewisville.