RAFTELIS

April 11, 2019

Ms. Maria Stroupe
Town Manager
Town of Dallas
210 N. Holland St.
Dallas, NC 28034

Dear Ms. Stroupe,

Raftelis has completed an evaluation to develop cost-justified water and sewer system development fees for consideration by the Town of Dallas (Town). This letter documents the results of the analysis, which is based on an approach for establishing system development fees set forth in North Carolina General Statute 162A Article 8 – "System Development Fees." As one of the largest and most respected utility financial, rate, management, and operational consulting firms in the U.S., and having prepared system development fee calculations for utilities in North Carolina and across the U.S. since 1993, Raftelis is qualified to perform system development fee calculations for water and sewer utilities in North Carolina.

Background

System development fees are one-time charges assessed to new water and/or sewer customers for their use of system capacity and serve as an equitable method by which to recover up-front system capacity costs from those using the capacity. North Carolina General Statute 162A Article 8 ("Article 8") provides for the uniform authority to implement system development fees for public water and sewer systems in North Carolina and was passed by the North Carolina General Assembly and signed into law on July 20, 2017 and amended on June 22, 2018. According to the statute, system development fees must be adopted in accordance with the conditions and limitations of Article 8, and those fees in effect as of October 1, 2017 must conform to the requirements set forth in the Article no later than July 1, 2018. In addition, the system development fees must also be prepared by a financial professional or licensed professional engineer, qualified by experience and training or education, who, according to the Article, shall:

- Document in reasonable detail the facts and data used in the analysis and their sufficiency and reliability.
- Employ generally accepted accounting, engineering, and planning methodologies, including the buy-in, incremental cost or marginal cost, and combined cost approaches for each service, setting forth appropriate analysis to the consideration and selection of an approach appropriate to the circumstances and adapted as necessary to satisfy all requirements of the Article.

227 W. Trade Street, Suite 1400
Charlotte, NC 28202
www.raftelis.com

- Document and demonstrate the reliable application of the methodologies to the facts and data, including all reasoning, analysis, and interim calculations underlying each identifiable component of the system development fee and the aggregate thereof.
- Identify all assumptions and limiting conditions affecting the analysis and demonstrate that they do not materially undermine the reliability of conclusions reached.
- Calculate a final system development fee per service unit of new development and include an equivalency or conversion table for use in determining the fees applicable for various categories of demand.
- Consider a planning horizon of not less than 5 years, nor more than 20 years.

This letter report documents the results of the calculation of water and sewer system development fees for the Town in accordance with these requirements.

Article 8 references three methodologies that can be used to calculate system development fees. These include the buy-in method, the incremental cost method, and the combined cost method. A description of each of these methods follows:

Capacity Buy-In Approach

The Capacity Buy-In Methodology is most appropriate in cases where the existing system assets provide adequate capacity to provide service to new customers. This approach calculates a fee based upon the proportional cost of each user's share of existing plant capacity. The cost of the facilities is based on fixed assets records and usually includes escalation of the depreciated value of those assets to current dollars.

Incremental Cost Approach

The second method used to calculate water and sewer system development fees is the Incremental Cost (or Marginal Cost) Methodology. This method focuses on the cost of adding additional facilities to serve new customers. It is most appropriate when existing facilities do not have adequate capacity to provide service to new customers, and the cost for new capacity can be tied to an approved capital improvement plan (CIP) that covers at least a 5-year planning period.

Combined Approach

A combined approach, which is a combination of the Buy-In and Incremental Cost approaches, can be used when the existing assets provide some capacity to accommodate new customers, but where the capital improvement plan also identifies significant capital investment to add additional infrastructure to address future growth and capacity needs.

Summary of Results

To perform the System Development Fee calculation, Raftelis requested and was provided with the following data from Town staff:

- Water and sewer fixed asset data;
- Outstanding utility debt and associated debt service;
- Contributed or grant funded capital;
- Capacity in water and sewer systems; and,
- Five-year capital improvement plan.

The Buy-In Approach was chosen as the method to calculate the System Development Fees for the Town, since the Town does not currently develop a long-term capital improvement plan (of at least five years).

Using the Buy-In approach, Raftelis calculated the estimated cost, or investment in, the current capacity available to provide utility services to existing and new customers. This analysis was based on a review of fixed asset records and other information as of June 30, 2018. The depreciated value of the assets was first adjusted to reflect an estimated replacement cost to determine the "replacement cost new less depreciation" (RCNLD) value for the assets. The asset values were escalated using the Handy Whitman Index of Public Utility Construction Costs (for the South Atlantic Region).

The RCNLD value of the water assets includes water supply, treatment, transmission and distribution facilities and land, but excludes small, non-core equipment including vehicles and meters. The RCNLD value of the sewer assets includes sewer treatment, collection system facilities, disposal facilities and land, but excludes small equipment and vehicles.

Results of the asset escalation by asset category are shown in Exhibits 1 and 2.

Exhibit 1: RCNLD of Existing Water Assets

Existing Water Assets	
Asset Category	**RCNLD**
Building and Fence	$ 129,927
Distribution	7,303,006
Equipment	100,930
Land	72,881
Water Plant	1,286,147
Total: Existing Water Assets	**$ 8,892,891**

Exhibit 2: RCNLD of Existing Sewer Assets

Existing Sewer Assets	
Asset Category	**RCNLD**
Building and Fence	$ 129,927
Distribution	2,223,197
Equipment	95,787
Land	44,381
Sewer Plant	1,055,871
Total: Existing Sewer Assets	**$ 3,549,162**

Several adjustments were then made to the estimated water and sewer RCNLD values in accordance with Article 8, which included adjustments for contributed assets, non-core assets, and outstanding debt service as described below.

Contributed Assets

The listing of fixed assets provided was reviewed to identify assets that were contributed or paid for by developers, and these assets were subtracted from the RCNLD value, as these assets do not represent an investment in system capacity by the Town. In addition, assets that were grant funded were also subtracted from the RCNLD value.

Non-Core Fixed Assets

The RCNLD value excludes non-core assets such as small equipment, vehicles, and meters.

Outstanding Debt Service Credit

Utilities often borrow funds to construct assets, and revenues from retail rates and charges can be used to make the payments on these borrowed funds. To ensure that new customers are not being double charged for these assets, once through the System Development Fees and again through retail rates and charges, the outstanding debt that is paid for through retail rates and charges should be deducted from the calculation.

The RCNLD values for water and sewer assets with the adjustments as described above are shown in Exhibits 3 and 4 below.

Exhibit 3: Determination of Water Assets for System Development Calculation

Adjustments to Water Assets		
Total Water Assets	**$**	**8,892,891**
Less:		
Contributed and Grant Funded Assets (1)		(75,000)
Vehicles, Non-core Equipment, Computers		(59,625)
Meters		(7,705)
Admin		-
Total: Net Water Assets	**$**	**8,750,561**
Less:		
Outstanding Principal Debt		(2,771,979)
Water Assets for System Development Fee Calculation	**$**	**5,978,582**

(1) A grant was obtained to fund a portion of a waterline project.

Exhibit 4: Determination of Sewer Assets for System Development Calculation

Adjustments to Sewer Assets		
Total Sewer Assets	**$**	**3,549,162**
Less:		
Contributed and Grant Funded Assets (1)		-
Vehicles, Non-core Equipment, Computers		(59,625)
Meters		-
Admin		-
Total: Net Sewer Assets	**$**	**3,489,537**
Less:		
Outstanding Principal Debt		-
Sewer Assets for System Development Fee Calculation	**$**	**3,489,537**

The adjusted RCNLD values for water and sewer were then converted to a unit cost of capacity by dividing the RCNLD value by current capacity available (Capacity) to yield a basic unit of measure of cost per gallon per day (GPD) for water and sewer capacity, as shown in Exhibit 5.

Exhibit 5: Cost per GPD of Core Utility Assets

	Water	Sewer
Adjusted RCNLD	$5,978,582	$3,489,537
Capacity [MGD]	1.0	0.6
Cost per GPD	**$5.98**	**$5.82**

This measure becomes the basic building block or starting point for determining the *maximum cost-justified level* of the water and sewer System Development Fees. The next step is to define the level of demand associated with a typical residential customer often referred to as an Equivalent Residential Unit, or ERU. For determining the level of residential demand, the Town uses the water and wastewater design flow rates as specified by state guidelines[1], which reflect typical water and sewer demand. Based on discussions with Town staff, this analysis assumes an average of a two-bedroom and three-bedroom home. Applying the State standards to the average number of bedrooms, it is determined that an ERU requires a standard level of service of 300 gallons per day of capacity each for water and sewer.

Exhibit 6: Water and Sewer Equivalent Residential Unit

	Water - GPD per ERU	Sewer - GPD per ERU
Equivalent Residential Unit	300	300

Assessment Methodology

The analysis provides a maximum cost-justified level of System Development Fees that can be assessed by the Town. For residential customers, the calculation of the System Development Fee is based on the cost per gallon per day multiplied times the number of gallons per day required to serve each ERU, as shown below in Exhibit 7.

[1] Sewer guidelines -Administrative Code Title 15A (Department of Environment and Natural Resources) Subchapter 2T, which states that the sewage from dwelling units is 120 gallons per day per bedroom.

Exhibit 7: System Development Fee Calculation for Water and Sewer Systems

System Development Fee Calculation		
Water Calculation		
Cost per GPD	$	5.98
GPD per ERU		300
Maximum System Development Fee for 3/4" Meter	**$**	**1,794**
Sewer Calculation		
Cost per GPD	$	5.82
GPD per ERU		300
Maximum System Development Fee for 3/4" Meter	**$**	**1,745**

For non-residential customers (or customers with larger meters), the Town could develop a conversion table using two options. The first option is to estimate each customer's water or sewer flow and then divide it by 300 gallons per day to determine the number of ERUs. The number of ERUs could then be multiplied by the fee for residential customers to derive the system development fee the non-residential customers. For example, a commercial customer with an estimated use of 3,750 per day equate to 12.50 ERUs (3,750 divided by 300). Multiplying the 12.50 ERUs by the residential water and sewer system development fees results in a water system development fee of approximately $22,425 and a sewer system development fee of approximately $21,812.

The second option is to use the fees for the smallest residential meter and then scale the fee up by the flow ratios for each meter size, the results of which are shown in Exhibit 8.[2] This method provides a straightforward approach that is simple to administer. Assuming the commercial customer in the example provided above has a 4" meter, the system development fee for the 4" meter would be $59,786 for water and $58,159 using the meter size approach.

[2] See the AWWA M-1 Manual – Appendix B- Equivalent Meter Ratios; pp.326 for meter sizes

Exhibit 8: Calculated Maximum System Development Fees for Water and Sewer Customers

Meter Size	Meter Ratio	Water	Sewer
3/4"	1.00	$ 1,794	$ 1,745
1"	1.67	2,989	2,908
1.5"	3.33	5,979	5,816
2"	8.33	14,946	14,540
3"	16.67	29,893	29,079
4"	33.33	59,786	58,159
6"	53.33	95,657	93,054
8"	93.33	167,400	162,845
10"	183.33	328,822	319,874

The fees documented in the report represent the maximum cost-justified System Development Fees. The Town may elect to charge a cost per gallon that is less than the maximum cost-justified charge documented in this report. If the Town elects to charge a fee that is less, all customers must be treated equally, meaning the same reduced cost per gallon per day must be used for all customers.

We appreciate the opportunity to assist the Town of Dallas with this important engagement. Should you have questions, please do not hesitate to contact me at (704) 373-1199.

Very truly yours,

RAFTELIS

Elaine Conti,
Vice President

Appendix

Supporting Schedules
From the
System Development Fee Model

Supporting Schedule 1 – Water Buy-In Approach

Water System (1)		**Calculated RCNLD**
Building and Fence	$	129,927
Distribution		7,303,006
Equipment		100,930
Land		72,881
Right of Ways		-
Water Plant		1,286,147
Sewer Plant		-
Total Eligible Assets	**$**	**8,892,891**
Less:		
Grant Funded/Contributed Capital (2)	$	(75,000)
Vehicles, Non-core Equipment, Computers (3)		(59,625)
Meters		(7,705)
Admin		-
Subtotal: Water System Costs	$	8,750,561
Adjustments:		
Less:		
Outstanding Principal (4)	$	(2,771,979)
Net Water System Assets	$	5,978,582
Existing System Capacity (in MGD)		1
Cost per Unit of Capacity (GPD)	$	5.98
Daily ERU (in GPD) (5)		300
Calculated System Development Fee per ERU	**$**	**1,794**

(1) The net book value as of June 30, 2018 is escalated to today's dollars to calculated the replacement cost new less depreciation (RCNLD) value.
(2) All assets that were contributed/donated by developers (or grant funded) have to be removed.
(3) Equipment, vehicles and small computer systems are removed.
(4) Outstanding principal paid through user rates/charges is subtracted from the analysis.
(5) For calculating the capcity fee for a typical residential customer or ERU, the flow for a 2.5-bedroom home was assumed Per NCAC 02T.0114, flow rate is 120 gallons per day per bedroom. The 2.5-bedroom home was used to derive an ERU of 300 gallons per day.

Supporting Schedule 2 – Sewer Buy-In Approach

Sewer System (1)	**Calculated RCNLD**
Building and Fence	$ 129,927
Distribution	2,223,197
Equipment	95,787
Land	44,381
Right of Ways	-
Water Plant	-
Sewer Plant	1,055,871
Total Eligible Assets	**$ 3,549,162**
Less:	
Grant Funded/Contributed Capital (2)	$ -
Vehicles, Non-core Equipment, Computers (3)	(59,625)
Meters	-
Admin	-
Subtotal: Sewer System Costs	$ 3,489,537
Adjustments:	
Less:	
Outstanding Principal (4)	$ -
Net Sewer System Assets	$ 3,489,537
Existing System Capacity (in MGD)	0.6
Cost per Unit of Capacity (GPD)	$ 5.82
Daily ERU (in GPD) (5)	300
Calculated System Development Fee per ERU	**$ 1,745**

(1) The net book value as of June 30, 2018 is escalated to today's dollars to calculated the replacement cost new less depreciation (RCNLD) value.
(2) All assets that were contributed/donated by developers (or grant funded) have to be removed.
(3) Equipment, vehicles and small computer systems are removed.
(4) Outstanding principal paid through user rates/charges is subtracted from the analysis.
(5) For calculating the capcity fee for a typical residential customer or ERU, the flow for a 2.5-bedroom home was assumed Per NCAC 02T.0114, flow rate is 120 gallons per day per bedroom. The 2.5-bedroom home was used to derive an ERU of 300 gallons per day.

Supporting Schedule 3 – Debt Service

Debt Title	Issue Amount	Interest Rate	Allocation		Total Outstanding Principal 2019-Beyond
			Water	Sewer	
2013 Dallas W&S BB&T Loan	$ 3,600,000		100%	0%	$ 2,922,430