

April 3, 2018

Ms. Lee Tillman
Director of Finance
City of Havelock
Post Office Box 368
Havelock, NC 28532

Subject: City of Havelock System Development Fees

Dear Ms. Tillman:

Raftelis has completed an evaluation to develop cost-justified water and wastewater system development fees for consideration by the City of Havelock (“City”). 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 wastewater utilities in North Carolina.

Background

System development fees are one-time charges assessed to new water and/or wastewater customers, or developers or builders, to recover a proportional share of capital costs incurred to provide service availability and capacity for new customers. North Carolina General Statute 162A Article 8 (Article 8) provides for the uniform authority to implement system development fees for public water and wastewater systems in North Carolina, and was recently passed by the North Carolina General Assembly and signed into law on July 20, 2017. 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.

- Document and demonstrate the reliable application of the methodologies to the facts and data, including all reasoning, analysis, and 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 10 years, nor more than 20 years.

This letter report documents the results of the calculation of water and wastewater system development fees for the City 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:

System Buy-In Approach

The System Buy-In Methodology is most appropriate in cases where the existing 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 wastewater 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 10-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 City staff:

- Water and wastewater fixed asset data;
- Outstanding utility debt and associated debt service;
- Capital projects not yet booked to fixed assets;
- Contributed capital;
- Capacity in water and wastewater systems;
- Daily water production data;
- Inflow and infiltration data; and
- History of system development fees collected.

The Buy-In Approach was chosen as the method to calculate the system development fees, since in general, the City has adequate capacity to accommodate anticipated growth in the near term. The analysis involved in the Buy-In Approach is discussed in the following section.

Buy-In Calculation

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, 2017. The depreciated value of the assets was first adjusted to reflect an estimated replacement cost, or “replacement cost new less depreciation” (RCNLD).¹ 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, storage, transmission and distribution facilities and land, but excludes non-core assets such as administrative buildings, small equipment, and vehicles. The RCNLD value of the wastewater assets includes wastewater treatment, collection system facilities, disposal facilities and land, but excludes non-core assets, small equipment, and vehicles.

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

¹ The RCNLD value represents the value of the City’s assets if the City were to replace the assets exactly as they exist today. The cost of replacing these assets with new assets would therefore be higher than the RCNLD value shown.

Exhibit 1 – Replacement Cost New, Less Depreciation: Water Assets

Asset Category	RCNLD Value
Plant Buildings ²	\$8,435,634
SCADA Projects	\$2,390,736
Distribution	\$172,870
Equipment	\$161,463
Land	\$297,847
Other Improvements	\$389,552
Total	\$11,848,102

Exhibit 2 – Replacement Cost New, Less Depreciation: Wastewater Assets

Asset Category	RCNLD Value
Plant Buildings	\$10,034,488
Outfall Projects	\$19,952,558
Collection	\$11,968,562
Equipment	\$205,626
Land	\$8,811
Other Improvements	\$3,010,371
Total	\$45,180,415

The RCNLD value of the City’s wastewater system is significantly greater than that of the water system because a moratorium on the City’s wastewater system required extensive rehabilitation.

Several adjustments were made to the estimated water and wastewater RCNLD values in accordance with Article 8, which included adjustments for contributed assets and outstanding debt service.

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 City.

² The “Buildings” asset category includes plant components, pump stations, and buildings that are essential to water or wastewater production or processing. It excludes administrative buildings and assets that are not core functional components of the water and wastewater systems.

Outstanding Debt Service Credit

Utilities often borrow funds to construct assets, and revenues from retail rates and charges may be used to make payments on the new asset debt. To ensure that new customers are not being double charged for debt-funded assets, once through retail charges and again through the system development fee, the outstanding debt that is paid through retail rates and charges should be deducted from the calculation. The RCNLD values with adjustments as described above are shown in Exhibit 3.

Exhibit 3 – Debt Adjustment to Water and Wastewater System Value

	Water	Wastewater
A. Total RCNLD Value	\$11,848,102	\$45,180,415
% Principal Offset by Development Fee Revenue	0%	0%
% Principal remaining (covered through Retail Revenue)	100%	100%
B. Total Debt Adjustment	\$ (901,924)	\$ (11,485,338)
Net System Value after Debt Credit Adjustment (A+B)	\$10,946,178	\$33,695,077

The adjusted system values for water and wastewater were then converted to a unit cost of capacity by dividing the net system value by total existing capacity in gallons per day, yielding cost per gallon per day (GPD) for the water and wastewater systems (Exhibit 4).

Exhibit 4 – Cost per GPD of Core Utility Assets.

	Water	Wastewater
Net System Value	\$10,946,178	\$33,695,077
Existing Capacity (GPD)	2,800,000	2,250,000
Cost Per GPD	\$3.91	\$14.98

This measure becomes the basic building block or starting point for determining the *maximum cost-justified level* of the water and wastewater system development fees. Fees for different types of customers are calculated by multiplying this cost of capacity by the amount of capacity needed to serve each type or class of customer.

The next step is to define the level of demand associated with a typical, or average, residential customer, often referred to as an Equivalent Residential Unit, or ERU. Based on the City’s Master Plan, the City assumes each ERU to be 360 gallons per day, for both water and wastewater.

Assessment Methodology

The analysis provides a maximum cost-justified level of system development fees that can be assessed by the City. For residential customers, the calculation of the system development fee is based on the cost per gallon per day multiplied by the number of gallons per day required to serve each ERU, as shown below in Exhibit 5.

Exhibit 5 – System Development Fee Calculation for Water and Wastewater Systems

	Water	Wastewater
A. Cost per gallon per day	\$3.91	\$14.98
B. Per ERU Consumption	360	360
Development Fee Per ERU (A*B)	\$1,408	\$5,393

For non-residential customers (or customers with larger meters), the fees for the smallest residential meter can be used and then scaled up by the flow ratios for each meter size, as specified in the AWWA M-1 Manual³, the results of which are shown in Exhibit 6. This method provides a straightforward approach that is simple to administer and reasonably equitable for most new customers. Exhibit 6 shows the resulting maximum cost-justified system development fees by meter size for meters ranging from 5/8 inches to 12 inches. For these calculations, the system development fees have been rounded to the nearest dollar.

Exhibit 6 – Maximum Cost Justified System Development Fees for Water and Wastewater Customers

Meter Size	Water	Wastewater
5/8"	\$1,408	\$5,393
1"	\$3,520	\$13,483
1.25"	\$5,280	\$20,224
1.5"	\$7,040	\$26,965
2"	\$11,264	\$43,144
3"	\$22,528	\$86,288
4"	\$35,200	\$134,825
6"	\$70,400	\$269,650
8"	\$112,640	\$431,440
10"	\$295,680	\$1,132,530
12"	\$373,120	\$1,429,145

³ See the AWWA M-1 Manual 7th Edition, p. 338.

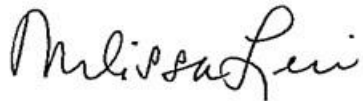
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The City may elect to charge a cost per gallon that is less than the maximum cost-justified charge documented in this report. If the City elects to charge a fee that is less, all customers must be treated equally, meaning the same reduced cost per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

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

Sincerely,
RAFTELIS FINANCIAL CONSULTANTS, INC.

A handwritten signature in black ink that reads "Melissa Levin". The signature is written in a cursive, flowing style.

Melissa Levin
Senior Manager