



April 22, 2024

Mr. Robert Stewart
Deputy Utilities director
The City of Mount Holly
400 E Central Ave
Mount Holly, NC 28120

Subject: 2024 System Development Fee Study Update

Dear Mr. Stewart:

Raftelis Financial Consultants, Inc. (“Raftelis”) has completed an evaluation to develop cost-justified water and sewer system development fees for fiscal year (“FY”) 2024 for consideration by the City of Mount Holly (City). This report documents the results of the analysis, which was based on an approach for establishing system development fees set forth in North Carolina General Statute 162A Article 8 – “System Development Fees.” The purpose of this report is to summarize Raftelis’ conclusion related to cost-justified water and sewer system development fees.

The preparation of this report was developed by Raftelis for the City based on a specific scope of work agreed to by both parties. The scope of Raftelis’ work consisted of completing a calculation of cost justified water and sewer system development fees using common industry practices and industry standards. We provide no opinion on the legality of the system development fees implemented by the City. It is the responsibility of the City to ensure compliance of the system development fees with North Carolina General Statute 162A Article 8 – “System Development Fees”. The scope of work does did not include any additional work other than the calculation associated with the system development fees, such as opinions or recommendations on the administration of these fees, the timing and use application of revenues from the collection of these fees, etc., as that is the responsibility of the City.

In developing the conclusions contained within this report, Raftelis has relied on certain assumptions and information provided by the City, who is most knowledgeable of the water and sewer system, its finances, etc. Raftelis has not independently verified the accuracy of the information provided by the City. We believe such sources are reliable and the information obtained to be reasonable and appropriate for the analysis undertaken and the conclusions reached. The conclusions contained in this report are as of the stated date, for a specific use and purpose, and made under specific assumptions and limiting conditions. The reader is cautioned and reminded that the conclusions presented in this report apply only as to the effective date indicated. Raftelis makes no warranty, expressed or implied, with respect to the opinions and conclusions contained in this report. Any statement in this report involving estimates or matters of opinion, whether or not specifically designated, are intended as such, and not as representation of fact.

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 has been modified several times since its adoption. According to the statute, system development fees are required to be adopted in accordance with the conditions and limitations of Article 8. 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 methods 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 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 five years, nor more than 20 years.
- Use the gallons per day per service unit that the local government unit applies to its water or sewer system engineering for planning purposes for water or sewer, as appropriate, in calculating the system development fee.

This letter report documents the results of the calculation of water and sewer system development fees for FY 2024 in accordance with these requirements. In general, system development fees are calculated based on (1) a cost analysis of the existing or planned infrastructure that is in place, or will be constructed, to serve new capacity demands, and (2) the existing or additional capacity associated with these assets. Article 8 is relatively explicit in the identification of infrastructure assets that may be included as part of the system development fee calculation, as the Article defines allowable assets to include the following types, as provided in Section 201:

“A water supply, treatment, storage, or distribution facility, or a wastewater collection, treatment, or disposal facility providing a general benefit to the area that facility serves and is owned or operated, or to be owned or

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operated, by a local governmental unit. This shall include facilities for the reuse or reclamation of water and any land associated with the facility.”

Therefore, the method used to calculate system development fees for the City included system facility assets that satisfied this definition.

Article 8 references three methodologies that could 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 is included in the following paragraphs:

Capacity Buy-In Method:

Under the Capacity Buy-In Method, a system development fee is calculated based on the proportional cost of each user's share of existing system capacity. This approach is typically used when existing facilities can provide adequate capacity to accommodate future growth. The cost of capacity is derived by dividing the estimated value of existing facilities by the current capacity provided by existing facilities. Adjustments to the value of existing facilities are made for developer contributed assets, grant funds, and outstanding debt.

Incremental Cost Method:

Under the Incremental Cost (or Marginal Cost) Method, a system development fee is calculated based on a new customer's proportional share of the incremental future cost of system capacity. This approach is typically used when existing facilities have limited or no capacity to accommodate future growth. The cost of capacity is calculated by dividing the total cost of growth-related capital investments by the additional capacity provided as a result of the investments.

Combined Cost Method:

Under the Combined Cost Method, a system development fee is calculated based on the blended value of both the existing and expanded system capacity. As such, it is a combination of the Capacity Buy-In and Incremental Cost methods. This method is typically used when existing facilities provide adequate capacity to accommodate a portion of the capacity needs of new customers, but where significant investment in new facilities to address a portion of the capacity needs of future growth is also anticipated, or where some capacity is available in parts of the existing system, but incremental capacity will be needed for other parts of the system to serve new customers at some point in the future.

The Combined Cost method was used to calculate the system development fees for the City, since in general, the City's existing water and sewer treatment facilities have enough capacity to accommodate anticipated future growth over the near term, but certain growth-related CIP projects are determined to be needed over the next five-year period. The following steps were completed to calculate the fees under the Combined Cost Method:

1. The Total Core System Value was calculated by adding the net value of the existing system and the net value of future capacity related projects identified in the CIP.
2. The unit cost of capacity, cost per GPD, was calculated by dividing the Total System Value by the total future capacity of the system, which includes the current system capacity as well as the marginal capacity provided from future projects.
3. The amount of capacity assumed to be demanded by one service unit of new development was identified. One Equivalent Residential Unit (ERU) was defined as the smallest service unit of new development.

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4. The capacity fee for one ERU was calculated by multiplying the cost per GPD of system capacity, as defined in step 2, by the capacity associated with one ERU, as defined in step 3.
5. The calculated system development fee for one ERU was scaled for different meter sizes.

Calculation of System Development Fees

Step 1 – Estimate the System Value and Apply Adjustments

A listing of fixed assets provided by the City, as of June 30, 2023, was reviewed and each individual asset was categorized into one of the categories shown in Table 1.

Table 1. Fixed Asset Categories

Water and Sewer Systems
Computer Equipment
Vehicles
Other Equipment
Improvements
Land
Infrastructure
Buildings/Structures
Water/Sewer Lines

Next, the replacement value of existing assets in allowable categories was estimated. Each asset’s original cost, as contained in the fixed asset listing provided by the City, was escalated to 2023 dollars based on the year the asset was purchased and the corresponding escalation factor for that year. Escalation factors for each year were developed using the Handy-Whitman Index (“HWI”) for the South Atlantic Region, which provides an annual index value representing the relative change in costs for each year from 1908 to 2023. Using the HWI to estimate an asset’s current replacement cost is an industry accepted method by which to value system facilities.

The replacement costs of the assets were adjusted by their indexed accumulated depreciation to derive the replacement cost new less accumulated depreciation (“RCNLD”) amounts. The estimated RCNLD values for water and sewer system assets allowable under Article 8 are summarized in Table 2.

As shown in Table 2, the RCNLD value of the water system was estimated to be approximately \$24.2 million, and the RCNLD value of the sewer system was estimated to be approximately \$31.7 million. Several additional adjustments were made to the estimated water and sewer system RCNLD values in accordance with Article 8, which included adjustments for developer contributed assets, grant funded assets, and a portion of outstanding debt, and construction work-in-progress as described below.

Excluded Assets:

The fixed assets were reviewed to identify assets for exclusion such as meters, equipment, and vehicles, which are not allowable under Article 8. The listing of fixed assets was also reviewed to identify assets that were contributed, or paid for, by developers or grant funded. Based on discussions with City staff, the City’s fixed asset records do not include any developer contributed assets or grant funded assets. It should be noted the City is currently in the process of building infrastructure to connect to Charlotte Water’s wastewater system. When this infrastructure is completed, which is scheduled for FY 2025, the City will no longer use its existing wastewater treatment plant and instead send its sewer flow to

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Charlotte Water for treatment. The City identified the fixed assets associated with the wastewater treatment facility that will no longer be used to provide sewer treatment. These assets were removed from the analysis as shown below.

Table 2. Existing Water and Sewer System Value

Description	Water	Sewer
Fixed Assets (RCNLD)	\$24,199,079	\$31,696,019
Less: Excluded Assets	(\$5,164,429)	(\$3,536,004)
Less: Excluded WTPP Assets- Decommissioned Sewer Plant		(\$2,981,070)
Existing System RCNLD	\$19,034,650	\$25,178,945

Growth Related CIP and Construction Work-In-Progress

The system fees are calculated under the combined methodology as discussed above. The capital improvements plan (CIP) was reviewed with City staff, and the growth-related projects were identified. Based on discussions with City staff, the expansion related CIP projects will provide approximately \$4.6 million worth of water investment and \$3.5 million worth of sewer investment. Construction work in progress is also added into the calculation in order to account for assets that will be added to the net value over the next year. The majority of this infrastructure includes the connection to the City to Charlotte Water's wastewater system which is being funded with a state revolving fund loan.

Debt Credit

Article 8 specifies that the buy-in aspect of the combined calculation should be determined using generally accepted methods, including the consideration of debt credits and other generally accepted valuation adjustments. The debt credit is applied to reflect that a portion of the outstanding debt associated with the system facilities will be repaid with water and sewer user charges and a portion will be repaid with system development fee revenues. An adjustment was made to prevent recovering the cost of the assets twice, once when assessing system development fees for new customers, and then again when these customers pay user charges. Because the City has been using revenues from system development fees to pay for CIP projects and not towards debt service, the total debt credit is the current outstanding principal associated with included assets for both the water and sewer system.

Section 207 of Article 8 states *"In applying the incremental cost or marginal cost, or the combined cost, method to calculate a system development fee with respect to capital improvements, the system development fee analysis must include as part of that methodology a credit against the projected aggregate cost of capital improvements. That credit shall be determined based upon generally accepted calculations and shall reflect a deduction of either the outstanding debt principal or the present value of projected water and sewer revenues received by the local governmental unit for the capital improvements necessitated by and attributable to such new development, anticipated over the course of the planning horizon. In no case shall the credit be less than twenty-five percent (25%) of the aggregate cost of capital improvements"*. The amount of the Combined Cost credit was calculated by first identifying the amount of existing outstanding debt attributable to the water and sewer system that funded qualifying assets. Additionally, a net present value was calculated for any assumed future borrowing to fund the growth-related CIP. An additional credit was calculated for the water system to meet this 25% requirement, as shown below to derive the net system value.

Table 3. Net System Value

Description	Water	Sewer
System RCNLD	\$19,034,650	\$25,178,945
<i>Plus:</i> Growth Related CIP	\$4,600,000	\$3,500,000
<i>Plus:</i> Construction Work in Progress	\$1,380,682	\$22,429,035
<i>Less:</i> Outstanding Principal for Included Assets	(\$723,649)	(\$22,429,035)
<i>Less:</i> Future Debt Credit for Capacity Related CIP	(\$3,440,010)	(\$2,617,399)
<i>Less:</i> Additional Credit to reach 25% requirement	(\$2,078,775)	
Net System Value	\$18,773,079	\$26,061,546

Step 2 – Calculate the Unit Cost of System Capacity

The cost per unit of system capacity was calculated by dividing the adjusted system values (derived in Step 1) by the water and sewer system capacities. The treatment capacity of the water system is currently 6 million gallons per day (“MGD”) and the expansion related CIP projects allow the City to better utilize this existing capacity. Therefore, the cost per unit of system capacity for the water system was calculated to be \$3.13 per gallon per day (\$18,773,079 ÷ 6 MGD).

The treatment capacity of the sewer system will be 4 MGD based on the infrastructure being built to connect the City with Charlotte Water. Therefore, the cost per unit of system capacity for the sewer system was calculated to be \$6.52 per gallon per day (\$26,061,546 ÷ 4 MGD). The calculations are provided in Table 4.

Table 4. Calculation of Water and Sewer System Development Fees Unit Cost

Description	Water	Sewer
Net System Value	\$18,773,079	\$26,061,546
System Capacity (MGD)	6.0	4.0
Unit Cost of Capacity (\$ / gallon per day)	\$3.13	\$6.52

Step 3 – Estimate the Amount of Capacity Per Service Unit of New Development

Section 205 of Article 8 states that the system development fee calculation “...use the gallons per day per service unit that the local governmental unit applies to its water or sewer system engineering for planning purposes for water or sewer, as appropriate, in calculating the system development fee.” The City uses the North Carolina Administrative Code 15A NCAC 02T.0114 Wastewater Design Flow Rates to define the level of demand

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associated with a typical, or average, residential customer, which was recently (fall of 2023) updated to 75 gallons per day per bedroom. A three-bedroom home was assumed which results in 225 gallons per day per service unit.

Step 4 – Calculate the System Development Fee for One Equivalent Residential Unit (ERU)

The system development fee for one ERU was calculated by multiplying the unit cost of capacity from Step 2 by the capacity demanded by one ERU from Step 3. The calculations are shown in Table 5.

Table 5. Calculation of Water and Sewer System Development Fees per ERU

Description	Water	Sewer
Cost per Unit of Capacity (GPD)	\$3.13	\$6.52
Daily ERU (in GPD)	225	225
Calculated System Development Fee per ERU	\$700	\$1,470

Step 5 – Scaled System Development Fees

The system development fees for various categories of demand associated with non-residential customers were scaled using water meter capacity ratios. The scaling factors were based on rated meter capacities for each meter size, as published by the American Water Works Association in Principles of Water Rates, Fees, and Charges, as shown in Table 6.¹

The water and sewer system development fees shown in Table 6 represent the maximum cost-justified level of system development fees that can be assessed by the City per Article 8. If the City chooses to assess fees that are less than those shown in the tables, the adjustments need to be reflected consistently across all categories of demand.

Table 6. Maximum Cost-Justified Water and Sewer SDF

Meter Size	Capacity Ratio	Water Fee	Sewer Fee	Total
5/8" or 3/4"	1.00	\$ 700	\$ 1,470	\$ 2,170
1"	2.50	\$ 1,750	\$ 3,680	\$ 5,430
2"	8.00	\$ 5,600	\$ 11,760	\$ 17,360
3"	17.5	\$ 12,250	\$ 25,730	\$ 37,980
4"	31.5	\$ 22,050	\$ 46,310	\$ 68,360
6"	65.00	\$ 45,500	\$ 95,550	\$ 141,050
8"	140.00	\$ 98,000	\$ 205,800	\$ 303,800
10"	210.00	\$ 147,000	\$ 308,700	\$ 455,700
12"	265.00	\$ 185,500	\$ 389,550	\$ 575,050

¹ Manual of Water Supply Practices (M1), Principles of Water Rates, Fees, and Charges, American Water Works Association, 7th Edition, Table VII.2-5 on p. 338.

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We appreciate the opportunity to assist the City of Mount Holly with this important engagement. Should you have questions, please do not hesitate to contact me at 704-936-4436.

Very truly yours,

Elaine Conti,
Executive Vice President

RAFTELIS FINANCIAL CONSULTANTS, INC.