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SYSTEM DEVELOPMENT FEE

"Analysis"

Prepared for

First Craven Sanitary District

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Introduction

Thomas Engineering, PA was retained by the First Craven Sanitary District (FCSD) to analyze their System Development Fees (SDF) considering current events, so they comply with North Carolina House Bill 436 (HB 436). The bill was ratified to address fee inconsistencies among public providers including calculation methodologies and implementation. The new law provides specific guidelines that public water and sewer providers must follow to charge SDFs effective October 1, 2017. The law provides a grace period through July 1, 2018 for public providers to update fees in accordance with the new procedures and conditions.

This report summarizes the methodology utilized to calculate water capacity fees for FCSD, Craven County North Carolina. New development creates a demand for additional water and water services. Capacity fees are one-time fees charged to new development to defray some of the costs of providing necessary public facilities. In addition to offering FCSD a valuable and timely source of income, capacity fees help ensure that new development contributes to the cost of the public facilities required to provide the necessary services.

The analysis conducted in this study include a number of commonly acceptable approaches for developing capacity fees for the water and wastewater systems:

- The **buy-in** or reimbursement approach considers the capacity available in existing utility assets;
- The **incremental** approach identifies the demands that new water and sewer connections place on both utility systems which require the construction of new facilities;
- The **combined** systems approach calculates a fee based on the investment in the existing system and the future anticipated investment required to serve new growth.

Moreover, the analysis performed follows industry guidance set forth by the American Water Works Association (AWWA) Manual of Water Supply Practices M1 “Principles of Water Rates, Fees, and Charges”, as well as relevant legal requirements.

Based on FCSD’s existing and projected needs, and with no capital improvements planned in the next 5 years, the capacity fees calculated follow the **buy-in** method approach. For the methodologies outlined herein, demand units on a per unit-of-service basis were established and then multiplied these units by the net cost per unit of service for the water system to determine the Maximum Allowable Capacity Fee (MACF). From this fee, appropriate credits were deducted from the gross unit cost basis to determine the net unit cost basis of the capacity fee for sewer.

This analysis focused on reviewing the latest available fixed asset information and debt service costs as of June 1, 2018 to determine the cost of capacity for FCSD. This analysis documents the results of the various analyses and our recommendations for implementing SDFs to be charged to new customers connecting to the water system.

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SDFs are defined as one-time charges assessed against new development to recover a proportional share of the costs of capital facilities constructed to provide service capacity for new customers connecting to the water system. Typically, the cost basis for setting capacity fees is based on the system components that are necessary to serve, and that provide benefit to, all customers. These components typically include land, treatment plants, storage tanks, distribution lines, and other equipment.

Purpose of Capacity Fees

Often called by different names (development impact fees, connection fees, system development charges, improvement charges, capacity charges, and full cost connection fees), capacity fees are one-time payments used to contribute the proportional share of the requisite capital investment previously made, or that is expected to be made that result in available capacity for future demand. In general, and as dictated by many state regulations and AWWA manuals of practice, these contributions should solely be used for capital investments thereby offsetting costs that would otherwise have to be borne by existing water customers. Capacity fees have limitations and provide one funding element within a utility's financing portfolio. A capacity fee represents the proportionate share of a utility's backbone infrastructure that new customer pays. Legal principles surrounding capacity fees typically note that capacity fee revenues should only be used for capital improvements, not for operating and maintenance or other related operating costs. In addition, these fees cannot be used to correct or address existing deficiencies within utility systems

System Development Fees Methods

There is no single established method for determining capacity fees that is both appropriate for all situations. There are, however, various approaches that are currently recognized and utilized within the rate-setting industry, some to a greater extent than others, by government agencies.
These methods can be categorized as follows:

- System Buy-in Approach: Fees are designed to derive from the new customer an amount per connection equal to the "equity" in the system attributable to similar existing customers. New development would pay for its share of the useful life and remaining capacity of existing facilities from which new development would benefit. The System Buy-In Approach tends to be best suited for application when there is adequate capacity available in existing facilities to serve new customers. (Note: The word "equity" refers to that portion of system value for which there is no offsetting debt. It does not imply ownership of or title to, utility facilities.)
- Incremental Cost Approach: Fees are designed to derive from the new customer the marginal, or incremental, cost of system expansion associated with new customer growth. The incremental approach follows the premise that new connections to a utility system

should be responsible for those costs that the utility incurs for the most recent or next increment of required system capacity. The Incremental Cost Approach is best suited when capacity in the existing facilities is inadequate to serve new growth, and the planned incremental capacity investment is targeted to serve new customers.

- Combined Systems Approach: Fees developed under the combined systems approach recognize two parts. The first part indicates the current investment in existing capacity available for new customers and the second part indicates the incremental cost of any new capacity available to serve new growth. This Combined Systems Approach is suitable for a system that has unutilized capacity in its existing system to serve new customers but requires additional facilities and/or processes to serve both existing and new customers.

Revenues derived from utility capacity fees are commonly used to offset part or all capital costs to accomplish any of the following objectives:

- To pay the capital costs of future capacity provided for growth.
- To provide rate relief to existing system users by recovering that portion of the annual existing and future capacity capital costs associated with growth, including debt service requirements and direct asset purchases from current revenues.
- To accumulate reserves, generated through funds from Capacity fees, to finance system improvements and expansions required to meet growth.

The study detailed herein utilizes the **Buy-in Method Approach** to determine the maximum allowable capacity fees for the water system. FCSD maintains existing available capacity for new customers with no plans for capital improvements in the next 5 years. As such, Thomas Engineering, PA has determined that the **Buy-in Method Approach** is appropriate for determining the maximum allowable capacity fees.

FCSD History

The First Craven Sanitary District water system was established in 1982. The system as it exist today was constructed in three phases.

- The original project consisted of building a treatment plant, 2 wells, 1 elevated storage tank, and approximately 27 miles of distribution pipe. The total cost of this project was paid for by a USDA loan in the amount of $1.25 million.
- The District was expanded in 1996. This project included a second elevated storage tank and approximately 37 miles of distribution pipe. The total cost of this project was paid for by a USDA loan in the amount of $ 1.9 million.
- The District was expanded again in 1999. This project included an upgrade to the water treatment plant to double treatment capacity by adding a third well and additional treatment. The total cost for this project was $768,965. The cost of this project was paid by a $200,000 grant from the NC Rural Center, a loan in the amount of $500, 943, and $60,022 from funds of the District.

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Summary of Results

The following FCSD data was used to perform the System Development Fee calculation:

- Water system fixed asset data
- Outstanding utility debt
- Capacity in the water system
- Daily water demand data
- Average demand data

Buy-In Approach

Using the Buy-In approach, the cost, or investment in, the current capacity available to provide utility services to existing and new customers was calculated. This analysis was based on a review of obtained loans to build the existing water assets.

The Replacement Cost New Less Depreciation (RCNLD) value of the water assets includes wells, water treatment plant, storage tanks, distribution lines, and land.

Results of the asset calculation by asset category are as shown in Table 1 below.

Table 1: RCNLD of Obtained Water System Loans & Grants

Item #	Asset Category	RCNLD	
1	Original WTP Construction	$	1,250,000.00
2	1996 Expansion	$	1,900,000.00
3	1999 Expansion	$	768,965.00
	Total Existing Water System Assets	$	3,918,965.00

Outstanding Debt Service Credit

Utilities often borrow funds to construct assets, and revenues from 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 Fee and again through user rates and charges, the outstanding debt that is paid for through user rates and charges should be deducted from the calculation.

The RCNLD values for water system assets with the adjustments as described above are shown in Table 2 below.

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Table 2: Calculation of Water System Assets for System Development Fee Calculation

Water System Assets Adjustments		
Total Existing Water System Assets	$	3,918,965.00
Grants	$	(200,000.00)
Outstanding Debt (Principal)	$	(1,350,095.00)
Wastewater Assets For System Development Fee Calculation	$	2,368,870.00

The adjusted RCNLD values for the water system were then converted to a unit cost of capacity (cost per gallon per day (GPD by dividing the RCNLD value by the total capacity of the water treatment plant, as shown in Table 3.

Table 3: Cost per GPD Buy-In Approach

Water System Cost per GPD		
Adjusted RCNLD	$	2,368,870.00
Existing Treatment Capacity (GPD)		720000
Cost per Gallon (GPD)	$	3.29

The cost per gallon per day for water assuming the Buy-In Approach ($3.29) becomes the basic building block or starting point for determining the cost-justified level of water System Development Fees. Fees for different types of customers are based on this cost of capacity multiplied by the amount of capacity needed to serve each type or class of customer.

The level of demand associated with a typical, or average, residential customer is referred to as an Equivalent Residential Unit (ERU). For purposes of designed the water systems, common industry standards assume a typical residential unit requires 400 gallons per day for water. To calculate the maximum cost-justified System Development Fees, FCSD has elected to use the daily average residential actual demand of 132 gpd using a ¾" meter.

Assessment Methodology

The analysis provides a cost-justified level of System Development Fees that can be assessed by FCSD. 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 in Table 4 below.

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Table 4: SDR To Serve Each ERU

Water Calculation		
Cost per GPD (Buy-in Method)	$	3.29
Cost per ERU (400 gpd/unit)	$	1,316.04
Cost per ERU (132 gpd/3/4" meter)	$	434.29
System Development Fee	$	3.29

Non-Residential Customers

For non-residential customers (or customers with larger meters), the fees for the ¾ inch residential meter can be used and then scaled up by the flow ratios for each meter size, as specified in the American Water Works Association (AWWA) Manual of Water Supply Practices M1 "Principles of Water Rates, Fees, and Charges". This method provides a straightforward approach that is simple to administer and reasonably equitable for most new customers.

FCSD has elected to use reduced-gallons per day per equivalent residential unit which results in a lower calculated System Development Fee for residential customers. Since all larger meters are scaled up from the smallest meter, all customers receive the benefit of the lower System Development Fee.

Table 5 below shows the maximum calculated System Development Fee using this method.

Table 5: Maximum Development Fees Based on Meter Size

Meter Size	AWWA (Capacity)	Factor Based on 3/4" Meter	Maximum System Development Fee
3/4"	30	1.00	$ 434
1"	50	1.67	$ 725.00
2"	160	5.33	$ 2,313.00
3"	320	10.67	$ 4,631.00
4"	500	16.67	$ 7,235.00
6"	1000	33.33	$ 14,465.00
8"	1600	53.33	$ 23,145.00

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Conclusions

Based upon the analysis presented herein and in consultation with FCSD, we have developed the following conclusions:

- **The Maximum Allowable Water System Development Fee that FCSD can adopt is $ 3.29 per gallon per day, or $434.00 per ERU ($ 3.29 x 132 gpd per ERU).**
- We recommend that FCSD review its development fees at least every five years to ensure that they remain fair and equitable and continue to reflect its current cost of capacity. If FCSD decides to expand its facilities, future changes in technology, demands, development patterns, or other factors may necessitate additional adjustments to its development fees.
- We recommend that as part of any system development fee update, FCSD also evaluates the most appropriate accepted methodology for calculating its system unit cost of capacity as system capacity may change over time.

Adoption Procedures HB 436

Upon receiving SDF calculations, FCSD is required by HB 436 to adhere to the following procedures:

Public Comment: FCSD must allow for public comment on the Analysis. The public comment period must last for at least 45 days. The fee sent out for comment is as prepared by the professional, not the governing board. Likewise, the fee preparer of the analysis considers the public comment, not the governing board.

Public Hearing: FCSD must conduct a public hearing after the comment period. After the public hearing, the professional determines if any modifications are required.

Adoption: After the consideration of comments, the fee must be adopted by the governing board at a later date. The fee must be adopted by resolution or ordinance and published in FCSD's annual budget.

Use: The new law prescribes specific uses for the funds collected through SDFs. They include:

- Costs of previously completed capital improvements for which capacity exists and capital rehabilitation projects.
- Rehabilitation includes repairs, maintenance, modernization, upgrades, updates, replacement, or correction of deficiencies of any facility.
- Expansion or other undertaking to increase the level of preexisting level of service for existing development.

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Disclaimer

This report (analysis) was prepared by Thomas Engineering, PA for the First Craven Sanitary District specifically for determining the Maximum System Development Fee that can be charged by the District for new development. Thomas Engineering, PA utilized information and data obtained from First Craven Sanitary District which has not been verified by Thomas Engineering, PA, unless otherwise noted in this report as such.

End of Report

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