February 23, 2023

Dr. Kimberly J. Sowell, County Manager
Durham County
200 E Main Street
Durham, NC 27701

DRAFT - 2

Subject: Wastewater System Development Fee Study

Dear Dr. Sowell,

WILLDAN FINANCIAL SERVICES ("Willdan") is pleased to submit to Durham County, North Carolina (the "County") the Wastewater System Development Fee Study report (the "Report") for your consideration. We have completed the analyses for the review and development of the wastewater system development fees and have summarized the results herein.

GENERAL

System Development Fees ("SDF" or "SDFs") and other comparable charges are often referred to by various terms including impact fees, capacity fees, system expansion fees, availability fees, capacity reservation charges, facility fees, capital connection charges or other such terminology. In general, an SDF is a one-time charge implemented to recover (in whole or part) the costs associated with capital investments made by a utility system to make service available to future users of the system. Such capital costs include the construction of facilities as well as engineering, surveys, property, financing, legal and administrative costs. It has become customary practice for public utility providers to implement SDFs (or other similar charges) to establish a supplemental source of funding for future capital projects. This practice helps to mitigate the need for existing customers to pay for system expansions entirely through increased user rates.

LEGAL CONSIDERATIONS

General

Courts throughout the United States have found that capacity-related fees associated with new customer connections to utility systems are legal provided they meet a Rational Nexus Test. In accordance with common court rulings, the rational nexus test requires that certain conditions be

met to incorporate a valid capacity-related fee. Typically, the court decisions have found that such fees are valid if the following standards are met:

1. The required payment should primarily benefit those who must pay it because they receive a special benefit or service by reason of improvements made with the proceeds.

2. Proceeds from the required SDF payments are dedicated solely to the capital improvement projects (i.e., proceeds are not placed in a general fund to be spent on ongoing expenses and maintenance, which characterizes a tax, but are set aside in a restricted reserve fund).

3. The revenue generated by the required payment should not exceed the cost of capital improvements to the system.

4. The required payments are imposed uniformly and equitably on all new customers based on their anticipated usage (i.e., a relationship between the fees paid and the benefits received).

In general, most courts have found that it is reasonable for utility systems to take steps to ensure that there are adequate funds for capital projects, and to set aside collected fees in a special account for that purpose. Additionally, new customers are treated alike in that all must pay a fee based on anticipated usage and/or potential demand. Finally, courts have reasoned that it is rational for a utility system to prepare to pay for future capital projects and, while imposing a capacity-related fee may not be the only way to raise such funds, it is a reasonable and legitimate method of accruing funds.

House Bill 436

The General Assembly of North Carolina recently enacted House Bill 436, which included a general statute under Section 1, Chapter 162A, Article 8 for the development of "System Development Fees" (herein referred to as "Chapter 162A") that impacts all governmental entities in North Carolina who currently assess fees for the recovery of capital costs associated with new development and system growth. As defined in Chapter 162A, a system development fee is a charge or assessment for service imposed with respect to new development to fund costs of capital improvements necessitated by and attributable to such new development, to recoup costs of existing facilities which serve such new development, or a combination of those costs. Based on requirements of Chapter 162A, the calculation of the SDFs, must employ generally accepted accounting, engineering, and planning methodologies. Defined methodologies include the buy-in method, incremental or marginal cost method, and combined cost method. A brief description of each of these methods as defined in American Water Works Association Manual M1 is provided below.

- *Buy-in Method.* Based on the value of the existing system's capacity. Under this method, new development "buys" a proportionate share of capacity at the cost (value) of the existing facilities.

- *Incremental/Marginal Cost Method*. Based on the value or cost to expand the existing system's capacity. This method assigns to new development the incremental cost of future system expansion needed to serve new development.
- *Combined Cost Method*. Based on blended value of both the existing and expanded system capacity. This method uses a combination of the buy-in and incremental/marginal cost methods.

Chapter 162A allows a governmental unit to utilize any of the three methods described above depending on the availability of information from the governmental unit, i.e., a detailed listing of asset data (buy-in method) or a ten to twenty-year capital improvement plan (incremental method). The combined method includes both existing assets and future capital projects required to serve growth.

Chapter 162A states that an SDF shall be calculated based on a written analysis, which may constitute or be included in a capital plan, that:

1. Is prepared by a financial professional or a licensed professional engineer qualified by experience and training or education to employ generally accepted accounting, engineering, and planning methodologies to calculate system development fees for public water and sewer systems.
2. Documents in reasonable detail the facts and data used in the analysis and their sufficiency and reliability.
3. Employs 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 as to the consideration and selection of a method appropriate to the circumstances and adapted as necessary to satisfy all requirements of this Article.
4. Documents and demonstrates 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.
5. Identifies all assumptions and limiting conditions affecting the analysis and demonstrates that they do not materially undermine the reliability of conclusions reached.
6. Calculates a final system development fee per service unit of new development and includes an equivalency or conversion table for use in determining the fees applicable for various categories of demand.
7. Covers a planning horizon of not less than 5 years nor more than 20 years.
8. Is adopted by resolution or ordinance of the local governmental unit in accordance with G.S. 162A-209.
9. Uses the gallons per day per service unit that the local governmental unit applies to its water or sewer system engineering or planning purposes for water or sewer, as appropriate, in calculating the system development fee. (2017-138, s. 1; 2018-34, s. 1(a); 2021-76, s. 2.)

Further, Chapter 162A includes certain other minimum requirements as follows:

1. A system development fee shall not exceed that calculated based on the system development fee analysis.
2. Credits must be included no matter which methodology is used. A more detailed discussion on the applicable credits will be included in later sections of this Report.
3. A construction or contribution credit shall be given with respect to new development such that the governmental unit will credit the value of costs in excess of a development's proportionate share of connecting facilities required to be oversized for the use of others outside the development.

As such, this Report is intended to develop SDFs that meet the legal requirements of Chapter 162A. The development of the proposed/calculated SDFs and applicable analysis assumptions are described throughout the remainder of the Report.

ADOPTION AND PERIODIC REVIEW OF SDF ANALYSIS

Upon completion of the SDF analysis, Chapter 162A sets forth certain criteria regarding the adoption and periodic review of SDFs. These include the following:

1. For not less than 45 days prior to consideration for adoption of the SDF analysis, the governmental unit shall post the analysis on its website and solicit and furnish a means to submit written comments which shall be considered by the preparer for potential modifications or revisions to the analysis.
2. Following expiration of the 45 days posting period, the governing body shall conduct a public hearing prior to considering adopting the analysis with any modifications.
3. The governmental unit shall publish the SDFs in its annual budget, rate plan or ordinance. Further, the SDF analysis shall be updated at least every five years.

EXISTING SYSTEM DEVELOPMENT FEES

The County currently imposes SDFs to new customers requiring wastewater utility service. The current fee is $1,242 for a residential connection with a minimum of two bedrooms, and $619 for each additional bedroom above two bedrooms. For new nonresidential customers, the fees are based on the Wastewater Design Flow Rates established by the State of North Carolina in accordance with the type of customer and their average daily flow rates. Based on discussions with County staff, it is understood that the current fees and fee structure were developed and adopted in accordance with the Chapter 162A requirements.

EXISTING & PROJECTED CAPITAL FACILITIES

Existing Facilities – Buy-In Method

In considering the recovery of existing asset costs under the buy-in method, the general concept is that new customers "buy" a proportionate share of system capacity at the value of the existing facilities. It is important to note that while this methodology is labeled as *buy-in*, payment of an SDF does not transfer any ownership of the assets to the customer. Rather, such payment provides access to capacity at a status equal to that of existing customers of the system.

While there are different methods that can be used to establish a value to the existing facilities, a common approach is to value the existing assets at a replacement cost amount. According to the replacement cost method, the existing system components are valued at the estimated current cost of replacing the facilities. The analysis developed herein uses an approach referred to as Replacement Cost New Less Depreciation (RCNLD). Applying the RCNLD method, the original costs are escalated to current dollars using construction cost indices, and then the result is adjusted down for the accumulated depreciation, which is also adjusted by the construction cost indices. This approach results in a replacement cost valuation that reflects the remaining depreciable life of the facilities.

In performing the RCNLD analysis, the County provided a detailed listing of the current wastewater system facilities (the "Asset Listing"). The Asset Listing contained the original cost, the date placed in service and the accumulated depreciation for each asset. The replacement cost of each asset is estimated by using construction cost indices information contained in the Handy-Whitman Index of Public Utility Construction Costs for the South Atlantic Region. The Handy-Whitman Index calculates the cost trends for diverse types of utility construction, including water systems. Since much of the construction material and equipment is similar, the index is commonly applied to wastewater systems as well. The published indices are used by regulatory bodies, operating entities, utility systems, service companies, valuation experts and insurance companies. The Handy-Whitman Index values are widely used to trend earlier valuations and original cost records to estimate replacement cost at prices prevailing at a certain date or to the present. While other construction cost indices are available, the Handy-Whitman Index is used in this analysis because it is specifically tailored to the utility industry.

After the replacement cost is calculated for each individual asset item, the adjusted accumulated depreciation is deducted for each asset item. The result is the RCNLD. The asset data and applicable recoverable cost allocations are provided in **Exhibit 1** at the end of this Report. The existing capital facilities and RCNLD calculations are summarized in **Table 1**.

TABLE 1
RCNLD OF EXISTING UTILITY ASSETS

Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
Total Utility Assets:				
Land	$ 5,248,865	$ 5,248,865	$ 0	$ 5,248,865
Building & Bldg Improvements	56,854,766	161,577,620	(61,531,813)	100,045,807
Machinery & Equipment	3,988,059	3,988,057	(1,675,312)	2,312,745
Sewer Systems	29,072,626	110,848,169	(75,005,803)	35,842,366
Computer Hardware	43,907	43,907	(38,592)	5,315
Vehicles	473,760	473,758	(429,899)	43,859
Software	73,157	73,157	(73,157)	0
Total	$ 95,755,140	$ 282,253,533	$ (138,754,576)	$ 143,498,957

As provision for SDF analyses, the existing assets are categorized based on the major components of **Treatment** and **Collection**. The treatment category includes any treatment plant and wastewater effluent disposal facilities. The transmission/collection category consists of major sewer lift stations and collection lines. Since the localized collection facilities are oftentimes contributed by developers or funded from other sources (i.e., assessments, direct customer payments, etc.), these facilities are not included for recovery through the SDFs. Additionally, a cost limit or threshold has been set at $100,000 as a condition of inclusion of the asset items in the SDF calculation. The cost limit assumes that any asset item that costs less than the limit amount is not a major facility that provides a system-wide benefit. A final adjustment was made to exclude certain asset items that were identified as projects that only restored existing capacity rather than provided system upgrades or additional system capacity. The existing recoverable capital asset cost allocations included in the analysis are summarized in **Table 2**.

TABLE 2
SUMMARY OF EXISTING RECOVERABLE FACILITIES

Description		RCNLD Included for Recovery
Total Recoverable Assets:		
Land	$	5,248,865
Building & Bldg Improvements		99,995,721
Machinery & Equipment		0
Sewer Systems		30,125,594
Computer Hardware		0
Vehicles		0
Software		0
Total	$	135,370,180
Allocation of Recoverable Assets:		
Treatment Facilities	$	105,244,586
Collection Facilities		30,125,594
Total	$	135,370,180

Capital Improvements Program – Incremental Cost Method

In considering the recovery of future asset costs under the incremental cost method, the general concept is to assign to new development the incremental cost of future system expansion needed to serve the new development. When using this method, Chapter 162A requires a minimum 5-year capital improvements program ("CIP") that identifies the costs associated with new capacity and the timing of the expenditures. It is also important to consider the planned funding sources for the projects identified in the CIP. For example, projects that are funded from grants or developer contributions are excluded from the SDF calculation since these are costs that are not incurred by the utility.

The SDFs developed herein utilize the incremental cost method and therefore include future capital improvement projects and their applicable additions to system capacity. The County has adopted a CIP that provides a listing of individual projects and anticipated construction costs for fiscal years 2024 through 2031. The CIP is provided in **Exhibit 2**. Like the rationale for excluding certain existing assets from recovery through SDFs, the CIP project costs included for capital recovery in the analysis consist of only those projects associated with system-wide upgrades or expansions. As such, projects related to general maintenance (i.e., renewal and replacement of existing facilities) or localized facilities that benefit only certain customers are excluded from recovery through the SDFs. The CIP and resulting identification of assumed growth-related projects (i.e., project costs recoverable from SDFs) are provided in **Exhibit 3**. The Exhibit also provides a summary allocation of the recoverable costs between the treatment and collection

components. The projected growth-related projects and capital costs included in the analysis are summarized in **Table 3**.

TABLE 3
SUMMARY OF THE CIP & RECOVERABLE CAPITAL COSTS

Description	Total CIP	Excluded Capital	Recoverable Capital
Wastewater Summary:			
Treatment Facilities	$ 36,537,518	$ (7,043,325)	$ 29,494,193
Collection Facilities	69,647,597	(5,441,750)	64,205,847
Other Facilities	0	0	0
Total	$ 106,185,115	$ (12,485,075)	$ 93,700,040

Total Facilities – Combined Method

The analysis developed herein for calculation of the SDFs proposes the combined method. As the name implies, the combined method includes the cost/value of both the existing facilities currently providing service, as well as the planned facilities required to perpetuate or expand service. This method assumes that the utility has capacity within the existing system sufficient to serve near-term growth but will require additional capacity to continue meeting future growth needs. Using this method, new customers pay an SDF that reflects the value of both existing and planned capacity. The combined system costs included for recovery are summarized in **Table 4**.

TABLE 4
SUMMARY OF COMBINED RECOVERABLE FACILITIES

Description		Recoverable Facilities
Existing Facilities:		
Treatment Facilities	$	105,244,586
Collection Facilities		30,125,594
Subtotal	$	135,370,180
Capital Improvement Program:		
Treatment Facilities	$	29,494,193
Collection Facilities		64,205,847
Subtotal	$	93,700,040
Combined Recoverable Costs:		
Treatment Facilities	$	134,738,779
Collection Facilities		94,331,441
Total	$	229,070,220

SDF CALCULATION CREDITS

It is common practice for utilities to fund major capital improvements and expansion projects with debt (i.e., bond issues). Typically, debt service payments associated with bond issues are recovered through the monthly user rates and charges applied to all system customers, as well as from other available revenue sources (including SDFs). To mitigate the potential for new customers to pay twice for capital facilities (i.e., paying an SDF for facilities that may have been debt funded, and then paying for debt service in their monthly user rates), the SDF analysis developed herein includes a debt service credit to the existing facilities (buy-in method). The credit on the existing facilities is equal to the outstanding principal remaining on all utility related debt. The debt service credit amount for the existing facilities based on information provided by staff related to the capital projects that were funded from proceeds of each individual debt instrument.

In addition to the credit on the existing facilities, the analysis developed herein applies a credit to the planned future facilities provided in the CIP (incremental cost method). The credit for the future facilities is equal to 25% of the recoverable CIP, which meets the requirements of Chapter 162A. A summary of the combined recoverable capital facilities as adjusted for the applicable credits is provided in **Table 5**.

TABLE 5
SUMMARY OF NET RECOVERABLE FACILITIES

Description	Net Recoverable Facilities
Combined Recoverable Costs:	
Treatment Facilities	$ 134,738,779
Collection Facilities	94,331,441
Subtotal	$ 229,070,220
Less Combined Credits:	
Treatment Facilities	$ (15,192,867)
Collection Facilities	(18,289,693)
Subtotal	$ (33,482,560)
Net Capital Costs:	
Treatment Facilities	$ 119,545,912
Collection Facilities	76,041,748
Net Recoverable Costs	$ 195,587,660

SYSTEM CAPACITIES

As previously addressed, the purpose of the SDF is to have new customers pay for their proportionate share of system capacity. This concept implies that the fee is based on a unit cost of capacity. To apply a fee based on the unit cost of capacity, it is necessary to identify the capacities of the facilities for which cost recovery is assigned. As such, the methodology applied herein relies upon identifying the wastewater treatment capacities as well as estimating the capacities of the major collection facilities. Due to the regulatory and design requirements for wastewater treatment plants, the capacity of treatment facilities is typically well documented. However, the volumetric capacity of the major collection facilities is often more difficult to determine. For this reason, in performing an analysis of this nature, the assumed capacity of the collection facilities is commonly based on a factor of the associated treatment capacities. In developing the estimated amount of capacity for each respective category, the analysis relies on information provided by the County, as well as assumptions based on common industry standards.

Wastewater Treatment

The wastewater treatment facilities are designed and permitted in accordance with published hydraulic standards adopted by Section 15A NCAC 02T .0114 of the North Carolina Administrative Code regulations. The County owns and operates the Triangle Wastewater

Treatment Plant with a permitted capacity of 12.00 MGD. In addition, while there are treatment-related projects in the CIP, there are no projects that will add new treatment capacity.

The wastewater treatment capacity is permitted at average daily flow levels. However, wastewater systems are impacted by inflow and infiltration (I&I) into the wastewater collection facilities. The impact of I&I reduces the level of capacity that is available for use by existing and future system customers. Pursuant to discussions with staff, the wastewater treatment capacity is adjusted for an assumed I&I impact of 15.0%, resulting in an adjusted average daily treatment capacity of 10.20 MGD (see **Exhibit 4**).

Wastewater Collection

It is difficult to identify the capacity of the wastewater collection facilities. Although an exact capacity number is challenging to determine, based on input provided by one of the County's consulting engineers, it is assumed that the wastewater trunk lines and pumping facilities are designed to provide capacity at least equal to 1.50 times the permitted plant flow, or 18.00 MGD. Like the adjustment for treatment, a 15.0% I&I adjustment is made to the collection facilities resulting in an estimated capacity of 15.30 MGD (see **Exhibit 4**).

DEVELOPMENT OF SDFs

The methodology utilized herein for developing the wastewater SDFs relies upon the cost of major system facilities as well as the existing and expanded system capacities to calculate an estimated cost per unit (gallon) of capacity. Based on this methodology, it is estimated that the wastewater facility costs are $16.69 per gallon of wastewater capacity (combined treatment and collection).

In developing the SDFs, the unit costs per gallon of capacity are applied to a common Level of Service (LOS) standard to establish the applicable fee per Equivalent Residential Unit (ERU). In accordance with wastewater flow design standards established by the State and defined by the North Carolina Administrative Codes (15A NCAC 02T .0114), the level of service requirement is a minimum of 240 gallons per day from each dwelling unit, and each additional bedroom above two bedrooms increasing volume by 120 gallons per day.

Applying the State's LOS of 240 gallons per day to the calculated unit cost per gallon of capacity results in a cost of $4,000 per dwelling unit, as rounded down, for each residential dwelling unit of two bedrooms and under. The SDF for residential units with more than two bedrooms is the minimum two-bedroom amount plus $2,000 for each additional bedroom. The development of the wastewater SDF is detailed in **Exhibits 4**. A summary of the existing and proposed/calculated SDF for a new residential connection is provided in **Table 6**.

TABLE 6
COMPARISON OF SDFs PER ERU

Description	System Development Fee Per ERU		
	Existing	Calculated	Difference
System Development Fees:			
Residential Units - Minimum 2 Bedrooms	$ 1,242	$ 4,000	$ 2,758
Each Additional Bedroom Above 2	619	2,000	1,381
Total	$ 1,861	$ 6,000	$ 4,139

APPLICATION OF SDFs

As previously addressed, the County currently imposes SDFs to new residential customers based on a minimum of two bedrooms, plus the cost for each additional bedroom. For new nonresidential customers, the fees are based on the Wastewater Design Flow Rates established by the State of North Carolina in accordance with the type of customer and their average daily flow rates. The flow rates are used herein to establish equivalency factors for each type of customer. The proposed/calculated wastewater SDFs for the various customers are provided in **Exhibit 5** and summarized in **Table 7**.

TABLE 7
PROPOSED SYSTEM DEVELOPMENT FEES

Description	Unit	Proposed Fees
Customer Type:		
Residential Dwelling Units - 2 Bedrooms or Less	each	$ 4,000
Residential - Each Additional Bedroom Above 2	bedroom	$ 2,000
Motels or Hotels without In-Room Cooking	room	$ 2,000
Motels or Hotels with Cooking Facilities in Room	room	$ 2,917
Swimming Pool, bathhouses, and spa	person	$ 167
Nursing/Rest Home	bed	$ 1,000
Nursing/Rest Home with Laundry	bed	$ 2,000
General Business or Office Facilities	shift	$ 417
Factories excluding Industrial Waste	shift	$ 417
Factories or Businesses with Showers or Food Prep	shift	$ 583
Medical/Dental/Veterinary Office	practitioner	$ 4,167
Warehouse	loading bay	$ 1,667
Self-Storage Facility	unit	$ 17
Service Station/Gas Station	plumbing fixture	$ 4,167
Convenience Store with Food Prep	100 SF	$ 1,000
Convenience Store without Food Prep	plumbing fixture	$ 4,167
Store, Shopping Center, Mall with Food Service	1,000 SF	$ 2,167
Store, Shopping Center, Mall without Food Service	1,000 SF	$ 1,667
Restaurant – Full Service	seat or 15 SF of dining area	$ 667
Restaurant – Single Service Articles	seat	$ 333
Restaurant – Catering or Carry Out Only	100 SF	$ 833
School (Day) – With Cafeteria, Gym, Showers	student	$ 250
School (Day) – With Cafeteria Only	student	$ 200
School (Day) – With Neither Cafeteria nor Showers	student	$ 167
School (Boarding)	person	$ 1,000
Church without Food Service, Day Care, Camps	seat	$ 50
Church with Kitchen	seat	$ 83
Church with Daycare or Camps	person	$ 417
Sports Centers (Mini Golf, Pool Hall, Arcade, etc.)	plumbing fixture	$ 4,167
Miscellaneous (Facilities Not Described Above)	per gal. (ADF)	$ 16.69

COMPARISON WITH NEIGHBORING UTILITIES

To provide the County with additional insight regarding the development and application of the SDFs, a comparison is often included to show the level of such fees as imposed by several other utility systems in North Carolina. The comparison would typically show the capacity-related fees for a new residential wastewater connection that receives service (from the subject utility or other local provider) through a standard residential-sized water meter (representative of 1 ERU) calculated under the existing and proposed fees of the County, and those of the other utility systems. However, given the current timing requirements of Chapter 162A, and the fact that numerous utility systems in the State are in the process of performing updated fee studies comparable to the one addressed in this Report, including a neighboring utility comparison at this time will provide somewhat meaningless information. If the County would like to get a better idea of how its SDFs compare to other systems, it is suggested that such a comparison be performed after July 1, 2023.

GENERAL ASSUMPTIONS AND CONSIDERATIONS

In the preparation of this Report, certain information has been used and relied upon that was provided to Willdan by other entities. Such information includes, but is not limited to, audited financial statements, annual operating budgets, capital information, asset listings, cost data, system capacities, fee schedules for other utilities, and other information provided during the study. While the sources and applicable information are believed to be reliable, no independent verification of the information has been made and no assurances are offered with respect to the accuracy of the applicable information. To the extent that information used to develop the assumptions applied in the Report differs from actual results, the analyses developed herein could be impacted accordingly.

CONCLUSIONS

This study has found a need for the County to maintain a mechanism for recovering the capital costs associated with system growth and expansion. Based on the reviews, analyses and assumptions provided herein, it is concluded that:

1. The application of capital recovery fees for new system connections is becoming more common for public utility systems in North Carolina. As growth continues to impact the region, and as state and federal funding programs are reduced or eliminated, it is prudent management practice to adopt mechanisms to recover capital costs incurred by the utility for making service available to future customers.

2. Through Chapter 162A, the North Carolina legislature has found that it is prudent to require new customers to bear a portion of the costs of current capacity and future expansions their presence will demand. It should be noted that Willdan is not attempting to issue a legal opinion regarding Chapter 162A or any court proceedings leading to the enactment of Chapter 162A. The summary discussion of the bill and any prior court rulings is intended for informational purposes only. Any questions regarding the legal consideration provided herein should be directed to the County's legal counsel.

3. The SDFs developed herein are equitable and provide for reasonable recovery of the capital costs associated with providing service to new customers.

4. The SDFs developed herein are calculated in accordance with the requirements of Chapter 162A and utilize methodologies that are consistent with industry standards.

5. The calculated SDFs are based on a listing of existing system assets as provided by the County, as well as the multi-year capital improvement plan adopted by the County.

6. The wastewater LOS standards proposed herein are based on flow standards adopted by the State of North Carolina and utilized by the County for system planning and design purposes and are consistent with common industry standards.

RECOMMENDATIONS

Based on the reviews, analyses and assumptions discussed herein, as well as the resulting conclusions provided above, it is respectfully recommended that the County:

1. Adopt the calculated SDFs and application methodology as developed in this Report, or other such SDF amounts as determined appropriate by the County but not to exceed the fee amounts calculated herein.

2. Enact the new SDFs to become effective on July 1, 2023 or other such date as determined appropriate by the County Commission.

3. Readdress the SDF study within the next 5 years, or at such times as future capital budgets are developed and additional capital costs are incurred that may result in material adjustments to the SDF as adopted.

We appreciate the opportunity to be of service to the County in this matter. In addition, we would like to thank you and the other members of the County staff for the valuable assistance and cooperation provided during the preparation of the Report. We look forward to collaborating with you on future projects and continuing a successful professional relationship.

Respectfully Yours,

WILLDAN FINANCIAL SERVICES

Daryll B. Parker
Principal Consultant

EXHIBITS 1 - 5

SUPPORTING OUTPUT FOR THE WASTEWATER SDF STUDY

WASTEWATER SDF STUDY FOR
DURHAM COUNTY, NORTH CAROLINA

Prepared by Willdan Financial Services

Exhibit 1
System Development Fee Analysis
Existing Capital Costs Recoverable From SDFs
Wastewater System

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
	UTILITY ASSETS				
	Total Assets by Category:				
1	Land	$ 5,248,865	$ 5,248,865	$ 0	$ 5,248,865
2	Building & Bldg Improvements	56,854,766	161,577,620	(61,531,813)	100,045,807
3	Machinery & Equipment	3,988,059	3,988,057	(1,675,312)	2,312,745
4	Sewer Systems	29,072,626	110,848,169	(75,005,803)	35,842,366
5	Computer Hardware	43,907	43,907	(38,592)	5,315
6	Vehicles	473,760	473,758	(429,899)	43,859
7	Software	73,157	73,157	(73,157)	0
8	Total	$ 95,755,140	$ 282,253,533	$ (138,754,576)	$ 143,498,957
	Adjusted For Assumed Cost Limit ($):				
9	Land	$ 5,248,865	$ 5,248,865	$ 0	$ 5,248,865
10	Building & Bldg Improvements	56,718,151	161,109,829	(61,114,108)	99,995,721
11	Machinery & Equipment	2,213,264	2,213,264	(447,070)	1,766,194
12	Sewer Systems	24,045,248	93,792,654	(63,667,060)	30,125,594
13	Computer Hardware	0	0	0	0
14	Vehicles	0	0	0	0
15	Software	0	0	0	0
16	Total	$ 88,225,528	$ 262,364,612	$ (125,228,238)	$ 137,136,374
	Recoverable Allocation - Wastewater (%):				
17	Land				**100%**
18	Building & Bldg Improvements				**100%**
19	Machinery & Equipment				**0%**
20	Sewer Systems				**100%**
21	Computer Hardware				**0%**
22	Vehicles				**0%**
23	Software				**0%**

Exhibit 1
System Development Fee Analysis
Existing Capital Costs Recoverable From SDFs
Wastewater System

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
	System Allocation - Wastewater ($):				
24	Land				$ 5,248,865
25	Building & Bldg Improvements				99,995,721
26	Machinery & Equipment				0
27	Sewer Systems				30,125,594
28	Computer Hardware				0
29	Vehicles				0
30	Software				0
31	Total				$ 135,370,180
32	**Grand Total Recoverable Assets**				**$ 135,370,180**
	COMPONENT ALLOCATION				
	Total Recoverable Wastewater Facilities:				
33	Treatment Facilities				$ 105,244,586
34	Collection Facilities				30,125,594
35	**Subtotal**				$ 135,370,180
	Percentage Allocation:				
36	Treatment Facilities				77.75%
37	Collection Facilities				22.25%
38	**Total**				100.00%
	DEBT SERVICE CREDIT				
39	**Outstanding Debt Principal**				$ 10,057,550
	Component Allocation - Wastewater:				
40	Treatment Facilities				$ 7,819,319
41	Collection Facilities				2,238,231
42	Total				$ 10,057,550

Exhibit 2
System Development Fee Analysis
Current Capital Improvement Program
Wastewater System

Line	Description	Total	2023	2024	2025	2026	2027	2028	2029
	WASTEWATER PROJECTS								
1	TWWTP Phase 4 Rehab Project	$ 19,456,700	$ 4,817,500	$ 6,095,800	$ 3,015,600	$ 2,980,800	$ 2,547,000	$ 0	$ 0
2	Chin Page Road Pump Station	20,920,250	20,920,250	0	0	0	0	0	0
3	WWTP New Administration Building	17,080,818	17,080,818	0	0	0	0	0	0
4	Collections System Rehabilitation	5,441,750	1,342,750	588,560	667,740	684,480	701,840	719,200	737,180
5	Hopson Rd FM & Gravity Extension	12,355,000	1,845,000	10,510,000	0	0	0	0	0
6	Slater Road Pump Station - New	15,213,297	2,601,297	12,612,000	0	0	0	0	0
7	Page Point Pump Station - New	15,717,300	0	315,300	2,154,000	13,248,000	0	0	0
8	**Total Wastewater**	$ 106,185,115	$ 48,607,615	$ 30,121,660	$ 5,837,340	$ 16,913,280	$ 3,248,840	$ 719,200	$ 737,180
9	**Total Wastewater CIP**	**$ 106,185,115**	**$ 48,607,615**	**$ 30,121,660**	**$ 5,837,340**	**$ 16,913,280**	**$ 3,248,840**	**$ 719,200**	**$ 737,180**

Exhibit 3
System Development Fee Analysis
Allocation of Capital Improvements Program
Wastewater System

Line	Description	Total	Percentage Allocation [1]			Allocation Amount		
			Expand/Upgrade	R&R	Other	Expand/Upgrade	R&R	Other
	WASTEWATER PROJECTS							
1	TWWTP Phase 4 Rehab Project	$ 19,456,700	63.80%	36.20%	0.00%	$ 12,413,375	$ 7,043,325	$ 0
2	Chin Page Road Pump Station	20,920,250	100.00%	0.00%	0.00%	20,920,250	0	0
3	WWTP New Administration Building	17,080,818	100.00%	0.00%	0.00%	17,080,818	0	0
4	Collections System Rehabilitation	5,441,750	0.00%	100.00%	0.00%	0	5,441,750	0
5	Hopson Rd FM & Gravity Extension	12,355,000	100.00%	0.00%	0.00%	12,355,000	0	0
6	Slater Road Pump Station - New	15,213,297	100.00%	0.00%	0.00%	15,213,297	0	0
7	Page Point Pump Station - New	15,717,300	100.00%	0.00%	0.00%	15,717,300	0	0
8	Subtotal	$ 106,185,115				$ 93,700,040	$ 12,485,075	$ 0
9	**Total - Capital Projects**	**$ 106,185,115**				**$ 93,700,040**	**$ 12,485,075**	**$ 0**
	ALLOCATION OF COSTS							
	Wastewater:							
10	Treatment Projects	$ 36,537,518				$ 29,494,193	$ 7,043,325	$ 0
11	Collection Projects	69,647,597				64,205,847	5,441,750	0
12	Other Projects	0				0	0	0
13	Total - Capital Projects	**$ 106,185,115**				**$ 93,700,040**	**$ 12,485,075**	**$ 0**

Note:
The capital costs are allocated in order to determine the costs that are recoverable from a capacity-related fee. The costs allocated as expansion and/or upgrade projects are assumed to be recoverable from such fees. All other capital costs are assumed to either be maintenance-related (R&R) projects or localized projects that do not provide system-wide capacity benefits.

Exhibit 4
System Development Fee Analysis
Calculation of System Development Fee Per ERU
Wastewater System

Line	Description		Total	
	Recoverable Capital Facilities			
	Existing Facilities:			
1	Treatment Facilities		$ 105,244,586	
2	Collection Facilities		30,125,594	
3	**Subtotal**		$ 135,370,180	(1)
	Less Debt Service Principal:			
4	Treatment Facilities		$ (7,819,319)	
5	Collection Facilities		(2,238,231)	
6	**Subtotal**		$ (10,057,550)	(2)
	Net Recoverable Existing Facilities:			
7	Treatment Facilities		$ 97,425,267	
8	Collection Facilities		27,887,363	
9	**Total**		$ 125,312,630	
	Capital Improvement Program:			
10	Treatment Facilities		$ 29,494,193	
11	Collection Facilities		64,205,847	
12	**Subtotal**		$ 93,700,040	
	Less 25% CIP Adjustment:			
13	Treatment Facilities	25%	$ (7,373,548)	
14	Collection Facilities	25%	(16,051,462)	
15	**Subtotal**		$ (23,425,010)	(3)
	Net Recoverable CIP:			
16	Treatment Facilities		$ 22,120,645	
17	Collection Facilities		48,154,385	
18	**Total**		$ 70,275,030	
	Net Capital Costs:			
19	Treatment Facilities		$ 119,545,912	
20	Collection Facilities		76,041,748	
21	**Net Recoverable Costs**		**$ 195,587,660**	

Exhibit 4
System Development Fee Analysis
Calculation of System Development Fee Per ERU
Wastewater System

Line	Description		Total	
	Available System Capacity (MGD)			
	Treatment Capacity:			
22	Existing Capacity - Triangle WWTP		12.000	
23	Additional CIP Capacity		0.000	
24	Total Treatment Capacity		**12.000**	
25				
	Available Treatment Capacity:			
26	Average Day Treatment Capacity (MGD)		12.000	
27	I&I Capacity Adjustment	15.0%		(4)
28	Adjusted Average Day Treatment Capacity		**10.200**	
	Estimated Collection System Capacity:			
29	Collection-to-Treatment Capacity Factor	1.50		
30	Assumed Gross Collection Capacity		**18.000**	(5)
31	I&I Capacity Adjustment	15.0%		
32	Estimated Collection Capacity		**15.300**	(4)

Exhibit 4
System Development Fee Analysis
Calculation of System Development Fee Per ERU
Wastewater System

Line	Description		Total	
	Estimated Cost Per Gallon of Capacity			
	Estimated Cost Per Gallon of Capacity:			
33	Treatment ($/Gallon)	$	11.72	
34	Collection ($/Gallon)		4.97	
35	**Total Cost Per Gallon of Capacity**	**$**	**16.69**	
36	Minimum Level of Service Per Dwelling Unit (GPD of Capacity)		240	(6)
	Calculation of Fee Per ERU			
	Calculation of SDF Per ERU:			
37	Treatment Facilities	$	2,813	
38	Collection Facilities		1,193	
39	Combined Cost	$	4,006	
	Adjusted Fee - Treatment:			
40	Calculated Fee Per ERU	$	2,813	
41	Less Rounding Adjustment		(3)	
42	Adjusted Fee	$	2,810	
	Adjusted Fee - Transmission:			
43	Calculated Fee Per ERU	$	1,193	
44	Less Rounding Adjustment		(3)	
45	Adjusted Fee	$	1,190	
	Proposed SDF Per ERU (Rounded):			
46	Treatment Facilities	$	2,810	
47	Collection Facilities		1,190	
48	Combined Cost	**$**	**4,000**	

Exhibit 4
System Development Fee Analysis
Calculation of System Development Fee Per ERU
Wastewater System

Line	Description	Total

Notes:

(1) See Exhibit 1 for the development of existing asset costs identified for capital recovery.

(2) Based upon discussions with Utility staff, most of the facilities included for cost recovery in this analysis were funded with debt. In an effort to account for the facility costs that may be recovered from user rates as part of the normal budgetary process, a debt service credit is applied to the applicable fee calculation. The credit is equal to outstanding principal amount on existing utility-related debt as provided by staff. The principal balance is allocated between treatment and transmission based on the allocation of existing assets as provided in Exhibit 1.

(3) This adjustment is made in accordance with House Bill 436, § 162A-207. Minimum requirements.

(4) The wastewater system capacity is reduced by the impacts of system inflow and infiltration (I&I). The assumed I&I adjustment is based on discussions with staff.

(5) It is assumed that the wastewater trunk lines and pumping facilities are capable of handling at least 1.5-times the permitted plant flow capacity.

(6) The system development charges for wastewater are to be applied on an equivalent residential unit (ERU) basis such that 1 ERU is equal to the estimated capacity requirements for a typical single family residential connection. In accordance with wastewater flow design standards adopted by the State of North Carolina and defined the North Carolina Administrative Codes (15A NCAC 02T .0114), the level of service requirement is a minimum of 240 gallons per day from each dwelling unit, and 120 gallons per day from each additional bedroom above two bedrooms.

Exhibit 5
System Development Fee Analysis
Existing & Proposed System Development Fees
Wastewater System

Line	Description	Unit	Existing	Proposed	Difference
	Customer Type: [(1)]				
1	Residential Dwelling Units - 2 Bedrooms or Less	each	$ 1,242	$ 4,000	$ 2,758
2	Residential - Each Additional Bedroom Above 2	bedroom	$ 619	$ 2,000	$ 1,381
3	Motels or Hotels without In-Room Cooking	room	$ 619	$ 2,000	$ 1,381
4	Motels or Hotels with Cooking Facilities in Room	room	$ 908	$ 2,917	$ 2,009
5	Swimming Pool, bathhouses, and spa	person	NA	$ 167	$ 167
6	Nursing/Rest Home	bed	$ 310	$ 1,000	$ 690
7	Nursing/Rest Home with Laundry	bed	$ 621	$ 2,000	$ 1,379
8	General Business or Office Facilities	shift	$ 130	$ 417	$ 287
9	Factories excluding Industrial Waste	shift	$ 130	$ 417	$ 287
10	Factories or Businesses with Showers or Food Prep	shift	$ 182	$ 583	$ 401
11	Medical/Dental/Veterinary Office	practitioner	NA	$ 4,167	$ 4,167
12	Warehouse	loading bay	NA	$ 1,667	$ 1,667
13	Self-Storage Facility	unit	NA	$ 17	$ 17
14	Service Station/Gas Station	plumbing fixture	NA	$ 4,167	$ 4,167
15	Convenience Store with Food Prep	100 SF	NA	$ 1,000	$ 1,000
16	Convenience Store without Food Prep	plumbing fixture	NA	$ 4,167	$ 4,167
17	Store, Shopping Center, Mall with Food Service	1,000 SF	$ 672	$ 2,167	$ 1,495
18	Store, Shopping Center, Mall without Food Service	1,000 SF	$ 517	$ 1,667	$ 1,150
19	Restaurant – Full Service	seat or 15 SF of dining area	$ 209	$ 667	$ 458
20	Restaurant – Single Service Articles	seat	$ 105	$ 333	$ 333
21	Restaurant – Catering or Carry Out Only	100 SF	NA	$ 833	$ 833
22	School (Day) – With Cafeteria, Gym, Showers	student	$ 80	$ 250	$ 170
23	School (Day) – With Cafeteria Only	student	$ 66	$ 200	$ 134
24	School (Day) – With Neither Cafeteria nor Showers	student	$ 52	$ 167	$ 115
25	School (Boarding)	person	$ 310	$ 1,000	$ 690
26	Church without Food Service, Day Care, Camps	seat	$ 14	$ 50	$ 36
27	Church with Kitchen	seat	NA	$ 83	$ 83
28	Church with Daycare or Camps	person	NA	$ 417	$ 417
29	Sports Centers (Mini Golf, Pool Hall, Arcade, etc.)	plumbing fixture	NA	$ 4,167	$ 4,167
30	Miscellaneous (Facilities Not Described Above)	per gal. (ADF)	$ 5.21	$ 16.69	$ 11.48

(1) The proposed system development fees are based on the calculated fee per ERU as applied to the respective ERU factor. The factors for the system development fees are based on Wastewater Design Flow Rates established by the State of North Carolina in accordance with the type of customer and their average daily flow rates.