

April 26, 2023

Rick Duncan
Water Resource/ Moss Lake Director
City of Kings Mountain
1013 N Piedmont Avenue
Kings Mountain, NC 28086

Subject: Water and Wastewater System Development Fee Study

Dear Mr. Duncan,

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

As will be addressed in detail later in this Report, the analysis developed herein considers three different options for calculating the System Development Fees. The options consisted of the Buy-In Method (based only on existing utility facilities), the Incremental/Marginal Cost Method (based only on the future facilities planned to accommodate new growth), and the Combined Method (a weighted average of the other two methods). After considering the options and the current 11-year capital plan, the City selected the Combined Method for the calculation of the proposed fees.

	GENERAL
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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, connection fees, capacity reservation charges, facility fees, capital connection charges or other such terminology. According to N.C.G.S. 162A-201(9) (2017), an SDF is a one-time charge imposed with respect to new development to fund costs of capital improvements necessitated by the development and to recoup costs of existing facilities which serve the new development. Such capital costs include the construction of facilities as well as engineering, surveys, land, financing, legal and administrative costs. It has become customary practice for water and wastewater utility systems to implement SDFs (or other similar charges) to establish a 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.

CRITERIA FOR SYSTEM DEVELOPMENT FEES

The purpose of an SDF is to allocate, to the extent practical, growth-related capital costs to those customers responsible for such additional costs. To the extent that new population growth imposes identifiable additional capital costs to municipal services, equity and prudent financial practice necessitate the assignment of such costs to those customers or system users responsible for the additional costs rather than the existing user base. This practice has been labeled as “growth paying for growth” without placing the full cost burden on existing users.

It is important to note that an SDF is different than an assessment or tax. A special assessment is predicated upon an estimated increment in value to the property assessed by virtue of the improvement being constructed in the vicinity of the property. Further, the assessment must be directly and reasonably related to the benefit the property receives. SDFs are not related to the value of the improvement to the property but rather to the usage of the facilities required by the property. Until the property is put to use (i.e., developed), there is no burden placed upon the servicing facilities and the land use may be entirely unrelated to the value of the assessment basis of the underlying land. With respect to a comparison to taxes, SDFs are distinguishable primarily in the direct relationship between the amount charged and the measurable quantity of public facilities required. In the case of taxation, there is no requirement that the payment be in proportion to the quantity of public services consumed, and funds received by a municipality from taxes can be expended for any legitimate public purpose.

LEGAL CONSIDERATIONS

Court Proceedings - 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 proportionately, 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, all new customers are treated fairly in that they 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.

Court Proceedings – North Carolina

In 1990, a precedent was set in the State of North Carolina in a decision by the United States Court of Appeals, Fourth District for the case of Shell Island Investment v. Town of Wrightsville Beach North Carolina (900 F.2d 255), regarding the right of the Town of Wrightsville Beach to impose utility system impact fees to fund the expansion of the water and sewer facilities. The Court of Appeals upheld the decision of the United States District Court for the Eastern District of North Carolina that the Town of Wrightsville Beach had “authority to impose impact and tap fees under the Public Enterprise statute and that no specific enabling legislation is necessary.”

Pursuant to the ruling of the District Court and the Court of Appeals, it was concluded that “despite the absence of any express authorization in the Public Enterprise Statute for municipalities to establish or increase utility fees in order to offset future capital improvements to their sewer and water infrastructures, general authority to do so is implicit in relevant state law, limited only by the requirement that any discrimination among users be not based on arbitrary or unreasonable classifications.”

Court Proceedings – Town of Carthage Case

On April 8, 2016, in the case of Quality Built Homes, Inc. v. Town of Carthage, (766 S.E. 2d 897) the North Carolina Court of Appeals held that the Town of Carthage possessed authority to charge “impact fees” for water and sewer services. However, on August 16, 2016, the North Carolina Supreme Court reversed the North Carolina Court of Appeals’ decision and held that the Town did not possess authority to charge impact fees for water and sewer services. Although there were distinct factors influencing this decision, the result generated a significant amount of confusion and concern for governmental utility systems within the State.

House Bill 436

In 2017, the General Assembly of North Carolina 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 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 five 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 assess SDFs that meet the legal requirements set forth above to develop fees in accordance with 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 INSTALLATION FEES

The City does not currently charge system development fees. As such, the SDFs developed in this Report, if adopted, will be new to the City. However, the City currently imposes installation fees on new customers connecting to the water and wastewater systems. However, it is important to note that such connection-related fees are different than the SDFs developed and proposed herein. The distinguishing characteristic is that the connection fees are established for the purpose of recovering the operating costs associated with performing the customer service act of physically making a new system connection (i.e., materials, labor, equipment, vehicles, etc.) SDFs, on the other hand, are established for the purpose of recovering the major capital costs incurred in making water and wastewater utility services available to the public. The SDFs calculated herein are intended to be in addition to the connection fees. As such, it is proposed that the existing installation fees continue to be imposed. It should be noted that, for the purpose of this Report, the existing connection fees are assumed to recover the costs associated with these items. A review of these fees in relation to actual costs incurred is beyond the scope of this Report.

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 varying asset valuation methods, 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 City provided a detailed listing of the current water and 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. The index is commonly applied to wastewater systems as construction material and

equipment are comparable to water systems. 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**.

Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
<u>Total Utility Assets:</u>				
Land	\$ 7,174,055	\$ 7,174,055	\$ 0	\$ 7,174,055
Building	14,550,217	103,930,637	(94,574,103)	9,356,534
Improvements	55,217,415	226,517,408	(186,900,907)	39,616,501
Machinery & Equipment	7,906,201	21,242,230	(17,873,674)	3,368,556
Vehicles	1,102,780	1,102,778	(1,005,302)	97,476
Lines & Pipes	30,030,291	52,900,202	(17,311,876)	35,588,326
Total	\$ 115,980,959	\$ 412,867,310	\$ (317,665,862)	\$ 95,201,448

For the purpose of the SDF analyses, the existing assets are categorized based on the major components of **Treatment** and **Transmission**. The treatment category includes any treatment plant facilities (water and/or wastewater) and accompanying supply and storage facilities (water only), as well as wastewater effluent disposal facilities. The transmission/collection category consists of major water mains, water pumping facilities, sewer lift stations and collection lines. Since the localized distribution and 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 is set as a condition of inclusion of the asset items in the SDF calculation. Based on discussions with City staff, for the purposes of this analysis, the cost is set at \$100,000. 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 (e.g., equipment, vehicles, etc.) The existing recoverable water and wastewater capital asset cost allocations included in the analysis are summarized in **Table 2**.

TABLE 2
ALLOCATION OF EXISTING RECOVERABLE FACILITIES

Description	RCNLD Included for Recovery		
	Water	Wastewater	Total
<u>Total Recoverable Assets:</u>			
Land	\$ 6,782,833	\$ 206,761	\$ 6,989,594
Building	9,313,056	0	9,313,056
Improvements	21,225,395	17,905,823	39,131,218
Machinery & Equipment	0	0	0
Vehicles	0	0	0
Lines & Pipes	26,522,112	7,138,143	33,660,255
Total	\$ 63,843,396	\$ 25,250,727	\$ 89,094,123
<u>Allocation of Recoverable Assets:</u>			
Treatment Facilities	\$ 20,587,049	\$ 13,638,469	\$ 34,225,518
Transmission Facilities	43,256,347	11,612,258	54,868,605
Total	\$ 63,843,396	\$ 25,250,727	\$ 89,094,123

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 as 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 City has adopted a CIP that provides a listing of individual projects and anticipated construction costs for the 11 fiscal years from 2024 through 2034. 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 transmission components. The projected growth-related projects and capital costs included in the analysis are summarized in **Table 3**.

Description	Total CIP	Excluded Capital	Recoverable Capital
<u>Water:</u>			
Treatment Facilities	\$ 325,000	\$ 325,000	\$ 0
Transmission Facilities	39,920,000	2,775,000	37,145,000
Other Facilities	907,500	907,500	0
Total	\$ 41,152,500	\$ 4,007,500	\$ 37,145,000
<u>Wastewater:</u>			
Treatment Facilities	\$ 10,855,000	\$ 10,855,000	\$ 0
Transmission Facilities	37,136,800	4,480,000	32,656,800
Other Facilities	1,167,500	1,167,500	0
Total	\$ 49,159,300	\$ 16,502,500	\$ 32,656,800
<u>Combined:</u>			
Treatment Facilities	\$ 11,180,000	\$ 11,180,000	\$ 0
Transmission Facilities	77,056,800	7,255,000	69,801,800
Other Facilities	2,075,000	2,075,000	0
Total	\$ 90,311,800	\$ 20,510,000	\$ 69,801,800

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 meet 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		
	Water	Wastewater	Total
Existing Facilities:			
Treatment Facilities	\$ 20,587,049	\$ 13,638,469	\$ 34,225,518
Transmission Facilities	43,256,347	11,612,258	54,868,605
Subtotal	\$ 63,843,396	\$ 25,250,727	\$ 89,094,123
Capital Improvement Program:			
Treatment Facilities	\$ 0	\$ 0	\$ 0
Transmission Facilities	37,145,000	32,656,800	69,801,800
Subtotal	\$ 37,145,000	\$ 32,656,800	\$ 69,801,800
Combined Recoverable Costs:			
Treatment Facilities	\$ 20,587,049	\$ 13,638,469	\$ 34,225,518
Transmission Facilities	80,401,347	44,269,058	124,670,405
Total	\$100,988,396	\$ 57,907,527	\$158,895,923

SDF CALCULATION CREDITS

It is customary 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 of new customers paying for capital facilities twice (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 applies a debt service credit against the value of the existing facilities (buy-in method) to account for assets with outstanding debt liabilities. The credit on the existing facilities is equal to the outstanding principal remaining on all utility-related debt. Based on information provided by staff, the currently outstanding debt is allocable entirely to water projects. As such, the debt service credit amount for the existing facilities is allocated entirely to the water system.

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 no less than 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		
	Water	Wastewater	Total
Combined Recoverable Costs:			
Treatment Facilities	\$ 20,587,049	\$ 13,638,469	\$ 34,225,518
Transmission Facilities	80,401,347	44,269,058	124,670,405
Subtotal	\$100,988,396	\$ 57,907,527	\$158,895,923
Less Combined Credits:			
Treatment Facilities	\$ (6,192,142)	\$ 0	\$ (6,192,142)
Transmission Facilities	(22,296,829)	(8,164,200)	(30,461,029)
Subtotal	\$ (28,488,971)	\$ (8,164,200)	\$ (36,653,171)
Net Capital Costs:			
Treatment Facilities	\$ 14,394,907	\$ 13,638,469	\$ 28,033,376
Transmission Facilities	58,104,518	36,104,858	94,209,376
Net Recoverable Costs	\$ 72,499,425	\$ 49,743,327	\$122,242,752

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 water and wastewater treatment capacities as well as estimating the capacities of the major transmission facilities. Due to the regulatory and design requirements for water and wastewater treatment plants, the capacity of treatment facilities is typically well documented. However, the volumetric capacity of the major transmission facilities is often difficult to determine. For this reason, in performing an analysis of this nature, the assumed capacity of the transmission 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 City, as well as assumptions based on common industry standards.

Water Treatment

The City owns and operates the T.J. Ellison Water Treatment Plant, which has a treatment capacity of 12.00 MGD (million gallons per day). While the flow capacity is provided in terms of the

maximum daily flow amount, the development and application of SDFs are based on average flow requirements. As such, it is necessary to convert the maximum daily flow (MDF) capacity to an estimated average daily flow (ADF) capacity. In accordance with general industry standards and discussions with staff, it is assumed herein that the rated MDF is approximately 1.5 times the available capacity on an ADF basis. Applying this factor to the rated capacity for the water treatment facilities results in an average daily flow capacity of 8.00 MGD. An additional adjustment is made for the assumed amount of unaccounted-for water (i.e., system flushing and backwashing, testing, line loss, etc.) The unaccounted-for water reduces the amount of capacity available to existing and future customers. Based on discussions with staff, the analysis performed herein assumes an average loss of 15.0% to adjust for the unaccounted-for water flows. This adjustment results in an estimated average daily treatment plant capacity of 6.80 MGD (see **Exhibit 4**).

Water Transmission

As previously addressed, the capacity of major transmission facilities can be difficult to determine and quantify. Such transmission capacity estimates are oftentimes not even developed in engineering documents such as master plans or Consulting Engineer's Reports. Based on discussions with staff, it is assumed that the existing transmission facilities can provide water flow at least equal to 2.00 times the existing max-day treatment capacity, resulting in 24.00 MGD. As with the methodology utilized for water treatment, a 15.0% loss adjustment is made to the transmission facilities resulting in an estimated transmission capacity of 20.40 MGD (see **Exhibit 4**).

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 City owns and operates the Pilot Creek Wastewater Treatment Plant with a permitted capacity of 6.00 MGD.

Unlike the application for water, the wastewater treatment capacity is permitted at average daily flow levels. As such, it is not necessary to convert the capacity. However, as with the unaccounted-for flows in the water system, 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 20.0%, resulting in an adjusted average daily treatment capacity of 4.80 MGD (see **Exhibit 5**).

Wastewater Transmission

Like the discussion provided above for the determination of water transmission capacity, it is difficult to determine the capacity of the wastewater transmission facilities. For the purpose of this analysis, it is assumed that the wastewater trunk lines and pumping facilities are designed to provide capacity at least equal to 2.00 times the permitted plant flow, or 12.00 MGD. Like the adjustment for treatment, a 20.0% I&I adjustment is made to the transmission facilities resulting in a combined adjusted capacity of 9.60 MGD (see **Exhibit 5**).

DEVELOPMENT OF SDFs

The methodology utilized herein for developing the water and 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 water facility costs are \$4.97 per gallon of water capacity (combined treatment and transmission). Additionally, it is estimated that the wastewater facility costs \$6.60 per gallon of wastewater capacity.

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). For purposes of applying the LOS, an ERU is representative of a single-family residential dwelling unit receiving water service from a 5/8 x 3/4-inch metered connection and discharging normal domestic-strength wastewater through a comparably sized sewer connection. Based on common industry standards for the development and application of capacity-related charges, a typical residential water connection is widely assumed to require average service availability in the range of 350 to 450 gallons per day (gpd) of system capacity. The State of North Carolina (the “State”) has established flow standards for purposes of planning and engineering design. In accordance with daily water flow capacity design standards defined in the North Carolina Administrative Codes (15A NCAC 18C .0409), the level of service requirement for a residential connection is 400 gpd. Although the Codes do not specifically indicate whether 400 gpd is max-day or average-day, for the purpose of this analysis, it is assumed to be a max-day flow amount. Applying the assumed Max/Avg Day Adjustment Factor to the NCAC flow standard, it is assumed that 1 ERU requires a standard level of service of 267 gpd of water system capacity.

Like the water system, the SDFs for wastewater are to be applied on an ERU basis such that 1 ERU is equal to the estimated capacity requirements for a typical single family residential connection with a 5/8-inch X 3/4-inch water meter. In accordance with wastewater flow design standards adopted by the State and defined by the North Carolina Administrative Codes (15A NCAC 02T .0114), the level of service requirement is based on 120 gallons of capacity per day per bedroom for a residential home. This analysis assumes an average of 3.0 bedrooms per new home constructed. Applying the State’s flow standard to the average number of bedrooms, it is assumed that 1 ERU requires a standard level of service of 360 gpd of wastewater system capacity.

Applying the average day LOS amounts to the estimated unit costs per gallon of capacity results in the proposed/calculated water and wastewater SDFs of \$1,320 and \$2,370, respectively, for a typical single-family residential connection (i.e., per ERU). The development of the water and wastewater SDFs are detailed in **Exhibits 4** and **5**, respectively. A summary of the proposed/calculated SDFs for a new residential connection is provided in **Table 6**.

TABLE 6 PROPOSED/CALCULATED SDFs PER ERU	
Description	Fee Per ERU
	Calculated
System Development Fees:	
Water	\$ 1,320
Wastewater	2,370
Total	\$ 3,690

APPLICATION OF SDFs

For developing SDFs, the average daily flow number is established as one ERU. An ERU provides a standard unit of measure such that fees for connections with larger than average demand requirements can be calculated on an equivalency basis. As previously addressed, one ERU is equal to the average flow capacity for a single-family dwelling unit with a standard 5/8 x 3/4-inch water meter. New connections with larger water meters have the potential of placing more demand on the system (i.e., require more capacity) and are assessed ERU factors accordingly. The proposed methodology for increasing the SDFs for larger connection sizes is based on standardized demand criteria established by the American Water Works Association (AWWA) pursuant to the size of the water meter. Utilizing the AWWA demand criteria, the applicable ERU factors for larger water meters are based on the incremental increase in potential demand as compared to the standard meter size. Since wastewater flow is customarily a direct function of water flow, applying the water and wastewater SDFs based upon the size of the water meter is equitable, administratively efficient, and consistent with common industry standards. The proposed/calculated water and wastewater SDFs for the various water meter sizes are developed in **Exhibit 6** and summarized in **Table 7**.

**TABLE 7
PROPOSED/CALCULATED SYSTEM DEVELOPMENT FEES**

Description	Meter Factor ⁽¹⁾	Proposed/ Calculated Fees By Meter Size		
		Water	Wastewater	Total
Meter Size:				
5/8 x 3/4 Inch	1.00	\$ 1,320	\$ 2,370	\$ 3,690
1.0 Inch	2.50	\$ 3,300	\$ 5,925	\$ 9,225
1.5 Inch	5.00	\$ 6,600	\$ 11,850	\$ 18,450
2.0 Inch	8.00	\$ 10,560	\$ 18,960	\$ 29,520
3.0 Inch	16.00	\$ 21,120	\$ 37,920	\$ 59,040
4.0 Inch	25.00	\$ 33,000	\$ 59,250	\$ 92,250
6.0 Inch	50.00	\$ 66,000	\$ 118,500	\$ 184,500
8.0 Inch	80.00	\$ 105,600	\$ 189,600	\$ 295,200

(1) Meter-size equivalency factors established by the AWWA and identified in AWWA Standards C700, M1 and M22. Such factors are commonly applied consistently for both water and wastewater fee calculations.

In situations where the application of the meter-based fees will result in the collection of fees significantly different than the potential demand requirement of a new customer requesting service, a special calculation methodology may be applied by the City’s Water Resources Department. For such situations, it is important for the utility to have the flexibility to utilize an ERU methodology for individual accounts based on specific capacity requirements. This alternative methodology is to apply the calculated unit costs per gallon of capacity as provided in **Exhibit 6** times the capacity requirement for the customer. This type of situation will be uncommon and will typically only involve larger commercial and industrial connections. It is anticipated that, in such situations, the City will require certified engineering documentation defining the capacity utilization needs for the new customer.

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, 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 City to establish 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 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 City'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 City, as well as the 11-year capital improvement plan adopted by the City. After considering the calculation options addressed herein, the City selected the Combined Method as its preferred fee methodology. The selected methodology is common for municipal utility system in North Carolina and is consistent with industry standards.
6. The water and wastewater LOS standards proposed herein for establishing an ERU basis are based on flow standards approved by the State of North Carolina and are consistent with common industry standards.
7. The City currently imposes installation fees and other related operational charges for new customer connections. Since these other charges are intended to recover operating costs for providing incident-specific services, the SDFs developed herein will have no impact on the level or application methodology for these other connection-related fees.
8. The City's existing monthly user rates include a surcharge for customers located outside the incorporated limits of the City. However, no such surcharge is proposed

herein for purposes of applying the SDFs. The rationale for this proposal is that, while operating costs (those costs funded from monthly user rates) may increase for providing service outside of the City limits, the capital costs per gallon of capacity for constructing major system facilities (those costs funded by SDFs) do not typically differ based on the location of the customer. Of course, the City can determine the management of SDFs outside city limits.

RECOMMENDATIONS

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

1. Adopt the calculated SDFs and application methodology as developed in this Report, or other such SDF amounts as determined appropriate by the City 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 City Council; and
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 City in this matter. In addition, we would like to thank you and the other members of the City 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,

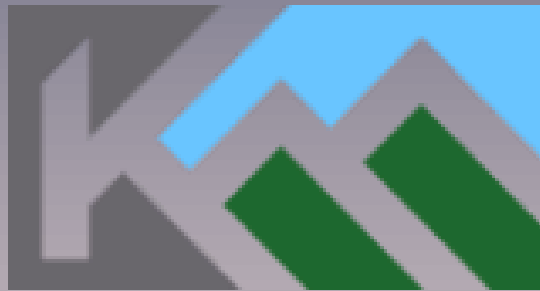
WILLDAN FINANCIAL SERVICES.



Daryll B. Parker
Principal Consultant

EXHIBITS 1 - 6

SUPPORTING OUTPUT FOR THE WATER & WASTEWATER SDF STUDY



KINGS MOUNTAIN
— NORTH CAROLINA —
Living. Elevated.

**WATER & WASTEWATER SDF STUDY FOR
THE CITY OF KINGS MOUNTAIN, NORTH CAROLINA**

Prepared by Willdan Financial Services



EXHIBIT 1
SYSTEM DEVELOPMENT FEE ANALYSIS
EXISTING CAPITAL COSTS RECOVERABLE FROM SDF'S
WATER & WASTEWATER SYSTEMS

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
WATER ASSETS					
Total Assets by Category:					
1	Land	\$ 6,895,494	\$ 6,895,494	\$ 0	\$ 6,895,494
2	Building	14,550,217	103,930,637	(94,574,103)	9,356,534
3	Improvements	30,389,198	174,269,133	(152,682,953)	21,586,180
4	Machinery & Equipment	5,288,565	16,867,095	(14,988,786)	1,878,309
5	Vehicles	551,390	551,389	(502,651)	48,738
6	Lines & Pipes	22,997,958	37,519,039	(10,278,216)	27,240,823
7	Total	<u>\$ 80,672,822</u>	<u>\$ 340,032,787</u>	<u>\$(273,026,709)</u>	<u>\$ 67,006,078</u>
Adjusted For Assumed Cost Limit (\$):					
8	Land	\$ 6,782,833	\$ 6,782,833	\$ 0	\$ 6,782,833
9	Building	14,500,000	103,836,000	(94,522,944)	9,313,056
10	Improvements	29,865,444	173,356,528	(152,131,133)	21,225,395
11	Machinery & Equipment	4,447,871	15,205,126	(13,614,205)	1,590,921
12	Vehicles	129,980	129,980	(129,980)	0
13	Lines & Pipes	22,249,423	35,881,845	(9,359,733)	26,522,112
14	Total	<u>\$ 77,975,551</u>	<u>\$ 335,192,312</u>	<u>\$(269,757,995)</u>	<u>\$ 65,434,317</u>
SEWER ASSETS					
Total Assets by Category:					
15	Land	\$ 278,561	\$ 278,561	\$ 0	\$ 278,561
16	Building	0	0	0	0
17	Improvements	24,828,217	52,248,275	(34,217,954)	18,030,321
18	Machinery & Equipment	2,617,636	4,375,135	(2,884,888)	1,490,247
19	Vehicles	551,390	551,389	(502,651)	48,738
20	Lines & Pipes	7,032,333	15,381,163	(7,033,660)	8,347,503
21	Total	<u>\$ 35,308,137</u>	<u>\$ 72,834,523</u>	<u>\$(44,639,153)</u>	<u>\$ 28,195,370</u>
Adjusted For Assumed Cost Limit (\$):					
22	Land	\$ 206,761	\$ 206,761	\$ 0	\$ 206,761
23	Building	0	0	0	0
24	Improvements	24,587,224	51,731,814	(33,825,991)	17,905,823
25	Machinery & Equipment	1,724,902	2,798,446	(1,581,792)	1,216,654
26	Vehicles	129,980	129,980	(129,980)	0
27	Lines & Pipes	5,990,157	12,856,768	(5,718,625)	7,138,143
28	Total	<u>\$ 32,639,024</u>	<u>\$ 67,723,769</u>	<u>\$(41,256,388)</u>	<u>\$ 26,467,381</u>

EXHIBIT 1
SYSTEM DEVELOPMENT FEE ANALYSIS
EXISTING CAPITAL COSTS RECOVERABLE FROM SDF'S
WATER & WASTEWATER SYSTEMS

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
TOTAL SYSTEM ASSETS					
Total Assets by Category:					
29	Land	\$ 7,174,055	\$ 7,174,055	\$ 0	\$ 7,174,055
30	Building	14,550,217	103,930,637	(94,574,103)	9,356,534
31	Improvements	55,217,415	226,517,408	(186,900,907)	39,616,501
32	Machinery & Equipment	7,906,201	21,242,230	(17,873,674)	3,368,556
33	Vehicles	1,102,780	1,102,778	(1,005,302)	97,476
34	Lines & Pipes	30,030,291	52,900,202	(17,311,876)	35,588,326
35	Total	<u>\$ 115,980,959</u>	<u>\$ 412,867,310</u>	<u>\$(317,665,862)</u>	<u>\$ 95,201,448</u>
Adjusted For Assumed Cost Limit (\$):					
36	Land	\$ 6,989,594	\$ 6,989,594	\$ 0	\$ 6,989,594
37	Building	14,500,000	103,836,000	(94,522,944)	9,313,056
38	Improvements	54,452,668	225,088,342	(185,957,124)	39,131,218
39	Machinery & Equipment	6,172,773	18,003,572	(15,195,997)	2,807,575
40	Vehicles	259,960	259,960	(259,960)	0
41	Lines & Pipes	28,239,580	48,738,613	(15,078,358)	33,660,255
42	Total	<u>\$ 110,614,575</u>	<u>\$ 402,916,081</u>	<u>\$(311,014,383)</u>	<u>\$ 91,901,698</u>
Recoverable Allocation - Water (%):					
43	Land				100%
44	Building				100%
45	Improvements				100%
46	Machinery & Equipment				0%
47	Vehicles				0%
48	Lines & Pipes				100%
Recoverable Allocation - Wastewater (%):					
49	Land				100%
50	Building				100%
51	Improvements				100%
52	Machinery & Equipment				0%
53	Vehicles				0%
54	Lines & Pipes				100%

EXHIBIT 1
SYSTEM DEVELOPMENT FEE ANALYSIS
EXISTING CAPITAL COSTS RECOVERABLE FROM SDF'S
WATER & WASTEWATER SYSTEMS

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
System Allocation - Water (\$):					
55	Land				\$ 6,782,833
56	Building				9,313,056
57	Improvements				21,225,395
58	Machinery & Equipment				0
59	Vehicles				0
60	Lines & Pipes				26,522,112
61	Total				<u>\$ 63,843,396</u>
System Allocation - Wastewater (\$):					
62	Land				\$ 206,761
63	Building				0
64	Improvements				17,905,823
65	Machinery & Equipment				0
66	Vehicles				0
67	Lines & Pipes				7,138,143
68	Total				<u>\$ 25,250,727</u>
69	Grand Total Recoverable Assets				<u><u>\$ 89,094,123</u></u>

COMPONENT ALLOCATION

Total Recoverable Water Facilities:					
70	Treatment Facilities		32.25%	\$	20,587,049
71	Transmission Facilities		67.75%		43,256,347
72	Total		100.00%	\$	<u>63,843,396</u>
Total Recoverable Wastewater Facilities:					
73	Treatment Facilities		54.01%	\$	13,638,469
74	Transmission Facilities		45.99%		11,612,258
75	Total		100.00%	\$	<u>25,250,727</u>
Combined Recoverable Facilities:					
76	Treatment Facilities		38.42%	\$	34,225,518
77	Transmission Facilities		61.58%		54,868,605
78	Total		100.00%	\$	<u>89,094,123</u>

EXHIBIT 1
SYSTEM DEVELOPMENT FEE ANALYSIS
EXISTING CAPITAL COSTS RECOVERABLE FROM SDF'S
WATER & WASTEWATER SYSTEMS

Line	Description	Original Cost	Replacement Cost New	Accumulated Depreciation	RCNLD
COMPARISON TO TOTAL					
79	Total Utility Assets				\$ 95,201,448
80	Combined Recoverable Assets				\$ 89,094,123
	Difference (Assets Excluded From Recovery):				
81	Excluded From Recovery (\$)				\$ 6,107,325
82	Excluded From Recovery (%)				6.42%
DEBT SERVICE CREDIT					
83	Outstanding Debt Principal				\$ 19,202,721
	Allocation Percentage:				
84	Water				100.00%
85	Wastewater				0.00%
	Allocated Debt Service Credit:				
86	Water				\$ 19,202,721
87	Wastewater				0
88	Total				<u>\$ 19,202,721</u>
	Component Allocation - Water:				
89	Treatment Facilities			32.25%	\$ 6,192,142
90	Transmission Facilities			67.75%	13,010,579
91	Total			<u>100.00%</u>	<u>\$ 19,202,721</u>
	Component Allocation - Wastewater:				
92	Treatment Facilities			0.00%	\$ 0
93	Transmission Facilities			0.00%	0
94	Total			<u>0.00%</u>	<u>\$ 0</u>

Exhibit 2
System Development Fee Analysis
Current Capital Improvement Program
Water & Wastewater Systems

Line	Description	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
WATER PROJECTS													
1	12"/8" Main York Road/Owens Rd	\$ 3,357,000	\$ 3,357,000	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
2	12" Main El Bethel/ Bethlehem Rd	4,608,000	0	0	0	0	0	0	4,608,000	0	0	0	0
3	8" Water Main Benton Road	1,770,000	0	0	0	0	0	0	0	0	0	1,770,000	0
4	10" Main Payne/ Goins Farm Rd	1,814,000	0	0	0	0	0	1,814,000	0	0	0	0	0
5	12" Main Battleground/Dixon School Rd	3,094,000	0	0	0	3,094,000	0	0	0	0	0	0	0
6	12" Main Chestnut Ridge Rd	1,721,000	0	0	0	0	0	0	0	1,721,000	0	0	0
7	12" Main Ike Brooks Rd	605,000	0	0	0	0	0	0	0	0	0	0	605,000
8	12" Main Lewis Farm Rd	1,106,000	0	0	0	1,106,000	0	0	0	0	0	0	0
9	12" Main Linwood Rd	829,000	0	0	829,000	0	0	0	0	0	0	0	0
10	12" Main Margrace Road	2,930,000	0	2,930,000	0	0	0	0	0	0	0	0	0
11	10" Main David Baptist/Autum Woods Rd	1,701,000	0	0	0	0	1,701,000	0	0	0	0	0	0
12	10" Main Vestibule Road	697,000	0	0	0	0	697,000	0	0	0	0	0	0
13	12" Main Oak Grove/ Patterson Road	3,943,000	0	0	0	0	0	0	0	0	3,943,000	0	0
14	12" Main Hoyles Road	1,009,000	0	0	0	0	0	0	0	0	1,009,000	0	0
15	New Elevater Water Tower	7,961,000	0	0	7,961,000	0	0	0	0	0	0	0	0
16	Meadowbrook Drive W Replacement	250,000	250,000	0	0	0	0	0	0	0	0	0	0
17	Hwy 161 W Replacement	400,000	0	0	0	0	200,000	200,000	0	0	0	0	0
18	City Lam Dam Surface	300,000	0	0	0	0	0	300,000	0	0	0	0	0
19	Crocker Road replace 20" AC Water Line	500,000	0	500,000	0	0	0	0	0	0	0	0	0
20	Landing Street 2 inch w W Replacement	350,000	0	0	0	0	350,000	0	0	0	0	0	0
21	Asphalt paving at Moss Lake Office	100,000	0	0	100,000	0	0	0	0	0	0	0	0
22	Raw Water Pump at W Plant	325,000	150,000	175,000	0	0	0	0	0	0	0	0	0
23	Margrace to KM BLVD Water connection	100,000	100,000	0	0	0	0	0	0	0	0	0	0
24	Hydrant Replacement Project	100,000	50,000	50,000	0	0	0	0	0	0	0	0	0
25	Green Climber LV300 Dam Mower 2018	65,000	0	0	65,000	0	0	0	0	0	0	0	0
26	WTP Genset Cummins	200,000	0	0	50,000	50,000	50,000	50,000	0	0	0	0	0
27	Ford F-150 2016	30,000	0	0	30,000	0	0	0	0	0	0	0	0
28	Ford F-350 2012	40,000	0	40,000	0	0	0	0	0	0	0	0	0
29	Ford F-150 2003	30,000	30,000	0	0	0	0	0	0	0	0	0	0
30	Ford F-150 2005	30,000	0	0	30,000	0	0	0	0	0	0	0	0
31	F-550 Dump Truck 2013	90,000	90,000	0	0	0	0	0	0	0	0	0	0
32	Floyd Street W&S Replace.	225,000	0	225,000	0	0	0	0	0	0	0	0	0
33	Linwood Road W&S Replace.	225,000	0	0	225,000	0	0	0	0	0	0	0	0
34	Second Street W&S Replace.	225,000	0	0	0	225,000	0	0	0	0	0	0	0
35	Catepillar Backhoe 1988	40,000	40,000	0	0	0	0	0	0	0	0	0	0
36	New Holland Backhoe 1995	40,000	40,000	0	0	0	0	0	0	0	0	0	0
37	8" Emergency Pump	5,000	5,000	0	0	0	0	0	0	0	0	0	0
38	Kubota Mini Excavator 2015	22,500	0	0	0	22,500	0	0	0	0	0	0	0
39	Kohler Generator 1995	40,000	0	0	40,000	0	0	0	0	0	0	0	0
40	Titan Job Trailer 2018	5,000	0	0	5,000	0	0	0	0	0	0	0	0
41	New Holland Backhoe 2013	45,000	0	45,000	0	0	0	0	0	0	0	0	0
42	Kubota Mini Excavator 2005	37,500	37,500	0	0	0	0	0	0	0	0	0	0
43	Freedom 7X12TA2 Trailer 2018	5,000	0	0	5,000	0	0	0	0	0	0	0	0
44	Sullair Air Compressor	10,000	10,000	0	0	0	0	0	0	0	0	0	0
45	Ford F-350 2008	20,000	0	0	20,000	0	0	0	0	0	0	0	0
46	Ford F-350 2005	20,000	0	0	20,000	0	0	0	0	0	0	0	0
47	Dodge 1500 4WD 2019	15,000	0	0	0	0	0	15,000	0	0	0	0	0
48	Freightliner Dump Truck 2012	75,000	0	75,000	0	0	0	0	0	0	0	0	0

Exhibit 2
System Development Fee Analysis
Current Capital Improvement Program
Water & Wastewater Systems

Line	Description	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
49	Ford F-350 Boom Truck 2007	27,500	27,500	0	0	0	0	0	0	0	0	0	0
50	Ford XL F-150 2014	15,000	0	0	0	0	15,000	0	0	0	0	0	0
51	Total Water	\$ 41,152,500	\$ 4,187,000	\$ 4,040,000	\$ 9,380,000	\$ 4,497,500	\$ 3,013,000	\$ 2,379,000	\$ 4,608,000	\$ 1,721,000	\$ 4,952,000	\$ 1,770,000	\$ 605,000

WASTEWATER PROJECTS

52	Sewer Service to Mountain Creek	\$ 5,270,800	\$ 5,270,800	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
53	Potts Creek Ph1 Upgrade to 36" Gravity	1,603,000	0	1,603,000	0	0	0	0	0	0	0	0	0
54	Potts Creek Ph2 Upgrade to 24" Gravity	2,754,000	0	2,754,000	0	0	0	0	0	0	0	0	0
55	Potts Creek Ph3 Upgrade to 42" Gravity	2,507,000	0	0	2,507,000	0	0	0	0	0	0	0	0
56	Potts Creek Ph4 Upgrade to 36" Gravity	6,659,000	0	0	0	6,659,000	0	0	0	0	0	0	0
57	Scism Outfall Upgrade to 18" Gravity	1,295,000	0	0	0	0	1,295,000	0	0	0	0	0	0
58	Autumn Woods OF Upgrade to 24" Gravit	2,754,000	0	0	0	0	0	2,754,000	0	0	0	0	0
59	Extend Service to Commerce Drive	4,407,000	0	0	0	0	0	0	4,407,000	0	0	0	0
60	New Oak Grove Collector	5,407,000	0	0	0	0	0	0	0	5,407,000	0	0	0
61	Benton / Bethlehem Road	1,255,000	0	0	0	0	0	0	1,255,000	0	0	0	0
62	Upper Dixon Branch Outfall	1,380,000	0	0	0	0	0	1,380,000	0	0	0	0	0
63	WWTP Expansion Phase I	7,550,000	0	0	0	0	0	0	0	0	7,550,000	0	0
64	WWTP Expansion Phase II	0	0	0	0	0	0	0	0	0	0	0	0
65	Long Branch Lift Station	500,000	0	0	500,000	0	0	0	0	0	0	0	0
66	Replace 24 inch gravity sewer to WWTP	1,500,000	250,000	250,000	250,000	250,000	250,000	250,000	0	0	0	0	0
67	Long Branch Gravity sewer	200,000	200,000	0	0	0	0	0	0	0	0	0	0
68	First Street Sewer replacement	350,000	350,000	0	0	0	0	0	0	0	0	0	0
69	Moss Lake Spillway	120,000	120,000	0	0	0	0	0	0	0	0	0	0
70	Pilot Creek Office and Lab Building	650,000	0	250,000	400,000	0	0	0	0	0	0	0	0
71	Grit Removal chamber at WWTP	250,000	0	0	250,000	0	0	0	0	0	0	0	0
72	Clairifier #1 at WWTP	175,000	0	175,000	0	0	0	0	0	0	0	0	0
73	Clairifier #4 at WWTP	130,000	0	130,000	0	0	0	0	0	0	0	0	0
74	Recirculation Pumps WWTP #3	100,000	100,000	0	0	0	0	0	0	0	0	0	0
75	Recirculation Pumps WWTP #1	100,000	0	100,000	0	0	0	0	0	0	0	0	0
76	Recirculation Pumps WWTP #4	100,000	0	0	100,000	0	0	0	0	0	0	0	0
77	Beason Creek Genset Terex 2008	45,000	0	0	0	0	45,000	0	0	0	0	0	0
78	Pipe Hunter 7934 Sewer trailer 2018	60,000	0	0	0	0	0	60,000	0	0	0	0	0
79	Aries Sewer Camera and Trailer 2007	70,000	0	70,000	0	0	0	0	0	0	0	0	0
80	WWTP Genset #1 Cummins 2010	150,000	0	0	0	0	150,000	0	0	0	0	0	0
81	WWTP Genset # 2 Cummins 2013	150,000	0	0	0	0	0	150,000	0	0	0	0	0
82	Ford Super Duty F-350 2012	40,000	40,000	0	0	0	0	0	0	0	0	0	0
83	Ford F-150 2015	30,000	0	30,000	0	0	0	0	0	0	0	0	0
84	Freightliner JetVac 2011	280,000	70,000	70,000	70,000	70,000	0	0	0	0	0	0	0
85	Ford F-350 2015	40,000	0	40,000	0	0	0	0	0	0	0	0	0
86	Ford F-150 2008	30,000	0	30,000	0	0	0	0	0	0	0	0	0
87	Sterling Mercedes Dump Truck 2004	150,000	0	0	0	150,000	0	0	0	0	0	0	0
88	Floyd Street W&S Replace.	225,000	0	225,000	0	0	0	0	0	0	0	0	0
89	Linwood Road W&S Replace.	225,000	0	0	225,000	0	0	0	0	0	0	0	0
90	Second Street W&S Replace.	225,000	0	0	0	225,000	0	0	0	0	0	0	0
91	Catepillar Backhoe 1988	40,000	40,000	0	0	0	0	0	0	0	0	0	0
92	New Holland Backhoe 1995	40,000	40,000	0	0	0	0	0	0	0	0	0	0
93	8" Emergency Pump	5,000	5,000	0	0	0	0	0	0	0	0	0	0
94	Kubota Mini Excavator 2015	22,500	0	0	0	22,500	0	0	0	0	0	0	0
95	Kohler Generator 1995	40,000	0	0	40,000	0	0	0	0	0	0	0	0

Exhibit 2
System Development Fee Analysis
Current Capital Improvement Program
Water & Wastewater Systems

Line	Description	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
96	Titan Job Trailer 2018	5,000	0	0	5,000	0	0	0	0	0	0	0	0
97	New Holland Backhoe 2013	45,000	0	45,000	0	0	0	0	0	0	0	0	0
98	Kubota Mini Excavator 2005	37,500	37,500	0	0	0	0	0	0	0	0	0	0
99	Freedom 7X12TA2 Trailer 2018	5,000	0	0	5,000	0	0	0	0	0	0	0	0
100	Sullair Air Compressor	10,000	10,000	0	0	0	0	0	0	0	0	0	0
101	Ford F-350 2008	20,000	0	0	20,000	0	0	0	0	0	0	0	0
102	Ford F-350 2005	20,000	0	0	20,000	0	0	0	0	0	0	0	0
103	Dodge 1500 4WD 2019	15,000	0	0	0	0	0	15,000	0	0	0	0	0
104	Freightliner Dump Truck 2012	75,000	0	75,000	0	0	0	0	0	0	0	0	0
105	Ford F-350 Boom Truck 2007	27,500	27,500	0	0	0	0	0	0	0	0	0	0
106	Ford XL F-150 2014	15,000	0	0	0	0	15,000	0	0	0	0	0	0
107	Total Wastewater	\$ 49,159,300	\$ 6,560,800	\$ 5,847,000	\$ 4,392,000	\$ 7,376,500	\$ 1,755,000	\$ 4,609,000	\$ 5,662,000	\$ 5,407,000	\$ 7,550,000	\$ 0	\$ 0
108	Total Water & Wastewater CIP	\$ 90,311,800	\$ 10,747,800	\$ 9,887,000	\$ 13,772,000	\$ 11,874,000	\$ 4,768,000	\$ 6,988,000	\$ 10,270,000	\$ 7,128,000	\$ 12,502,000	\$ 1,770,000	\$ 605,000

EXHIBIT 3
SYSTEM DEVELOPMENT FEE ANALYSIS
ALLOCATION OF CAPITAL IMPROVEMENTS PROGRAM
WATER AND WASTEWATER SYSTEMS

Line	Description	Total	Percentage Allocation ⁽¹⁾			Allocation Amount		
			Expand/Upgrade	R&R	Other	Expand/Upgrade	R&R	Other
WATER PROJECTS								
1	12"/8" Main York Road/Owens Rd	\$ 3,357,000	100.00%	0.00%	0.00%	\$ 3,357,000	\$ 0	\$ 0
2	12" Main El Bethel/ Bethlehem Rd	4,608,000	100.00%	0.00%	0.00%	4,608,000	0	0
3	8" Water Main Benton Road	1,770,000	100.00%	0.00%	0.00%	1,770,000	0	0
4	10" Main Payne/ Goins Farm Rd	1,814,000	100.00%	0.00%	0.00%	1,814,000	0	0
5	12" Main Battleground/Dixon School Rd	3,094,000	100.00%	0.00%	0.00%	3,094,000	0	0
6	12" Main Chestnut Ridge Rd	1,721,000	100.00%	0.00%	0.00%	1,721,000	0	0
7	12" Main Ike Brooks Rd	605,000	100.00%	0.00%	0.00%	605,000	0	0
8	12" Main Lewis Farm Rd	1,106,000	100.00%	0.00%	0.00%	1,106,000	0	0
9	12" Main Linwood Rd	829,000	100.00%	0.00%	0.00%	829,000	0	0
10	12" Main Margrace Road	2,930,000	100.00%	0.00%	0.00%	2,930,000	0	0
11	10" Main David Baptist/Autum Woods Rd	1,701,000	100.00%	0.00%	0.00%	1,701,000	0	0
12	10" Main Vestibule Road	697,000	100.00%	0.00%	0.00%	697,000	0	0
13	12" Main Oak Grove/ Patterson Road	3,943,000	100.00%	0.00%	0.00%	3,943,000	0	0
14	12" Main Hoyles Road	1,009,000	100.00%	0.00%	0.00%	1,009,000	0	0
15	New Elevater Water Tower	7,961,000	100.00%	0.00%	0.00%	7,961,000	0	0
16	Meadowbrook Drive W Replacement	250,000	0.00%	100.00%	0.00%	0	250,000	0
17	Hwy 161 W Replacement	400,000	0.00%	100.00%	0.00%	0	400,000	0
18	City Lam Dam Surface	300,000	0.00%	0.00%	100.00%	0	0	300,000
19	Crocker Road replace 20" AC Water Line	500,000	0.00%	100.00%	0.00%	0	500,000	0
20	Landing Street 2 inch w W Replacement	350,000	0.00%	100.00%	0.00%	0	350,000	0
21	Asphalt paving at Moss Lake Office	100,000	0.00%	0.00%	100.00%	0	0	100,000
22	Raw Water Pump at W Plant	325,000	0.00%	0.00%	100.00%	0	0	325,000
23	Margrace to KM BLVD Water connection	100,000	0.00%	0.00%	100.00%	0	0	100,000
24	Hydrant Replacement Project	100,000	0.00%	100.00%	0.00%	0	100,000	0
25	Green Climber LV300 Dam Mower 2018	65,000	0.00%	0.00%	100.00%	0	0	65,000
26	WTP Genset Cummins	200,000	0.00%	0.00%	100.00%	0	0	200,000
27	Ford F-150 2016	30,000	0.00%	0.00%	100.00%	0	0	30,000
28	Ford F-350 2012	40,000	0.00%	0.00%	100.00%	0	0	40,000
29	Ford F-150 2003	30,000	0.00%	0.00%	100.00%	0	0	30,000
30	Ford F-150 2005	30,000	0.00%	0.00%	100.00%	0	0	30,000
31	F-550 Dump Truck 2013	90,000	0.00%	0.00%	100.00%	0	0	90,000
32	Floyd Street W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
33	Linwood Road W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
34	Second Street W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
35	Catepillar Backhoe 1988	40,000	0.00%	0.00%	100.00%	0	0	40,000

EXHIBIT 3
SYSTEM DEVELOPMENT FEE ANALYSIS
ALLOCATION OF CAPITAL IMPROVEMENTS PROGRAM
WATER AND WASTEWATER SYSTEMS

Line	Description	Total	Percentage Allocation ⁽¹⁾			Allocation Amount		
			Expand/Upgrade	R&R	Other	Expand/Upgrade	R&R	Other
36	New Holland Backhoe 1995	40,000	0.00%	0.00%	100.00%	0	0	40,000
37	8" Emergency Pump	5,000	0.00%	0.00%	100.00%	0	0	5,000
38	Kubota Mini Excavator 2015	22,500	0.00%	0.00%	100.00%	0	0	22,500
39	Kohler Generator 1995	40,000	0.00%	0.00%	100.00%	0	0	40,000
40	Titan Job Trailer 2018	5,000	0.00%	0.00%	100.00%	0	0	5,000
41	New Holland Backhoe 2013	45,000	0.00%	0.00%	100.00%	0	0	45,000
42	Kubota Mini Excavator 2005	37,500	0.00%	0.00%	100.00%	0	0	37,500
43	Freedom 7X12TA2 Trailer 2018	5,000	0.00%	0.00%	100.00%	0	0	5,000
44	Sullair Air Compressor	10,000	0.00%	0.00%	100.00%	0	0	10,000
45	Ford F-350 2008	20,000	0.00%	0.00%	100.00%	0	0	20,000
46	Ford F-350 2005	20,000	0.00%	0.00%	100.00%	0	0	20,000
47	Dodge 1500 4WD 2019	15,000	0.00%	0.00%	100.00%	0	0	15,000
48	Freightliner Dump Truck 2012	75,000	0.00%	0.00%	100.00%	0	0	75,000
49	Ford F-350 Boom Truck 2007	27,500	0.00%	0.00%	100.00%	0	0	27,500
50	Ford XL F-150 2014	15,000	0.00%	0.00%	100.00%	0	0	15,000
Subtotal		\$ 41,152,500				\$ 37,145,000	\$ 2,275,000	\$ 1,732,500

WASTEWATER PROJECTS

51	Sewer Service to Mountain Creek	\$ 5,270,800	100.00%	0.00%	0.00%	\$ 5,270,800	\$ 0	\$ 0
52	Potts Creek Ph1 Upgrade to 36" Gravity	1,603,000	100.00%	0.00%	0.00%	1,603,000	0	0
53	Potts Creek Ph2 Upgrade to 24" Gravity	2,754,000	100.00%	0.00%	0.00%	2,754,000	0	0
54	Potts Creek Ph3 Upgrade to 42" Gravity	2,507,000	100.00%	0.00%	0.00%	2,507,000	0	0
55	Potts Creek Ph4 Upgrade to 36" Gravity	6,659,000	100.00%	0.00%	0.00%	6,659,000	0	0
56	Scism Outfall Upgrade to 18" Gravity	1,295,000	100.00%	0.00%	0.00%	1,295,000	0	0
57	Autumn Woods OF Upgrade to 24" Gravity	2,754,000	100.00%	0.00%	0.00%	2,754,000	0	0
58	Extend Service to Commerce Drive	4,407,000	100.00%	0.00%	0.00%	4,407,000	0	0
59	New Oak Grove Collector	5,407,000	100.00%	0.00%	0.00%	5,407,000	0	0
60	Benton / Bethlehem Road	1,255,000	0.00%	0.00%	100.00%	0	0	1,255,000
61	Upper Dixon Branch Outfall	1,380,000	0.00%	0.00%	100.00%	0	0	1,380,000
62	WWTP Expansion Phase I	7,550,000	0.00%	0.00%	100.00%	0	0	7,550,000
63	WWTP Expansion Phase II	0	0.00%	0.00%	100.00%	0	0	0
64	Long Branch Lift Station	500,000	0.00%	0.00%	100.00%	0	0	500,000
65	Replace 24 inch gravity sewer to WWTP	1,500,000	0.00%	100.00%	0.00%	0	1,500,000	0
66	Long Branch Gravity sewer	200,000	0.00%	0.00%	100.00%	0	0	200,000
67	First Street Sewer replacement	350,000	0.00%	100.00%	0.00%	0	350,000	0

EXHIBIT 3
SYSTEM DEVELOPMENT FEE ANALYSIS
ALLOCATION OF CAPITAL IMPROVEMENTS PROGRAM
WATER AND WASTEWATER SYSTEMS

Line	Description	Total	Percentage Allocation ⁽¹⁾			Allocation Amount		
			Expand/Upgrade	R&R	Other	Expand/Upgrade	R&R	Other
68	Moss Lake Spillway	120,000	0.00%	0.00%	100.00%	0	0	120,000
69	Pilot Creek Office and Lab Building	650,000	0.00%	0.00%	100.00%	0	0	650,000
70	Grit Removal chamber at WWTP	250,000	0.00%	0.00%	100.00%	0	0	250,000
71	Clairifier #1 at WWTP	175,000	0.00%	0.00%	100.00%	0	0	175,000
72	Clairifier #4 at WWTP	130,000	0.00%	0.00%	100.00%	0	0	130,000
73	Recirculation Pumps WWTP #3	100,000	0.00%	0.00%	100.00%	0	0	100,000
74	Recirculation Pumps WWTP #1	100,000	0.00%	0.00%	100.00%	0	0	100,000
75	Recirculation Pumps WWTP #4	100,000	0.00%	0.00%	100.00%	0	0	100,000
76	Beason Creek Genset Terex 2008	45,000	0.00%	0.00%	100.00%	0	0	45,000
77	Pipe Hunter 7934 Sewer trailer 2018	60,000	0.00%	0.00%	100.00%	0	0	60,000
78	Aries Sewer Camera and Trailer 2007	70,000	0.00%	0.00%	100.00%	0	0	70,000
79	WWTP Genset #1 Cummins 2010	150,000	0.00%	0.00%	100.00%	0	0	150,000
80	WWTP Genset # 2 Cummins 2013	150,000	0.00%	0.00%	100.00%	0	0	150,000
81	Ford Super Duty F-350 2012	40,000	0.00%	0.00%	100.00%	0	0	40,000
82	Ford F-150 2015	30,000	0.00%	0.00%	100.00%	0	0	30,000
83	Freightliner JetVac 2011	280,000	0.00%	0.00%	100.00%	0	0	280,000
84	Ford F-350 2015	40,000	0.00%	0.00%	100.00%	0	0	40,000
85	Ford F-150 2008	30,000	0.00%	0.00%	100.00%	0	0	30,000
86	Sterling Mercedes Dump Truck 2004	150,000	0.00%	0.00%	100.00%	0	0	150,000
87	Floyd Street W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
88	Linwood Road W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
89	Second Street W&S Replace.	225,000	0.00%	100.00%	0.00%	0	225,000	0
90	Catepillar Backhoe 1988	40,000	0.00%	0.00%	100.00%	0	0	40,000
91	New Holland Backhoe 1995	40,000	0.00%	0.00%	100.00%	0	0	40,000
92	8" Emergency Pump	5,000	0.00%	0.00%	100.00%	0	0	5,000
93	Kubota Mini Excavator 2015	22,500	0.00%	0.00%	100.00%	0	0	22,500
94	Kohler Generator 1995	40,000	0.00%	0.00%	100.00%	0	0	40,000
95	Titan Job Trailer 2018	5,000	0.00%	0.00%	100.00%	0	0	5,000
96	New Holland Backhoe 2013	45,000	0.00%	0.00%	100.00%	0	0	45,000
97	Kubota Mini Excavator 2005	37,500	0.00%	0.00%	100.00%	0	0	37,500
98	Freedom 7X12TA2 Trailer 2018	5,000	0.00%	0.00%	100.00%	0	0	5,000
99	Sullair Air Compressor	10,000	0.00%	0.00%	100.00%	0	0	10,000
100	Ford F-350 2008	20,000	0.00%	0.00%	100.00%	0	0	20,000
101	Ford F-350 2005	20,000	0.00%	0.00%	100.00%	0	0	20,000
102	Dodge 1500 4WD 2019	15,000	0.00%	0.00%	100.00%	0	0	15,000
103	Freightliner Dump Truck 2012	75,000	0.00%	0.00%	100.00%	0	0	75,000

EXHIBIT 3
SYSTEM DEVELOPMENT FEE ANALYSIS
ALLOCATION OF CAPITAL IMPROVEMENTS PROGRAM
WATER AND WASTEWATER SYSTEMS

Line	Description	Total	Percentage Allocation ⁽¹⁾			Allocation Amount		
			Expand/Upgrade	R&R	Other	Expand/Upgrade	R&R	Other
104	Ford F-350 Boom Truck 2007	27,500	0.00%	0.00%	100.00%	0	0	27,500
105	Ford XL F-150 2014	15,000	0.00%	0.00%	100.00%	0	0	15,000
106	Subtotal	\$ 49,159,300				\$ 32,656,800	\$ 2,525,000	\$ 13,977,500
107	Total - All Capital Projects	\$ 90,311,800				\$ 69,801,800	\$ 4,800,000	\$ 15,710,000
ALLOCATION OF CAPITAL PROJECTS								
108	Water:							
109	Treatment Projects	\$ 325,000				\$ 0	\$ 0	\$ 325,000
110	Transmission Projects	39,920,000				37,145,000	2,275,000	500,000
111	Other Projects	907,500				0	0	907,500
112	Subtotal	\$ 41,152,500				\$ 37,145,000	\$ 2,275,000	\$ 1,732,500
	Wastewater:							
113	Treatment Projects	\$ 10,855,000				\$ 0	\$ 1,500,000	\$ 9,355,000
114	Transmission Projects	37,136,800				32,656,800	1,025,000	3,455,000
115	Other Projects	1,167,500				0	0	1,167,500
116	Subtotal	\$ 49,159,300				\$ 32,656,800	\$ 2,525,000	\$ 13,977,500
	Combined:							
117	Treatment Projects	\$ 11,180,000				\$ 0	\$ 1,500,000	\$ 9,680,000
118	Transmission Projects	77,056,800				69,801,800	3,300,000	3,955,000
119	Other Projects	2,075,000				0	0	2,075,000
120	Grand Total	\$ 90,311,800				\$ 69,801,800	\$ 4,800,000	\$ 15,710,000

Notes:

(1) 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
WATER SYSTEM

Line	Description	Total
Recoverable Capital Facilities		
Existing Facilities:		
1	Treatment Facilities	\$ 20,587,049
2	Transmission Facilities	43,256,347
3	Subtotal	\$ 63,843,396 ⁽¹⁾
Less Debt Service Principal:		
4	Treatment Facilities	\$ (6,192,142)
5	Transmission Facilities	(13,010,579)
6	Subtotal	\$ (19,202,721) ⁽²⁾
Net Recoverable Facilities:		
7	Treatment Facilities	\$ 14,394,907
8	Transmission Facilities	30,245,768
9	Total	\$ 44,640,675
Capital Improvement Program:		
10	Treatment Facilities	\$ 0
11	Transmission Facilities	37,145,000
12	Subtotal	\$ 37,145,000
Less 25% CIP Adjustment		
13	Treatment Facilities 25%	\$ 0
14	Transmission Facilities 25%	(9,286,250)
15	Subtotal	\$ (9,286,250)
Net Recoverable CIP:		
16	Treatment Facilities	\$ 0
17	Transmission Facilities	27,858,750
18	Total	\$ 27,858,750
Net Capital Costs:		
19	Treatment Facilities	\$ 14,394,907
20	Transmission Facilities	58,104,518
21	Net Recoverable Costs	\$ 72,499,425

EXHIBIT 4
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WATER SYSTEM

Line	Description		Total
Available System Capacity (MGD)			
<u>Treatment Capacity (MGD):</u> (3)			
22	T.J. Ellison Water Treatment Plant		12.00
23	Additional CIP Capacity		0.00
24	Total Treatment Capacity		12.00
<u>Average Day Capacity Adjustment:</u>			
25	Treatment Capacity Based on Max/Avg Day Factor	1.50	8.00
26	Unaccounted-For Water Capacity Adjustment	15.0%	
27	Estimated Treatment Capacity		6.80 (4)
<u>Estimated Transmission System Capacity:</u>			
28	Transmission-to-Treatment Capacity Factor	2.00	24.00
29	Unaccounted-For Water Capacity Adjustment	15.0%	
30	Estimated Transmission Capacity		20.40 (5)
Estimated Cost Per Gallon of Capacity			
<u>Estimated Cost Per Gallon of Capacity:</u>			
31	Treatment (\$/Gallon)		\$ 2.12
32	Transmission (\$/Gallon)		2.85
33	Total Cost Per Gallon of Capacity		\$ 4.97
34	Assumed Standard Level of Service Per ERU (GPD of Capacity)		400 (6)
35	Max/Avg Day Adjustment Factor	1.50	
36	Assumed Standard Level of Service Per ERU (GPD of Capacity)		267 (6)

EXHIBIT 4
 SYSTEM DEVELOPMENT FEE ANALYSIS
 CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
 WATER SYSTEM

Line	Description	Total
Calculation of Proposed Fee Per ERU		
<u>Calculation of SDF Per ERU:</u>		
37	Treatment Facilities	\$ 566
38	Transmission Facilities	760
39	Combined Cost	\$ 1,326
<u>Adjusted Fee - Treatment:</u>		
40	Calculated Fee Per ERU	\$ 566
41	Less Rounding Adjustment	(6)
42	Adjusted Fee	\$ 560
<u>Credit Adjusted Fee - Transmission:</u>		
43	Calculated Fee Per ERU	\$ 760
44	Less Rounding Adjustment	0
45	Adjusted Fee	\$ 760
<u>Proposed SDF Per ERU (Rounded):</u>		
46	Treatment Facilities	\$ 560
47	Transmission Facilities	760
48	Combined Cost	\$ 1,320

EXHIBIT 4
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WATER SYSTEM

Line	Description	Total
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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 reported in the most recent audited financial report. The principal balance is allocated between water and wastewater as provided in **Exhibit 1**.
- (3) Based on rated maximum daily plant capacity information as provided by staff.
- (4) The estimated average daily flow capacity assumes an MDF-to-ADF ratio of 1.50 times. An additional adjustment is made for assumed unaccounted-for water flows (e.g. line losses) in the system. For the purpose of this analysis, the line-loss factor is assumed to be 15%.
- (5) It is assumed that the existing transmission facilities are capable of providing average water flow at least 2.0-times the existing water treatment facilities. In addition, similar to the methodology utilized for water treatment, an adjustment is made for unaccounted-for water assuming losses of 15.0%.
- (6) The system development charges 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 with a 5/8-inch X 3/4-inch water meter. In accordance with daily water flow capacity design standards adopted by the State of North Carolina and defined the North Carolina Administrative Codes (15A NCAC 18C .0409), the level of service requirement for a residential connection is 400 gallons per day (gpd). Although the Codes do not specifically indicate whether 400 gpd is max-day or average-day, for the purpose of this analysis, it is assumed to be a max-day flow amount. Applying the assumed Max/Avg Day Adjustment Factor to the NCAC flow standard, it is assumed that 1 ERU requires a standard level of service of 267 gpd of water system capacity.

EXHIBIT 5
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WASTEWATER SYSTEM

Line	Description	Total
Recoverable Capital Facilities		
Existing Facilities:		
1	Treatment Facilities	\$ 13,638,469
2	Transmission Facilities	11,612,258
3	Subtotal	\$ 25,250,727 ⁽¹⁾
Less Debt Service Principal:		
4	Treatment Facilities	\$ 0
5	Transmission Facilities	0
6	Subtotal	\$ 0
Net Recoverable Facilities:		
7	Treatment Facilities	\$ 13,638,469
8	Transmission Facilities	11,612,258
9	Total	\$ 25,250,727
Capital Improvement Program:		
10	Treatment Facilities	\$ 0
11	Transmission Facilities	32,656,800
12	Subtotal	\$ 32,656,800
Less 25% CIP Adjustment		
13	Treatment Facilities	25% \$ 0
14	Transmission Facilities	25% (8,164,200)
15	Subtotal	\$ (8,164,200)
Net Recoverable CIP:		
16	Treatment Facilities	\$ 0
17	Transmission Facilities	24,492,600
18	Total	\$ 24,492,600 ⁽²⁾
Net Capital Costs:		
19	Treatment Facilities	\$ 13,638,469
20	Transmission Facilities	36,104,858
21	Net Recoverable Costs	\$ 49,743,327

EXHIBIT 5
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WASTEWATER SYSTEM

Line	Description	Total
Available System Capacity (MGD)		
<u>Treatment Capacity (MGD):</u>		
22	Pilot Creek Wastewater Treatment Plant	6.00
23	Additional CIP Capacity	0.00
24	Total Treatment Capacity	6.00
<u>Treatment Capacity:</u>		
25	Average Day Treatment Capacity (MGD)	6.00
26	I&I Capacity Adjustment	20.0%
27	Adjusted Average Day Treatment Capacity	4.80 ⁽³⁾
<u>Estimated Transmission System Capacity:</u>		
28	Transmission-to-Treatment Capacity Factor	2.00
29	I&I Capacity Adjustment	20.0%
30	Estimated Transmission Capacity	9.60 ⁽⁴⁾
Estimated Cost Per Gallon of Capacity		
<u>Estimated Cost Per Gallon of Capacity:</u>		
31	Treatment (\$/Gallon)	\$ 2.84
32	Transmission (\$/Gallon)	3.76
33	Total Cost Per Gallon of Capacity	\$ 6.60
34	Assumed Standard Level of Service Per ERU (GPD of Capacity)	360 ⁽⁵⁾

EXHIBIT 5
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WASTEWATER SYSTEM

Line	Description	Total
Calculation of Proposed Fee Per ERU		
<u>Calculation of SDF Per ERU:</u>		
35	Treatment Facilities	\$ 1,022
36	Transmission Facilities	\$ 1,353
37	Combined Cost	\$ 2,375
<u>Adjusted Fee - Treatment:</u>		
38	Calculated Fee Per ERU	\$ 1,022
39	Less Rounding Adjustment	(2)
40	Adjusted Fee	\$ 1,020
<u>Credit Adjusted Fee - Transmission:</u>		
41	Calculated Fee Per ERU	\$ 1,353
42	Less Rounding Adjustment	(3)
43	Adjusted Fee	\$ 1,350
<u>Proposed SDF Per ERU (Rounded):</u>		
44	Treatment Facilities	\$ 1,020
45	Transmission Facilities	1,350
46	Combined Cost	\$ 2,370

EXHIBIT 5
SYSTEM DEVELOPMENT FEE ANALYSIS
CALCULATION OF SYSTEM DEVELOPMENT FEE PER ERU
WASTEWATER SYSTEM

Line	Description	Total
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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 reported in the most recent audited financial report. The principal balance is allocated between water and wastewater as provided in Exhibit 1.
- (3) Similar to the line loss adjustment for water, 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.
- (4) It is assumed that the wastewater trunk lines and pumping facilities are designed to provide capacity at least equal to the 2.0-times permitted plant flow amount of 6.00 MGD.
- (5) Similar to the water system, 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 with a 5/8-inch X 3/4-inch water meter. In accordance with wastewater flow design standards adopted by the State of North Carolina and defined in the North Carolina Administrative Codes (15A NCAC 02T .0114), the level of service requirement is based on 120 gallons of capacity per day per bedroom for a residential home. This analysis assumes an average of 3.0 bedrooms per new home constructed. Applying the State's flow standard to the average number of bedrooms, it is assumed that 1 ERU requires a standard level of service of 360 gpd of wastewater system capacity.

EXHIBIT 6
SYSTEM DEVELOPMENT FEE ANALYSIS
SUMMARY OF PROPOSED SYSTEM DEVELOPMENT FEES
WATER & WASTEWATER SYSTEMS

Line	Description	Meter-Based ERU Factor	Proposed Fees by System		Combined Fee
			Water	Sewer	
PROPOSED METER BASIS ⁽¹⁾					
<u>Meter Size:</u>					
1	5/8 x 3/4 Inch	1.00	\$ 1,320	\$ 2,370	\$ 3,690
2	1.0 Inch	2.50	\$ 3,300	\$ 5,925	\$ 9,225
3	1.5 Inch	5.00	\$ 6,600	\$ 11,850	\$ 18,450
4	2.0 Inch	8.00	\$ 10,560	\$ 18,960	\$ 29,520
5	3.0 Inch	16.00	\$ 21,120	\$ 37,920	\$ 59,040
6	4.0 Inch	25.00	\$ 33,000	\$ 59,250	\$ 92,250
7	6.0 Inch	50.00	\$ 66,000	\$ 118,500	\$ 184,500
8	8.0 Inch	80.00	\$ 105,600	\$ 189,600	\$ 295,200

OPTIONAL ACTUAL FLOW BASIS ⁽²⁾

<u>Charge Per Gallon of Capacity (GPD):</u>					
9	Treatment Facilities		\$ 2.12	\$ 2.84	\$ 4.96
10	Transmission Facilities		2.85	3.76	6.61
11	Cost Per GPD		<u>\$ 4.97</u>	<u>\$ 6.60</u>	<u>\$ 11.57</u>

Notes:

- (1) The proposed capacity fees are based on the calculated fee per ERU as applied to the respective ERU factor. The proposed ERU factors for the capacity fees are based on meter equivalency factors established by the AWWA.
- (2) In situations where the application of the meter-based fees will result in the collection of fees significantly different than the potential demand requirement, a special fee calculation methodology may be applied based on the unit cost of capacity and the estimated daily capacity needs of the new service connection. The estimated capacity needs will be based on the amount determined by the utility's engineering staff to be appropriate.