



Catawba County

Water and Sewer System Development Fee Study

March 14, 2018





March 14, 2018

Mr. Barry Edwards
Director, Catawba County
Utilities & Engineering
25 Government Drive
Newton, NC 28658

Re: Water and Sewer System
Development Fee Study

Dear Mr. Edwards,

Stantec is pleased to present this Draft Report on the Water and Sewer System Development Fee Study (Study) that we performed for Catawba County, North Carolina (County). We appreciate the professional assistance provided by you and all of the members of the County staff who participated in the Study.

If you have any questions, please do not hesitate to call us at (813) 223-9500. We appreciate the opportunity to be of service to the County, and look forward to the possibility of doing so again in the near future.

Sincerely,

A handwritten signature in blue ink, appearing to read "A. J. Burnham".

Andrew J. Burnham
Vice President

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Enclosure

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1. INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has conducted a Water and Sewer System Development Fee Study Update (Study) for Catawba County’s water and sewer systems (hereafter referred to as the “County” or “Utility”). This report presents the results of the comprehensive Study, including background information, legal requirements, an explanation of the calculation methodology employed, and the results of the analysis.

1.1 BACKGROUND

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 these costs.” NCGS 162A-201. In general, system development fees are based upon the costs of major backbone infrastructure necessary to provide service to all customers, including water supply facilities, treatment facilities, effluent disposal facilities, and transmission mains.

The County currently assesses water and sewer system development fees that are designed to recover the cost of water and sewer capacity from new connectors to each respective system. In order to comply with the new Public Water and Sewer System Development Fee Act, Session Law (S.L.) 2017-138, the County has retained the services of Stantec to calculate updated system development fees for each the water and sewer systems.

1.2 LEGAL REQUIREMENTS

The new Public Water and Sewer System Development Fee Act, S.L. 2017-138, also known as House Bill 436 (“HB 436”) became law on July 20, 2017 and grants local government entities that own or operate municipal water and wastewater systems, the authority to assess system development fees for the provision of water and sewer service to new development as defined in the legislation.

The following procedural requirements must be followed in order to adopt a system development fee:

- **Requirement 1:** The fee should be calculated in a written analysis (“SDF Analysis”) prepared by a financial professional or licensed professional engineer (qualified by experience and training or education) who employs generally accepted accounting, engineering, and planning methodologies to calculate system development fees for water and sewer systems, including the buy-in, incremental cost or marginal cost, and combined costs methods for each service; and that (1) documents the facts and data used in the analysis and their sufficiency and reliability; (2) provides analysis regarding the selection of the appropriate method of analysis; (3) documents and demonstrates reliable application of the methodology to the facts and data, including all reasoning, analysis, and interim calculations underlying each identifiable component of the system development fee; (4) identifies all assumptions and limiting conditions affecting the

analysis and demonstrates that they do not materially undermine the reliability of the conclusions reached; (5) calculates a system development fee per service unit of new development and includes an equivalency or conversion table to use in determining the fees applicable for various categories of demand; and (6) covers a planning horizon of between 10 and 20 years.

- **Requirement 2:** The SDF Analysis must be posted on the County's website, and the County must solicit comments and provide a means by which people can submit their comments, for a period of at least 45 days.
- **Requirement 3:** Comments received from the public must be considered by preparer of the SDF Analysis for possible adjustments to the analysis.
- **Requirement 4:** The County's Board of Commissioners must hold a public hearing prior to considering adoption of the SDF Analysis (including any adjustments made as part of the comments received by the County).
- **Requirement 5:** The County must publish the system development fee in its annual budget ordinance.
- **Requirement 6:** The County cannot adopt a fee that is higher than the fee calculated by the SDF Analysis.
- **Requirement 7:** The County must update the SDF Analysis at least every five years.

In addition to the procedural requirements listed above, HB 436 provides specific requirements pertaining to the calculation of the system development fees. These requirements are highlighted within the body of this report in concert with the calculation of the system development fees for the County.

1.3 OBJECTIVES

The objective of this Study is to determine the system development fees for water and sewer service based upon requirements created by the new Public Water and Sewer System Development Fee Act, S.L. 2017-138.

1.4 GENERAL METHODOLOGY

There are three primary approaches to the calculation of development fees, all of which are outlined within the new Public Water and Sewer System Development Fee Act, S.L. 2017-138. Each of the approaches are discussed below.

Buy-In Method

This approach determines the system development fees solely on the existing utility system assets. Specifically, the replacement cost of each system's major functional components serve as the cost basis for the system development fee calculation. This approach is most appropriate for a system with considerable excess capacity, such that most new connections to the system will be served by that existing excess capacity and the customers are effectively "buying-in" to the existing system.

Incremental/Marginal Cost Method

The second approach is to use the portion of each system's multi-year capital improvement program (CIP) associated with the provision of additional system capacity by functional system component as the cost basis for the system development fee calculation. This approach is most appropriate where 1) the existing system has limited or no excess capacity to accommodate growth, and 2) the CIP contains a significant number of projects that provide additional system capacity for each functional system component representative of the cost of capacity for the entire system.

Combined Cost Method

The third approach is a combination of the two approaches described above. This approach is most appropriate when 1) there is excess capacity in the current system that will accommodate some growth, but additional capacity is needed in the short-term as reflected in each system's CIP, and 2) the CIP includes a significant amount of projects that will provide additional system capacity, but does not necessarily have a sufficient number of projects in each functional area to be reflective of a total system.

Table 1-1 below summarizes each of the three methodologies and their typical application.

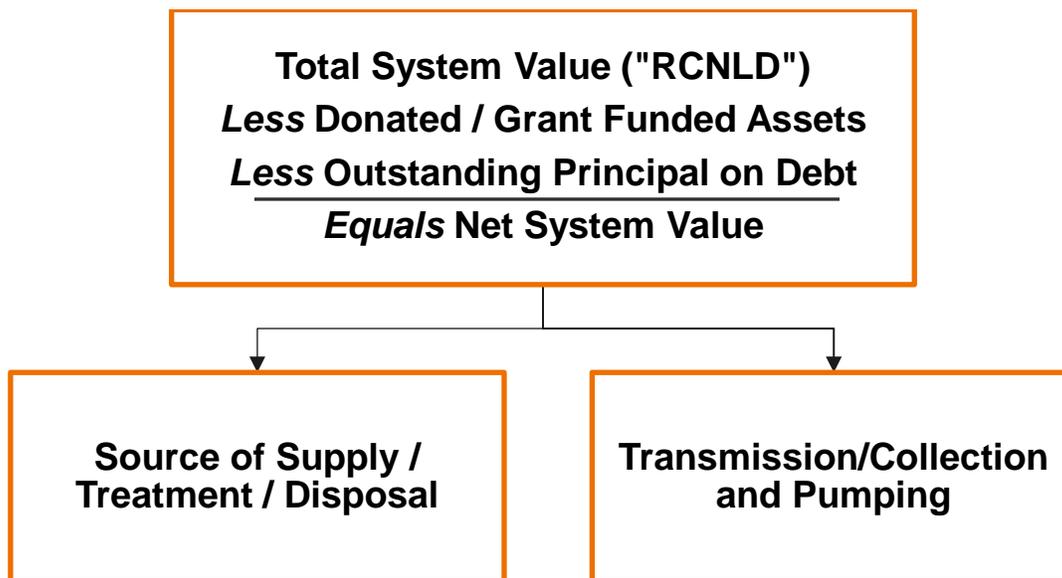
Table 1-1 Description of Methodologies & Restriction to Proceeds

Methodology / Approach:	Description:	Often Used by Systems with:
Buy-In Method	New development shares in <u>capital costs previously incurred</u> which provided capacity for demand arriving with new development needs.	Excess capacity.
Incremental / Marginal Cost	New development shares in <u>capital costs to be incurred in the future</u> which will provide capacity for demand arriving with new development needs.	Limited or no excess capacity and a CIP which will provide significant additional capacity.
Combined Cost	Combination of Buy-In and Incremental / Marginal Cost methods	Some excess capacity but short term additional capacity is needed and identified in the CIP.

Given the available capacity within the County's water and sewer systems and the limited number of projects that are currently identified within the County's water and sewer capital improvement plan, the methodology chosen for the calculation of the system development fee for each system in this Study is the Buy-In Method. This approach calculates system development fees that reflect the most current estimates of current capacity as provided by the County to accommodate new connections to the water and sewer systems. This approach will reimburse the County for the cost of its existing capacity that will be used to serve future growth.

2. BASIS OF ANALYSIS

The first step in calculating water and sewer development fees is to determine the cost basis or value for each major system (Water and Sewer) and allocate that cost to the functional components of each system as shown in the diagram below.



The net system value reflects:

- The replacement cost new less depreciation (RCNLD) of the County's existing major water and sewer system components.
- Exclusion of any donated assets and/or assets not funded by the County (Grants, Developers, etc.)
- Reduction in the form of a credit for each system's outstanding principal on debt.
- Resulting in the net system value to be used in the determination of the fee.

The following section outlines the details of the analysis completed during the Study to calculate the water and sewer system development fees.

2.1 TOTAL SYSTEM VALUE

The County provided a list of all past projects' contracts by municipality describing the details around the construction of the Utility's current assets. For each asset, Stantec worked with the County to identify original costs, useful life, year placed in service and contributions and/or grant funding. It should be noted that only costs that were ultimately incurred by the County were included in the determination of the system value. In some instances other municipalities (such as the City of Hickory) reimburse the County for a portion of the individual capital project. The portion of the capital project that has been or will be

reimbursed is not included in the cost basis used for the determination of system development fees. Stantec also worked with the County to identify each asset net book value and calculate each asset's reconstruction new less depreciation value using the Engineering New-Record's Construction Cost Index. These assets were then classified by each major system function. Schedule 1 in Appendix of this report reflects details of the calculated RCNLD for the County's existing water and sewer systems.

2.2 CREDITS

HB 436 requires that the system development fee calculations include provisions for credits against the value of the system to account for assets that were not funded by the municipality and for assets with outstanding debt liabilities. The credits included in the SDF Analysis are discussed below.

Principal on Outstanding Debt

Once the total system values were identified for each functional component, an adjustment was then made in the form of a credit for the principal of all outstanding debt that will be recovered in user fees after new customers connect to the water and/or sewer systems. Upon connection to either system, new customers will pay monthly user rates associated with the use of utility service. In addition to systems operating costs, the user rates recover the principal and interest payments associated with the debt incurred to fund the capital costs of each water and sewer system. Therefore, in order to avoid a double recovery of those capital costs in the system development fees and user rates, a credit is provided based on the total principal outstanding on debt for each of the water and sewer systems, respectively. Schedule 2 in Appendix of this report shows the annual principal amounts used in this analysis.

Contributed and Grant Funded Assets

Water and sewer system assets that were donated to the County or were funded with grants must be excluded from the system development fee calculation. As the County did not incur the cost of purchasing and/or constructing the asset, the County cannot legitimately include the costs in the system value used to determine the system development fee.

Table 2.1 presents the determination of the net system value given the credit for debt service and donated assets.

Table 2-1 Net System Values and Credits by System

System	Total System Value	Principal Outstanding	Contributions	Grants & Other	Net System Value
Water	\$31,235,347	(\$975,000)	(\$0)	(\$5,115,786)	\$25,144,561
Sewer	\$28,380,361	(\$12,613,016)	(\$82,790)	(\$3,864,249)	\$11,903,095

2.3 CAPACITIES

Once the system costs were determined and allocated to each system and its components, the next step was to determine the water and sewer system's capacities by functional cost component as stated in terms of equivalent residential units (ERUs). An ERU can be defined as the water usage or sewer flows generated within a single family home. Expressing the system capacities in terms of ERUs allows for the development of the unit pricing of capacity which is essential for the determination of system development fees. The total system capacity (treatment capacity in million gallons per day for each system) divided by the level of service in gallons per day is equal to the total number of ERUs the County can serve with its existing system capacity.



2.3.1 System Capacity

The County's water and sewer systems consist of numerous functional components such as water treatment, source of supply, transmission and storage. Each of the functional components have a physical or regulatory permitted capacity. While treatment, supply, and disposal capacities are generally accepted to be either the physical or regulatory permitted capacity of such facilities and are readily available, transmission system capacities are more difficult to quantify.

The County's water system consists primarily of water transmission and distribution assets. While the County has purchased water treatment capacity in the Hickory Water Treatment Plant not all of the County's water customers are served by this capacity (i.e. some customers are served with water from treatment plants not owned by the County). As such, it was necessary for the SDF Analysis to define the capacity in the water treatment plant separately from the water transmission system. The SDF Analysis utilized a water treatment capacity of 1.70 million gallons per day (MGD) based on the County's available average day capacity in the Hickory Water Treatment Plant. The water transmission capacity was established by determining the number of potential connections to the existing transmission system. This was determined using a front footage approach, which calculated the number of potential connections based on an average quarter acre lots size, yielding approximately 104 feet of property frontage, in a system where total linear frontage is 1,129,752 feet (includes both sides of the transmission line). Thus, 1,129,752 total linear feet ÷ 104 feet per ERU = 10,826 equivalent residential units (ERU's) or as mentioned above the equivalent of 10,826 single family homes. Schedule 3 in Appendix of this report reflects details of the transmission capacity calculations.

For the sewer capacity analysis, the capacity within the County owned wastewater treatment was determined along with the capacity within the County's collection system. The SDF Analysis utilized a sewer treatment capacity of 0.85 million MGD based on the County's available maximum month capacity in both the Hickory-Catawba Wastewater Treatment Plant (0.75 MGD) and Henry Fork Wastewater Treatment Plant (0.10 MGD). The sewer collection system capacity was determined by identifying the functional component of the sewer system which limits the system capacity. Based on discussions with County staff and the County's engineer of record (McKim & Creed) it was determined that the sewer system master lift station is the limited component of the sewer system. The total maximum month capacity of the County's master lift station is 1.50 MGD.

Table 2.2 summarizes the capacity by function used in the fee calculation for the County.

Table 2-2 System Capacity by Function

	Water Capacity (MGD)		Sewer Capacity (MGD)	
	Source of Supply/ Treatment	Transmission/ Pumping	Transmission/ Pumping	Treatment/ Disposal
Current Capacity	1.70¹	10,826 ERU's²	1.50³	0.85⁴

¹ Represents County's capacity of Hickory Treatment Plant in average day

² See Schedule 3 in the Appendix for detailed calculation

³ Represents maximum month capacity of County's master lift station

⁴ Represents County's maximum month capacity within the Hickory-Catawba and Henry Fork Treatment Plants

2.3.2 Level of Service Standards

In the evaluation of the capital facility needs for providing water and sewer utility services, it is critical that a Level of Service (LOS) standard be developed. The LOS is an indicator of the extent or degrees of service provided by, or proposed to be provided by a facility, based on and related to the operational characteristics of the facility. Level of service indicates the capacity per unit of demand for each public facility or service. Level of service standards are established to ensure that adequate facility capacity will be provided for future development and for purposes of issuing development permits.

For water and sewer service, the level of service that is commonly used in the industry is the amount of capacity allocable to an ERU expressed as the amount of usage in gallons on an average day, maximum monthly or peak day basis. This allocation would generally represent the amount of capacity allowable to an ERU, whether or not such capacity is actually used on an average day basis. As part of the Study, Stantec calculated LOS standards based on actual historical system demand data. The results were discussed between staff and Stantec and were determined to be reasonable and in conformance with generally accepted industry practices.

The County was able to provide Stantec with two years of annual historic water residential consumption and residential connections. The average of the last two years of monthly usage per residential

connection is 6,180 gallons per month, which results in an average daily usage per ERU of 206 gallons per day.

Given that sewer system capacity is defined in maximum month as discussed in section 2.3.1 System Capacity herein, Stantec applied a maximum month peaking factor of 1.2 to the identified 206 gallons per day for a level of service of 247 maximum month gallons per day. A peaking factor ratio converts average daily flow to a maximum flow. The peaking factor applied was provided by staff. The LOS identified as part of this process are shown on Table 2-3 below and further calculation details are shown in Schedule 4 of the Appendix:

Table 2-3 Level of Service by System Component

Water		Sewer	
Source of Supply / Treatment	Transmission / Pumping	Transmission / Pumping	Treatment / Disposal
206 GPD	*	247 GPD	247 GPD

*See discussion under section 2.3.1 System Capacity and Schedule 4 of Appendix for further details.

3. RESULTS

This section summarizes the results of the Study, the calculated system development fees, and conclusions and recommendations.

3.1 UPDATED SYSTEM DEVELOPMENT FEE AMOUNTS

To calculate the system development fees, the net system value described in Section 2 for each functional component was divided by the capacity for each functional component stated in ERUs to determine the cost per ERU. Schedules 5 and 6, in the Appendix provide a summary of the calculated water and sewer system development fees per ERU.

Table 3-1 provides a schedule of the existing and maximum allowable system development fees per ERU by each of the function components based upon the cost and capacity information discussed herein.

Table 3-1 Development Fee per ERU

System	Existing	Maximum Allowable		Total Calculated
		Treatment Component	Transmission Component	
Water	\$1,250	\$221	\$2,223	\$2,445
Sewer	\$1,500	\$1,136	\$1,361	\$2,497

It is important to note that the County has discretion regarding the percentage of cost recovery utilized in the establishment of the system development fees. The system development fees can recover any amount up to but not in excess of the full cost recovery amounts identified herein.

The County's current water treatment capacity is limited to the Hickory Water Treatment Plant and not all new connections will have access to this available capacity. Therefore, it is important to note that future connections to the County's water system who do not have access to the Hickory Water Treatment Plant should only be charged the transmission component of the water system development fee.

Once the system development fees per ERU were determined, it was necessary to determine how the fees should be scaled to account the capacity needs for each connection. The County's current system development fees are scaled by meter size. The use of meter size is consistent with industry standards, however the basis for the current scaling factors between meters is not clear. To provide a basis for the meter scaling, the maximum allowable fees were scaled based on the hydraulic meter equivalents established by the American Water Works Association (AWWA). Table 3-2 below presents a summary of water and sewer fees per meter size.

Table 3-2 Maximum Allowable Water & Sewer System Development Fees

Meter Size	AWWA Meter Equivalencies	Maximum Allowable Water Fee		Maximum Allowable Sewer Fee	
		Treatment Component	Transmission Component	Treatment Component	Transmission Component
5/8"	1.0	\$221	\$2,375	\$1,136	\$1,361
3/4"	1.5	\$332	\$3,335	\$1,703	\$2,042
1"	2.5	\$554	\$5,558	\$2,839	\$3,404
1 1/2"	5.0	\$1,107	\$11,116	\$5,678	\$6,807
2"	8.0	\$1,772	\$17,785	\$9,085	\$10,892
3"	15.0	\$3,332	\$33,347	\$17,035	\$20,422
4"	25.0	\$5,536	\$55,579	\$28,391	\$34,036
6"	50.0	\$11,073	\$111,157	\$56,783	\$68,072
8"	80.0	\$17,716	\$177,852	\$90,853	\$108,916

3.2 CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis presented herein, we have developed the following conclusions and recommendations:

- The system development fee analysis conducted for Catawba County and documented within this report, indicates a maximum allowable water system development fee of \$2,445 per ERU and maximum sewer system development fees of \$2,497 for Catawba County.
- The current system development fees charged by Catawba County are well below the maximum system development fees calculated as part of this Study. The County's current water fees set at approximately 49% of the maximum calculated water fee and current sewer fees set at approximately 40% of the maximum calculated sewer fee.

- We recommend that the County review its development fees at least once every 5 years to ensure that it follows requirements established by the Public Water and Sewer System Development Fee Act, S.L. 2017-138 and to ensure that they remain fair and equitable and continue to reflect its current cost of capacity. As the County continues to expand its facilities, future changes in technology, demands, development patterns, or other factors may necessitate additional adjustments to its development fees.
- We recommend that as part of any development fee update, the County also evaluate the most appropriate accepted methodology for calculating its system unit cost of capacity as system capacity may change over time.

Disclaimer

This document was produced by Stantec Consulting Services, Inc. (“Stantec”) for Catawba County and is based on a specific scope agreed upon by both parties. Stantec’s scope of work and services do not include serving as a “municipal advisor” for purposes of the registration requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) or the municipal advisor registration rules issued by the Securities and Exchange Commission. Stantec is not advising the County, or any municipal entity or other person or entity, regarding municipal financial products or the issuance of municipal securities, including advice with respect to the structure, terms, or other similar matters concerning such products or issuances.

In preparing this report, Stantec utilized information and data obtained from the County or public and/or industry sources. Stantec has relied on the information and data without independent verification, except only to the extent such verification is expressly described in this document. Any projections of future conditions presented in the document are not intended as predictions, as there may be differences between forecasted and actual results, and those differences may be material.

Additionally, the purpose of this document is to summarize Stantec’s analysis and findings related to this project, and it is not intended to address all aspects that may surround the subject area. Therefore, this document may have limitations, assumptions, or reliance on data that are not readily apparent on the face of it. Moreover, the reader should understand that Stantec was called on to provide judgments on a variety of critical factors which are incapable of precise measurement. As such, the use of this document and its findings by the County should only occur after consultation with Stantec, and any use of this document and findings by any other person is done so entirely at their own risk.

APPENDIX: SUPPORTING SCHEDULES

- Schedule 1 Asset listing and RCNLD System and Functional Allocations
- Schedule 2 Outstanding Debt Service Used in Credit Calculation
- Schedule 3 Water Transmission Capacity Calculation
- Schedule 4 Level of Service Calculation
- Schedule 5 Water Development Fee Calculation
- Schedule 6 Sewer Development Fee Calculation

Schedule 1: Asset Listing and RCNLD System and Functional Allocations

Contract # / Other Description	Asset Description	Municipality	Water / Sewer	Contract Type	Year Acquired	Original Cost	Accumulated Depreciation	Net Book Value	ENR Escalatio n Factor	RCNLD	ALLOCATION OF COSTS			
											Water System		Sewer System	
											Treatment	Transmission	Treatment	Transmission
43-14-0270	BUNKERHILL COVERED BRIDGE	CLAREMONT	WATER	Revenue Sharing	2013	\$ 322,987	\$ 25,839	\$ 297,148	1.09	\$ 322,580	\$ -	\$ 322,580	\$ -	\$ -
41-97-0054	BUNKER HILL HIGH SCHOOL	CONOVER	WATER	Revenue Sharing	1996	\$ 341,858	\$ 143,580	\$ 198,278	1.84	\$ 365,500	\$ -	\$ 365,500	\$ -	\$ -
43-98-0108	NORTH CATAWBA MIDDLE SCHOOL	CONOVER	WATER	Revenue Sharing	1998	\$ 17,540	\$ 6,665	\$ 10,875	1.75	\$ 19,036	\$ -	\$ 19,036	\$ -	\$ -
43-02-0175	KEISLER DAIRY RD WATER	CONOVER	WATER	Revenue Sharing	2001	\$ 503,596	\$ 161,151	\$ 342,445	1.63	\$ 559,598	\$ -	\$ 559,598	\$ -	\$ -
12-00-0209	OXFORD SCHOOL ROAD EXTENSION (PPI)	CONOVER	WATER	SRF Loan	1999	\$ 87,217	\$ 31,398	\$ 55,819	1.71	\$ 95,468	\$ -	\$ 95,468	\$ -	\$ -
43-10-0250	LEELAND TERRACE SUBDIVISION WATER	CONOVER	WATER	Revenue Sharing	2009	\$ 87,726	\$ 14,036	\$ 73,690	1.21	\$ 89,113	\$ -	\$ 89,113	\$ -	\$ -
43-10-0251	REMINGTON DRIVE WATER	CONOVER	WATER	Revenue Sharing	2009	\$ 28,737	\$ 4,598	\$ 24,139	1.21	\$ 29,191	\$ -	\$ 29,191	\$ -	\$ -
43-06-0392	BUNKER HILL HIGH SCHOOL SEWER (GRANT)	CONOVER	SEWER	Revenue Sharing	2006	\$ 2,249,283	\$ 494,842	\$ 1,754,441	1.34	\$ 2,345,762	\$ -	\$ -	\$ -	\$ 2,345,762
43-06-0391	OXFORD ELEMENTARY SCHOOL SEWER (part of Bunker Hill Sewer project)	CONOVER	SEWER	SRF Loan	2006	\$ 79,215	\$ 17,427	\$ 61,788	1.34	\$ 82,613	\$ -	\$ -	\$ -	\$ 82,613
43-01-0187	JAMESTOWN SUBDIVISION	HICKORY	WATER	Revenue Sharing	2000	\$ 489,468	\$ 166,419	\$ 323,049	1.67	\$ 538,162	\$ -	\$ 538,162	\$ -	\$ -
41-98-0033	BLACKBURN SCHOOL (HWY 10 SERVICE AREA)	HICKORY	WATER	Revenue Sharing	1997	\$ 485,332	\$ 194,133	\$ 291,199	1.78	\$ 518,090	\$ -	\$ 518,090	\$ -	\$ -
43-01-0264	MT. GROVE RD (GRANT)	HICKORY	WATER	Revenue Sharing	2000	\$ 660,457	\$ 224,555	\$ 435,901	1.67	\$ 726,162	\$ -	\$ 726,162	\$ -	\$ -
43-03-0399	ADVENT CROSSROADS	HICKORY	WATER	Revenue Sharing	2003	\$ 276,276	\$ 77,357	\$ 198,919	1.55	\$ 307,942	\$ -	\$ 307,942	\$ -	\$ -
43-10-0392	HEATHERBROOK SUBDIVISION	HICKORY	WATER	Revenue Sharing	2010	\$ 325,000	\$ 45,500	\$ 279,500	1.18	\$ 329,207	\$ -	\$ 329,207	\$ -	\$ -
43-10-0232	BLACKBURN-PLATEAU WATER SUPPLY (GRANT)	HICKORY	WATER	Revenue Sharing	2009	\$ 3,102,288	\$ 496,366	\$ 2,605,922	1.21	\$ 3,151,326	\$ -	\$ 3,151,326	\$ -	\$ -
43-10-0393	ROYAL HEIGHTS WATER (GRANT) Old Shelby Road Water	HICKORY	WATER	Revenue Sharing	2010	\$ 1,066,678	\$ 149,335	\$ 917,343	1.18	\$ 1,080,487	\$ -	\$ 1,080,487	\$ -	\$ -
43-13-0296	HICKORY-CATAWBA WWTP EXPANSION	HICKORY	SEWER	Debt Financing	2012	\$ 5,920,154	\$ 740,019	\$ 5,180,135	1.11	\$ 5,767,583	\$ -	\$ -	\$ 5,767,583	\$ -
3-0136 / 11-902	CLARKS CREEK/CANSLER CROSSROADS (WEST MAIDEN RD)	MAIDEN	WATER & SEWER	SRF Loan	1998	\$ 104,255	\$ 39,617	\$ 64,638	1.75	\$ 113,150	\$ -	\$ 56,575	\$ -	\$ 56,575
43-97-0158	TUTTLE MIDDLE SCHOOL	MAIDEN	WATER	Revenue Sharing	1997	\$ 349,483	\$ 139,793	\$ 209,690	1.78	\$ 373,072	\$ -	\$ 373,072	\$ -	\$ -
43-04-0052	CLARKS CREEK (GRANT)	MAIDEN	WATER	n/a	2003	\$ 100,000	\$ 28,000	\$ 72,000	1.55	\$ 111,462	\$ -	\$ 111,462	\$ -	\$ -
43-01-0295	EAST MAIDEN ROAD (GRANT)	MAIDEN	WATER	SRF Loan	2001	\$ 332,088	\$ 106,268	\$ 225,820	1.63	\$ 369,017	\$ -	\$ 369,017	\$ -	\$ -
43-11-0199	JIM BEARD/ROBINETTE/MOCKINGBI RD (CARDINAL ESTATES)	MAIDEN	WATER	Revenue Sharing	2010	\$ 72,306	\$ 10,123	\$ 62,183	1.18	\$ 73,242	\$ -	\$ 73,242	\$ -	\$ -
43-14-0209	RAMSEUR RD WATER	MAIDEN	WATER	SRF Loan	2013	\$ 22,311	\$ 1,785	\$ 20,526	1.09	\$ 22,283	\$ -	\$ 22,283	\$ -	\$ -
35-16-0281 / 43-17-0227	DAVIS RD	MAIDEN	WATER	SRF Loan	2016	\$ 210,446	\$ 4,209	\$ 206,237	1.00	\$ 206,734	\$ -	\$ 206,734	\$ -	\$ -
	AMENDMENT TO PRIOR DAVIS RD		WATER	SRF Loan	2017	\$ 30,622	\$ -	\$ 30,622	1.00	\$ 30,622	\$ -	\$ 30,622	\$ -	\$ -
41-98-0034 / 43-99-0104	BLACKBURN SCHOOL (ROUTE 10 SERVICE AREA)	NEWTON	WATER	Revenue Sharing	1997	\$ 378,127	\$ 151,251	\$ 226,876	1.78	\$ 403,649	\$ -	\$ 403,649	\$ -	\$ -
10 CONTRACT	HOSPICE FACILITY (Robinson Rd)	NEWTON	WATER		2000	\$ 20,991	\$ 7,137	\$ 13,854	1.67	\$ 23,079	\$ -	\$ 23,079	\$ -	\$ -
43-03-0061	BALLS CREEK ELEMENTARY SCHOOL (GRANT)	NEWTON	SEWER	SRF Loan	2002	\$ 56,644	\$ 16,993	\$ 39,651	1.59	\$ 62,853	\$ -	\$ -	\$ -	\$ 62,853
PART OF NEWTON CAPACITY CONTRACT	GREGORY WOOD PRODUCTS (GRANT)	NEWTON	WATER	N/A	2007	\$ 1,251,170	\$ 250,234	\$ 1,000,936	1.30	\$ 1,302,052	\$ -	\$ 1,302,052	\$ -	\$ -
	ISLAND POINT ROAD (Northview Harbour)	SECC	WATER	Revenue Sharing	2000	\$ 280,262	\$ 95,289	\$ 184,973	1.67	\$ 308,144	\$ -	\$ 308,144	\$ -	\$ -
	MOLLYS BACKBONE RD/LYNMORE DR (White Dove)	SECC	WATER	Revenue Sharing	2000	\$ 122,508	\$ 41,653	\$ 80,855	1.67	\$ 134,696	\$ -	\$ 134,696	\$ -	\$ -

Schedule 1: Asset Listing and RCNLD System and Functional Allocations

Contract # / Other Description	Asset Description	Municipality	Water / Sewer	Contract Type	Year Acquired	Original Cost	Accumulated Depreciation	Net Book Value	ENR Escalatio n Factor	RCNLD	ALLOCATION OF COSTS			
											Water System		Sewer System	
											Treatment	Transmission	Treatment	Transmission
	BEATTY RD (Anchors Landing)	SECC	WATER	Revenue Sharing	2000	\$ 277,020	\$ 94,187	\$ 182,833	1.67	\$ 304,579	\$ -	\$ 304,579	\$ -	\$ -
	SHERRILLS FORD SCHOOL	SECC	WATER	Revenue Sharing	2000	\$ 1,557,077	\$ 529,406	\$ 1,027,671	1.67	\$ 1,711,982	\$ -	\$ 1,711,982	\$ -	\$ -
	SECC WATER SUPPLY LOOP PHASE I (Hwy 150)	SECC	WATER	Revenue Sharing	2000	\$ 2,771,854	\$ 942,430	\$ 1,829,424	1.67	\$ 3,047,610	\$ -	\$ 3,047,610	\$ -	\$ -
	JOE JOHNSON RD	SECC	WATER	Revenue Sharing	2000	\$ 61,586	\$ 20,939	\$ 40,647	1.67	\$ 67,713	\$ -	\$ 67,713	\$ -	\$ -
	SHILOH RD (CDBG)	SECC	WATER	Revenue Sharing	2000	\$ 365,296	\$ 124,201	\$ 241,095	1.67	\$ 401,637	\$ -	\$ 401,637	\$ -	\$ -
	SHILOH RD (County Extension Portion)	SECC	WATER	Revenue Sharing	2000	\$ 157,700	\$ 53,618	\$ 104,082	1.67	\$ 173,389	\$ -	\$ 173,389	\$ -	\$ -
	EDGEWATER SUBDIVISION	SECC	WATER	Revenue Sharing	2000	\$ 100,000	\$ 34,000	\$ 66,000	1.67	\$ 109,948	\$ -	\$ 109,948	\$ -	\$ -
	SECC WATER SUPPLY LOOP PHASE II AND III	SECC	WATER	Revenue Sharing	2000	\$ 10,756,112	\$ 3,657,078	\$ 7,099,034	1.67	\$ 11,826,176	\$ -	\$ 11,826,176	\$ -	\$ -
	SECC WASTEWATER COLLECTION SYSTEM (Northern Section)	SECC	SEWER	Revenue Sharing	2000	\$ 7,996,620	\$ 2,718,851	\$ 5,277,769	1.67	\$ 8,792,158	\$ -	\$ -	\$ -	\$ 8,792,158
	HIGHWAY 150 SEWER (PHASE I)	SECC	SEWER	Revenue Sharing	2000	\$ 7,975,124	\$ 2,711,542	\$ 5,263,582	1.67	\$ 8,768,524	\$ -	\$ -	\$ -	\$ 8,768,524
	HIGHWAY 150 SEWER (PHASES II & III)	SECC	SEWER	Revenue Sharing	2000	\$ 2,040,198	\$ 693,667	\$ 1,346,531	1.67	\$ 2,243,166	\$ -	\$ -	\$ -	\$ 2,243,166
43-04-0447	NEWTON WASTEWATER CAPACITY (Clarks Creek Plant)	NEWTON	SEWER	Revenue Sharing	2004	\$ -	\$ -	\$ -	1.46	\$ -	\$ -	\$ -	\$ -	\$ -
43-04-0196	WASTE WATER CAPACITY	HICKORY	SEWER		2003	\$ 160,000	\$ 44,800	\$ 115,200	1.55	\$ 178,339	\$ -	\$ -	\$ 178,339	\$ -
43-04-0197	WATER CAPACITY	HICKORY	WATER	N/A	2003	\$ 1,763,425	\$ 617,199	\$ 1,146,226	1.55	\$ 1,774,450	\$ 1,774,450	\$ -	\$ -	\$ -
43-17-0225	Balls Creek Rd and Buffalo Shoals Rd	NEWTON	WATER	SRF Loan	2017	\$ 271,375	\$ -	\$ 271,375	1.00	\$ 271,375	\$ -	\$ 271,375	\$ -	\$ -
Subtotal Fixed Assets						\$ 55,628,410	\$ 16,127,491	\$ 39,500,919		\$ 59,532,918	\$ 1,774,450	\$ 29,460,897	\$ 5,945,922	\$ 22,351,649
Allocation of Indirect Costs											\$ -	\$ -	\$ -	\$ -
Total Allocated Fixed Assets											\$ 1,774,450	\$ 29,460,897	\$ 5,945,922	\$ 22,351,649

Schedule 2: Outstanding Debt Service Used in Credit Calculation

Outstanding Principal By System

	Water	Sewer
FY 2018	\$75,000	\$1,620,363
FY 2019	\$75,000	\$1,598,486
FY 2020	\$75,000	\$1,495,019
FY 2021	\$75,000	\$1,475,954
FY 2022	\$75,000	\$1,456,694
FY 2023	\$75,000	\$1,437,775
FY 2024	\$75,000	\$1,396,407
FY 2025	\$75,000	\$1,149,584
FY 2026	\$75,000	\$396,386
FY 2027	\$75,000	\$390,739
FY 2028	\$75,000	\$195,608
FY 2029	\$75,000	\$0
FY 2030	\$75,000	\$0
Total	\$975,000	\$12,613,016

Schedule 3: Water Transmission Capacity Calculation

Water

(1) Total water lines in water system (linear feet)	564,876
(2) Total line frontage (both sides of the lines - Line (1) x Line (2))	1,129,752
(3) Size of average single family lot size (in acres)	0.250
(4) Conversion of acres to square feet	43,560
(5) Size of average single family lot size (in square feet) - Line (3) x Line (4)	10,890
(6) Estimated frontage of a single family lot size - Square Root of Line (5)	104
(7) Estimated transmission capacity in number of possible connections Line (2) ÷ Line (6)	10,826

Schedule 4: Level of Service Calculation

Water

	FY 2015	FY 2016
(1) SECC System Annual Residential Usage	46,338,922	50,463,947
(2) SECC System Average Annual Residential Connections	643	662
(3) SECC System Monthly Usage Per Connection (kgal)	6.00	6.35
(4) Average Monthly Usage per ERU (kgal) - Average of Line (3)		6.18
(5) Daily Usage per ERU (gpd) - Line (4) ÷ 30 days		206

Sewer

	FY 2015	FY 2016
(1) SECC System Annual Residential Usage	46,338,922	50,463,947
(2) SECC System Average Annual Residential Connections	643	662
(3) SECC System Monthly Usage Per Connection (kgal)	6.00	6.35
(4) Average Monthly Usage per ERU (kgal) - Average of Line (3)		6.18
(5) Daily Usage per ERU (gpd) - Line (4) ÷ 30 days		206
(6) Peaking Factor		1.20
(7) Peak Usage per ERU (gpd) - Line (5) x Line (6)		247

Schedule 5: Water Development Fee Calculation

Water System Development Charge Calculation - FY 2018

Functional Component		Treatment	Transmission	Total
Plant in Service Value		\$1,774,450	\$29,460,897	\$31,235,347
Contributed & Donated Assets		\$0	\$0	\$0
Capital Improvement Costs*		\$0	\$0	\$0
Total System Value (Plant in Service & CIP)		\$1,774,450	\$29,460,897	\$31,235,347
<i>Credits:</i>				
Outstanding Principal		\$0	(\$975,000)	(\$975,000)
Grants		\$0	(\$5,115,786)	(\$5,115,786)
Contributed & Donated Assets		\$0	\$0	\$0
Net System Value		\$1,774,450	\$23,370,111	\$25,144,561
Credit as % of Total System Value				19.5%
<i>Capacity:</i>				
Million Gallons Per Day (MGD) - Treatment		1.70		
Level of Service (gpd) - Treatment		206		
Equivalent Residential Units (ERUs)**		8,257	10,826	
<i>Fee Calculation:</i>				
Calculated Cost per ERU		\$215	\$2,721	\$2,936
Credit for Debt Service Included in Usage Rates		\$0	-\$563	-\$563
Calculated Fee per ERU After Debt Service Credit		\$215	\$2,158	\$2,373
Reduction for Contingency	0.0%	\$215	\$2,158	\$2,373
Percentage of Full Cost Recovery	100.0%	\$215	\$2,158	\$2,373
Escalation Factor to Effective Year	3.0%	\$221	\$2,223	\$2,445
Maximum Allowable Fee per ERU				\$2,445
Current Fee per ERU				\$1,250
\$ Change				\$1,195
Percent Change				96%

*Buy-in approach used in this calculation does not reflect Capital Improvement costs.

** Transmission capacity reflects 1,129,752 linear feet of total frontage and estimated property size of 1/4 acre, or approximately 104 feet of frontage. See transmission calculation schedule for additional details.

Schedule 6: Sewer Development Fee Calculation

Sewer System Development Charge Calculation - FY 2018

Functional Component	Treatment	Transmission	Total
Plant in Service Value	\$5,945,922	\$22,351,649	\$28,297,571
Contributed & Donated Assets	\$0	\$82,790	\$82,790
Capital Improvement Costs*	\$0	\$0	\$0
Total System Value (Plant in Service & CIP)	\$5,945,922	\$22,434,439	\$28,380,361
<i>Credits:</i>			
Outstanding Principal	(\$2,151,688)	(\$10,461,328)	(\$12,613,016)
Grants	\$0	(\$3,864,249)	(\$3,864,249)
Contributed & Donated Assets	\$0	(\$82,790)	(\$82,790)
Net System Value	\$3,794,233	\$8,108,862	\$11,903,095
Credit as % of Total System Value			58.4%
<i>Capacity:</i>			
Million Gallons Per Day (MGD) - Treatment **	0.85	1.5	
Level of Service (gpd) - Treatment	247	247.1	
Equivalent Residential Units (ERUs) @	3,440	6,071	
<i>Fee Calculation:</i>			
Calculated Cost per ERU	\$1,728	\$3,695	\$5,423
Credit for Debt Service Included in Usage Rates	-\$625	-\$2,373	-\$2,999
Calculated Fee per ERU After Debt Service Credit	\$1,103	\$1,322	\$2,424
Reduction for Contingency	0.0%	\$1,103	\$1,322
Percentage of Full Cost Recovery	100.0%	\$1,103	\$1,322
Escalation Factor to Effective Year	3.0%	\$1,136	\$1,361
Maximum Allowable Fee per ERU			\$2,497
Current Fee per ERU			\$1,500
\$ Change			\$997
Percent Change			66%

*Buy-in approach used in this calculation does not reflect Capital Improvement costs.

** Treatment capacity limited to capacities in Hickory-Catawba Wastewater Treatment Plant and Henry Fork Wastewater Treatment Plant. Transmission capacity limited to maximum capacity in master lift station.