



# CITY OF HENDERSONVILLE BUSINESS ADVISORY COMMITTEE

City Hall – 2<sup>nd</sup> Floor Meeting Room | 160 6<sup>th</sup> Avenue E. | Hendersonville NC 28792  
Monday, October 9, 2023 – 11:30 AM

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## MINUTES

Present: Chair Ken Gordon, Jay Egolf, Vice-Chair Rebecca Waggoner, John Stevens, Chris Cormier, Sarah Cosgrove, Adam Justus

Absent: Cam Boyd, Jen Hensley, Brittany Brady

Staff Present: City Manager John Connet, City Clerk Jill Murray, Communications Manager Allison Justus, Budget Manager Adam Murr

Via Zoom: David Hyder, Stantec

### 1. CALL TO ORDER

Chairman Ken Gordon called the meeting to order at 11:31 a.m. and welcomed those present.

### 2. APPROVAL OF AGENDA

Sarah Cosgrove moved, seconded by John Stevens, to approve the agenda as presented. Motion carried unanimously.

### 3. APPROVAL OF MINUTES

Rebecca Waggoner moved, seconded by Sarah Cosgrove, to approve the minutes of July 10, 2023, as presented. Motion carried unanimously.

### 4. OTHER BUSINESS - None

### 5. NEW BUSINESS

#### A. System Development Fee Proposal & Discussion - *Adam Steurer, Utilities Director*

David Hyder of Stantec presented his final report on the Water and Sewer System Development Fee Study to the group.



City of Hendersonville, NC

Water and Sewer System Development  
Fee Study

September 6, 2023

# 1. INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has conducted a Water and Sewer System Development Fee Study (Study) for Hendersonville's water and sewer systems (hereafter referred to as the "City" 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 one-time charge paid by a new customer to recover a portion or all of the cost of constructing water and sewer system capacity. The fees can also be assessed to existing customers requiring increased system capacity. In general, system development fees are based upon the costs of current and/or future utility infrastructure including, but not limited to, water supply facilities, treatment facilities, effluent disposal facilities, and transmission mains. System development fees serve as the mechanism by which growth can "pay its own way" and minimize the extent to which existing customers must bear the cost of facilities that will be used to serve new customers.

Currently, the City does not assess system development fees and therefore does not recover the cost of providing water and sewer capacity from new connections to the utility systems. The City has retained the services of Stantec to calculate system development fees for each respective system in accordance with the North Carolina Public Water and Sewer System Development Fee Act, set forth in North Carolina General Statute 162A, Article 8 and provide recommendations developed during the study.

## 1.2 STUDY PROCESS AND ENGAGEMENT

To ensure a comprehensive and transparent study, the City devised a well-structured plan aimed at gathering input from various stakeholders, including City staff, management, elected officials, key stakeholders and interested members within the service area. To initiate the study Stantec developed and delivered a presentation outlining "System Development Fee 101." This presentation covered the purpose of the fees, the calculation methodology, potential policy considerations, and the necessary steps for their adoption. The information was initially presented at a public meeting before the Water and Sewer Advisory Council on October 24, 2022, and then presented at a City Council meeting on October 26, 2022.

The feedback and suggestions received during these meetings played a pivotal role in shaping the direction of the Study. Subsequently, the initial analysis results were shared with the Water and Sewer Advisory Council on April 24th, 2023, followed by a presentation to the City Council on April 26th, 2023. Throughout this process, the invaluable input from key stakeholders and City staff has been integrated into the Study and reflected in this report.

In addition to these key interactions, City staff took further strides to educate and inform the public about the Study. This involved briefing sessions conducted for the Business Advisory Committee on July 10th, 2023, the Water and Sewer Advisory Council on July 24th, 2023, and the City Council on August 23rd,

2023. As a result of this robust engagement effort, the Study has been able to effectively incorporate extensive input from diverse perspectives, ensuring transparency in the analysis and decision-making process. By completing the study in an open and transparent manner, the City has created an opportunity for the community to understand what system development fees would look like within the City's service area and to allow for input within the study process.

### 1.3 LEGAL REQUIREMENTS

The Public Water and Sewer System Development Fee Act ("SDF Act") was approved on July 20<sup>th</sup> 2017 and grants local government entities that own or operate municipal water and sewer systems the authority to assess system development fees for the provision of utility service to new development.

The SDF Act defines new development as any of the following occurring within 1 year of a development fee being adopted 1) subdivision of land, 2) construction or change to existing structure that increases service needs or 3) any use of land which increased service needs.

According to the SDF Act, the following procedural requirements need to 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 5 and 20 years.
- **Requirement 2:** The system development fee analysis must be posted on the City's website, and the City 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 system development fee analysis for possible adjustments to the analysis.
- **Requirement 4:** The City must hold a public hearing prior to considering adoption of the system development fees including any adjustments made as part of the comments received by the City.

- **Requirement 5:** The City must publish the system development fee schedule as part of its annual budget or fee ordinance.
- **Requirement 6:** The City cannot adopt a fee that is higher than the fee calculated by the professional analysis.
- **Requirement 7:** The City must update the system development fee analysis at least every five years.

In addition to the procedural requirements listed above, the SDF Act 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 City. Further, the City must follow the SDF Act guidance when charging the system development fee: it may be charged only to “new development” and only at the time specified in the legislation; and new development must be given a credit for costs in excess of the development’s proportionate share of connecting facilities required to be oversized for use of others outside of the development.

## 1.4 GENERAL METHODOLOGY

There are three primary approaches to the calculation of system development fees, all of which are outlined within the SDF Act. Each of the approaches are discussed below.

### *Buy-In Method*

This approach determines the system development fees solely on the existing utility system assets. The replacement cost of each system’s major functional components serves 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, or limited capital improvement program (CIP).

### *Incremental/Marginal Cost Method*

The second approach is to use the portion of each system’s multi-year 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 previous approaches described. 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 near-term as reflected in each system's CIP, and 2) the CIP includes a significant number of projects that will provide additional system capacity.

While the SDF Act allows for the use of any one of the three methodologies discussed above, it specifies restrictions on how the revenues generated by the fees calculated using each methodology may be utilized. Table 1-1 summarizes each of the three methodologies, their typical application, and restriction of how the revenues can be utilized for each.

**Table 1-1 Description of Methodologies & Restriction to Proceeds**

<b>Approach:</b>	<b>Description:</b>	<b>Fee Proceeds Allowed for:</b>
<b>Buy-In Method</b>	New development shares in <u>capital costs previously incurred</u> which provided capacity for demand arriving with new development needs.	Expansion and/or rehabilitation projects. Since the buy-in method reimburses the system for certain past investments, proceeds can be utilized for all types of capital projects.
<b>Incremental / Marginal Cost Method</b>	New development share in <u>capital costs to be incurred in the future</u> which will provide capacity for demand arriving with new development needs.	Professional services costs in development of new fees and expansion costs (construction costs, debt service, capital, land purchase, other costs etc.) related to new development only. If no capital projects in next five years can be used for debt related to existing assets.
<b>Combined Cost Method</b>	Combination of Buy-In and Incremental / Marginal Cost methods	Professional services costs in development of new fees, expansion and/or rehabilitation costs. (same as both Buy-In and Incremental/Marginal Cost methods)

Given that the City has existing, but limited, capacity within both the water and sewer systems to sell, as well as capital spending planned for projects that will increase system capacity over the next 10 years, the Combined Cost approach is the most appropriate method for the calculation of the system development fee for both the water and sewer systems. To comply with the SDF Act, the City will revisit the methodology at least every five years to determine if the approach for each system is still the most appropriate to use should the City adopt system development fees.

## 2. BASIS OF ANALYSIS

Using the Combined Cost approach requires a Buy-In calculation and an Incremental/Marginal Cost calculation. The following outlines the process to determine the net value (cost basis) for each (water and sewer) system under the Combined Cost approach.

- 1) The City's existing major water and sewer system components assets are analyzed to determine the replacement cost if new less depreciation (RCNLD).
- 2) Any non-core system assets are excluded from the existing system value including items such as vehicles, meters, computer equipment and other non-core system assets.
- 3) Addition of spending on growth-related capital projects over the next 10 years as identified in the City's official Capital Improvement Plan (CIP). This includes projects designated to add new capacity to the system, whether partially or entirely.
- 4) Any donated assets and/or assets not funded by the City (funded by grants, developers, etc.) are removed from the net system value (both existing assets and future within the capital improvement plan).
- 5) The net value of the water and sewer systems is further reduced by the outstanding principal on existing debt and the net present value of future debt over the planning period for each system to provide a revenue credit (the revenue credit must be equal to at least 25% of the cost of the expansion related projects).
- 6) The resulting net system value is used in the determination of the system development fee using capacity and level of service standards.

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

### 2.1 BUY-IN NET SYSTEM VALUE

The City provided an asset inventory which included description, asset category/class, year placed in service, original cost, and useful life for each asset through FY 2022 for both the water and sewer systems. Each asset was classified by each major system function; and a replacement cost new less depreciation was calculated using the data provided by the City and the Engineering News Record Construction Cost Index.

The SDF Act 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. Assets that were identified to be contributed or paid for by developers and those that were grant funded were excluded from the overall results to determine the net asset value of each system. In addition to donated assets, non-core system assets are also excluded from the determination of the net asset value of each system. These include meters, vehicles, equipment, computers, and others. Results of the net asset value for the City's

existing water and sewer systems based upon the asset records provided by City staff are shown in Tables 2-1 and 2-2.

**Table 2-1 Replacement Cost New, Less Depreciation: Water System**

<b>Asset Category</b>	<b>RCNLD Value</b>	<b>Less Contributed Assets / Non-Core Asset</b>	<b>Net Asset Value</b>
Treatment	\$33,999,901	(\$584,317)	\$33,415,584
Supply & Pumping	\$1,827,398	(\$634,985)	\$1,192,413
Storage	\$7,314,728	(\$944,372)	\$6,370,356
Transmission & Distribution	\$53,351,047	(\$8,015,903)	\$45,335,144
<b>Total</b>	<b>\$96,493,074</b>	<b>(\$10,179,577)</b>	<b>\$86,313,497</b>

**Table 2-2 Replacement Cost New, Less Depreciation: Sewer System**

<b>Asset Category</b>	<b>RCNLD Value</b>	<b>Less Contributed Assets / Non-Core Asset</b>	<b>Net Asset Value</b>
Treatment	\$28,145,176	(\$63,282)	\$28,081,894
Pumping	\$343,488	(\$332,065)	\$11,423
Conveyance & Collection	\$35,459,106	(\$2,297,880)	\$33,161,226
<b>Total</b>	<b>\$63,947,771</b>	<b>(\$2,693,227)</b>	<b>\$61,254,544</b>

## 2.2 INCREMENTAL/MARGINAL COST NET SYSTEM VALUE

The City provided the Adopted FY2023 Capital Improvements Plan (CIP) which covers a 10-year period and totals \$294.2 million. The CIP included the project description, total spending, and an indication of whether the project was designated for expansion or rehabilitation. To calculate the Incremental/Marginal Cost approach, all expansion-related projects that would increase capacity and support growth were identified. This totaled \$182 million and included several water and sewer system projects, as well as expansions to both water and sewer treatment plants.

The water system CIP includes several projects that will expand the water system's capacity over the next 10 years at a total cost of \$108.5 million. This includes expansion to the existing water treatment facility, transmission and distribution improvements, and a new intake and pumping station. Expansion related capital projects for the water system are shown in Table 2-3.

**Table 2-3 Expansion Related Capital Projects for the Water System**

Project	Function	CIP Costs
French Broad Raw Water Intake #16007	Supply and Pumping	\$24,514,035
Water Distribution Master Plan Update #22012	Transmission & Distribution	\$425,000
WTP Expansion to 15.0 MGD #19207	Treatment	\$2,131,500
NCDOT 191 #16126	Transmission & Distribution	\$12,700,000
NCDOT HWY 64 #18140 <sup>(1)</sup>	Transmission & Distribution	\$680,000
Eastside Transmission Main, Phase 2 and 3	Transmission & Distribution	\$9,860,000
Upward Road Water Main Upgrade	Transmission & Distribution	\$1,010,000
Dana Rd. Water Main Extension	Transmission & Distribution	\$2,210,000
Airport Rd. - Water	Transmission & Distribution	\$720,000
East Campus Road	Transmission & Distribution	\$1,140,000
Pace Rd. Water Main Extension and Interconnect	Transmission & Distribution	\$1,710,000
S. Rugby Road Water Main Interconnect	Transmission & Distribution	\$2,850,000
Howard Gap Rd. Water Extension Mid	Transmission & Distribution	\$2,550,000
Howard Gap Rd. Water Extension North End	Transmission & Distribution	\$1,560,000
Southside Water System Improvements	Transmission & Distribution	\$4,090,000
Fruitland Rd. Water Main Extension	Transmission & Distribution	\$2,650,000
S. Mills Gap Rd. Water Main Extension	Transmission & Distribution	\$1,860,000
WTP Expansion to 18.0 MGD	Treatment	\$35,830,000
<b>Total Expansion Costs</b>		<b>\$108,490,535</b>

(1) During discussions with City staff NCDOT HWY 64 #18140 project was allocated 50% to water and 50% to sewer.

The City currently has several planned capital projects that will expand the capacity of the sewer system at a total cost of approximately \$74.0 million. Table 2-4 identifies each of the projects that are included in the analysis for the sewer system.

**Table 2-4 Expansion Related Capital Projects for the Sewer System**

Project	Function	Growth Related CIP Costs
Mud Creek Interceptor #18032	Collection & Conveyance	\$8,802,000
WWTP Headworks and Flow Equalization <sup>(1)</sup>	Treatment	\$11,355,769
Sewer Collection System Master Plan Update	Collection & Conveyance	\$220,000
WWTP Tertiary Filter Replacement Phase 2	Treatment	\$270,000
NCDOT HWY 64 #18140	Collection & Conveyance	\$680,000
Wash Creek Replacement Sewer G08	Collection & Conveyance	\$3,720,000
Devils Fork Sewer Replacement G05	Collection & Conveyance	\$2,790,000



Project	Function	Growth Related CIP Costs
WWTP Aeration Basin Modification	Treatment	\$2,125,000
WWTP 7.8 MGD Facility Expansion	Treatment	\$44,000,000
<b>Total Expansion Costs</b>		<b>\$73,962,769</b>

(1) Growth related portion represents 38% of the total cost of project as reminder of project is rehabilitation of existing capacity.

The SDF Act requires that the total project costs be reduced by a revenue credit equal to a minimum of 25 percent of the cost of the capital projects included in the analysis when the Incremental/Marginal Cost is utilized. The SDF Act "Minimum Requirements" allow for the credit to be determined by "either the outstanding debt principal or the present value of projected water and sewer revenues received by the local government unit for the capital improvements." For this Study, the revenue credit was determined by removing the net present value of debt principal for the cost of the future capital projects that the City plans to finance over the 10-year CIP planning period. Specifically, of the \$182 million in expansion costs the City plans to finance approximately \$179 million. The net present value was determined assuming a 3 percent discount rate. Table 2-5 presents the determination of the net system value given the revenue credit for future debt service.

**Table 2-5 Net System Value including Revenue Credits**

	Water	Sewer
Total Expansion Costs	\$108,490,535	\$73,962,769
Net Present Value of Principal Over Planning Period	(\$50,533,085)	(\$34,450,627)
Additional Credit to Achieve 25%	(\$ - )	(\$ - )
<b>Net System Value</b>	<b>\$57,957,450</b>	<b>\$39,512,143</b>

## 2.3 SYSTEM CAPACITY

### 2.3.1 Existing System Capacity

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

As such, it is common to define the capacity for all functional components (including the transmission or conveyance facilities) based on the system's total treatment capacity. This approach was utilized for the determination of the capacities of the City's utility systems. The rationale behind this decision is that even

if the pumping or transmission/conveyance portion of either system is larger than that system’s treatment capacity, the maximum capacity the system can offer to its connections is its total treatment capacity.

For the City’s water system, the City owns and operates the Hendersonville Water Treatment Facility (WTF). While permitted for a capacity of 12.0 million gallons per day (MGD), on average it currently treats and produces 7.575 MGD of water from the Pisgah National Forest and Mills River. Based on discussions with City staff, the capacity of 12.0 MGD was assumed for the system development fee analysis. Total existing maximum day water system capacity used in the system development fee analysis is 12.0 MGD.

For the City’s sewer system, the City owns and operates the Hendersonville Wastewater Treatment Facility (WWTF) that has a capacity of 4.8 MGD. The WWTF currently treats an average influent flow of 3.0 MGD. At the time the new facility was constructed it was designed with a capacity of 4.8 MGD, but can be expanded up to 6.0 MGD in the future. A capacity of 4.8 MGD was used as the existing sewer system capacity for the system development fee analysis.

**2.3.2 Added System Capacity**

The expansion related capital improvement projects identified in the City’s CIP will all add capacity to the City’s water and sewer systems.

The water system capital projects will increase the City’s water system capacity to 18.0 MGD, an incremental change of 6.0 MGD. This includes expansion to existing Water Treatment Facility, French Broad River intake and pumping station for added capacity. For the sewer system, the projects associated with the City’s Wastewater Treatment Facility Master Plan will provide the WWTF with 3.0 MGD of incremental capacity in addition to rehabilitation and flow equalization of the WWTF Headworks bringing the total sewer capacity to 7.8 MGD after the future expansion. Table 2-6 summarizes the capacity by function used in the Combined Cost system development fee calculations. As shown in the table, the water treatment and sewer treatment capacities are assumed to be the limited factors within the systems and therefore the transmission/distribution and conveyance/collection capacities are assumed to be the same as the treatment capacities.

**Table 2-6 System Capacity by Function**

	Water Capacity (MGD)		Sewer Capacity (MGD)	
	Water Treatment	Transmission/ Distribution	Sewer Treatment	Conveyance / Collection
Current Capacity	12.0	12.0	4.8	4.8
Capacity Expansion	6.0	6.0	3.0	3.0
<b>Total System Capacity</b>	<b>18.0</b>	<b>18.0</b>	<b>7.8</b>	<b>7.8</b>

## 2.4 COMBINED COST CALCULATION

As previously stated, the Combined Cost approach includes the net system assets in addition to the net capital project costs to reach the total system value of the utility. Table 2-7 summarizes the Combined Cost calculation for both the water and sewer system development fee calculation. It also provides the cost per gallon per day for system capacity based on the total capacity within each system.

**Table 2-7 Combined Approach Cost per Gallon**

	<b>Water</b>	<b>Sewer</b>
RCNLD Value of Existing Assets	\$96,493,074	\$63,947,771
Expansion Capital Projects	\$108,490,535	\$73,962,769
<b>Total Value</b>	<b>\$204,983,609</b>	<b>\$137,910,540</b>
<i>Less Credits</i>		
Outstanding Debt Principal	(\$18,058,384)	(\$14,648,017)
Donated Assets / Non-Core Assets	(\$10,179,577)	(\$2,693,227)
Revenue Credit (NPV of future debt principal over planning period)	(\$50,533,085)	(\$34,450,627)
Additional credit to meet 25% requirement	(\$ - )	(\$ - )
<b>Net System Value</b>	<b>\$126,212,563</b>	<b>\$86,118,669</b>
<b>System Capacity - Gallons per Day</b>	<b>18,000,000</b>	<b>7,800,000</b>
<b>Cost per Gallon Per Day</b>	<b>\$7.01</b>	<b>\$11.04</b>

## 2.5 LEVEL OF SERVICE STANDARDS

Once the unit cost of capacity is determined the system development fees can be calculated by applying the unit cost to the estimated units of service required by new customers joining the water and/or sewer system. The estimated units of service must be calculated consistent with the methodology that is used to charge the system development fees. For example, some utilities charge system development fees for all property types based on the size of the meter serving the property. While this approach is simple it does not necessarily reflect the demands (units of service) associated with the various categories of users connecting to the utility. Based on discussions with City staff, we are recommending an approach that more closely aligns the units of service and the actual use demonstrated by City customers. Specifically, we have evaluated the units of service based on average use by household size (heated square feet) for single family residential customers, per unit for multi-family, per mobile home and based on meter size for non-residential customers.

To evaluate units of service, Stantec worked with City staff to review detailed customer usage data to calculate the average day use in gallons per day by residential housing size. The use by household size for existing City customers demonstrated a significant correlation between the amount of water used and the size of the homes heated area. The average use for multi-family customers on a per unit basis was

also examined as part of the study. A system-wide peaking factor of 1.5 was applied to provide the maximum day demand for each household size, multi-family unit and non-residential customer. The peaking factor is based on historical data and is used for water system planning purposes. The results are for residential customers are shown in Table 2-8. It should be noted that the average usage for single family homes for all household sizes is 136 gallons per day.

**Table 2-8 Residential Units of Service - Water**

Property Type	Average Usage (gpd)	Peaking Factor	Max Day Units of Service (gpd)*
Single Family (Heated sq. ft.)			
<1,000	118	1.50	178
1,000 - 1,500	127	1.50	190
1,501 - 2,000	129	1.50	194
2,001 - 2,500	137	1.50	206
2,501 - 3,000	143	1.50	214
3,001 - 3,500	153	1.50	230
3,501 - 4,000	164	1.50	246
Over 4,000	189	1.50	284
Multi-Family per unit	85	1.50	128
Mobile Homes	133	1.50	200

\* Resulting units of service used to determine water system development fee for each property type

For the sewer system, a level of service was established based on the minimum design flow standards outlined by the North Carolina Department of Environmental Quality (NCDEQ) in 15A NCAC 02T .0114. For planning purposes, the City must assume 120 gpd per bedroom with a minimum of two bedrooms. As a result, the study assumes a sewer level of service per equivalent residential unit (ERU) of 240 gpd. To convert the level of service to the individual household sizes and per multi-family unit the ratios of the units of service for the water system were applied to the 240 gpd standard. Table 2-9 reflects the calculations and the resulting units of service for each property type.

**Table 2-9 Residential Units of Service - Sewer**

Property Type	Water Use* Ratios	Units of Service (gpd)**
Single Family (Heated sq. ft.)		
<1,000	87%	209
1,000 - 1,500	93%	223
1,501 - 2,000	95%	228
2,001 - 2,500	101%	242
2,501 - 3,000	105%	252
3,001 - 3,500	113%	271
3,501 - 4,000	121%	289

Property Type	Water Use* Ratios	Units of Service (gpd)**
Over 4,000	139%	334
Multi-Family per unit	63%	150
Mobile Homes	98%	235

\*Ratio comparing average residential single family customer demand

\*\*Resulting units of service used to determine sewer system development fee for each property type

The units of service for non-residential customers are based on demand by meter size. Specifically, the non-residential average use for a 3/4" meter was calculated based on an average usage per account for all non-residential customers with this size meter. This base demand is then scaled up for each meter size based on the American Water Works Association (AWWA) meter equivalency factors. A consistent system-wide peaking factor is applied for all meter sizes as mentioned above. The determination of the maximum day use by each meter size is shown in Table 2-10.

**Table 2-10 Non-Residential Units of Service - Water**

Meter Size	Meter Equivalency	Equivalent Use (gpd)	Max Day Peak Factor	Max Day Units of Service (gpd)*
3/4"	1.00	237	1.50	356
1"	1.67	395	1.50	593
1.5"	3.33	790	1.50	1,185
2"	5.33	1,264	1.50	1,896
3"	11.67	2,765	1.50	4,148
4"	21.00	4,977	1.50	7,466
6"	43.33	10,270	1.50	15,405
8"	93.33	22,120	1.50	33,180
10"	140.00	33,180	1.50	49,770

\* Resulting units of service used to determine water system development fee for meter size

The sewer system units of service for non-residential customers are based on a similar analysis as the water system. The water use ratio (single family water use compared to non-residential use) for the 3/4" metered non-residential customer was determined to be 1.74. This factor was applied to the per ERU planning standard of 240 gpd resulting in the units of service of 418 gpd for a 3/4" non-residential customer. The units of service for non-residential sewer customers are shown in Table 2-11.

**Table 2-11 Non-Residential Units of Service - Sewer**

Meter Size	Meter Equivalency	Units of Service (gpd)*
3/4"	1.00	418
1"	1.67	697
1.5"	3.33	1,394
2"	5.33	2,231

Meter Size	Meter Equivalency	Units of Service (gpd)*
3"	11.67	4,879
4"	21.00	8,783
6"	43.33	18,124
8"	93.33	39,035
10"	140.00	58,553

\*Resulting units of service used to determine sewer system development fee for each property type

### 3. RESULTS

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

#### 3.1 CALCULATED WATER AND SEWER SYSTEM DEVELOPMENT FEES

To calculate the system development fees, the total unit cost per gallon for capacity described in Section 2 is multiplied by the units of service associated with each of the categories of customers described in the prior section of this report. Tables 3-1 and 3-2 provide a schedule of the calculated water and sewer system development fees respectively based upon the cost and capacity information discussed in the Study.

**Table 3-1 Calculated Residential Water and Sewer Development Fees**

Property Type	Water	Sewer	Combined
Residential – Individually Metered (Heated sq. ft.)			
<1,000	\$1,247	\$2,309	\$3,555
1,000 - 1,500	\$1,332	\$2,466	\$3,797
1,501 - 2,000	\$1,359	\$2,517	\$3,876
2,001 - 2,500	\$1,443	\$2,672	\$4,115
2,501 - 3,000	\$1,500	\$2,778	\$4,278
3,001 - 3,500	\$1,613	\$2,987	\$4,600
3,501 - 4,000	\$1,724	\$3,193	\$4,918
Over 4,000	\$1,992	\$3,689	\$5,681
Multi-Family per-unit Master-Metered	\$894	\$1,656	\$2,551
Mobile Homes per unit Master Metered Park	\$1,399	\$2,592	\$3,991

It should be noted that for implementation purposes, we recommend that duplexes and individually-metered townhomes, mobile homes and condominiums be assessed the system development fees based on the heated square footage of the residential unit in the same manner as single family residential properties.

**Table 3-2 Calculated Non-Residential Water and Sewer System Development Fees**

Meter Size	Water	Sewer	Combined
3/4"	\$2,494	\$4,618	\$7,112
1"	\$4,156	\$7,697	\$11,853
1.5"	\$8,312	\$15,393	\$23,706
2"	\$13,300	\$24,629	\$37,929
3"	\$29,093	\$53,877	\$82,970

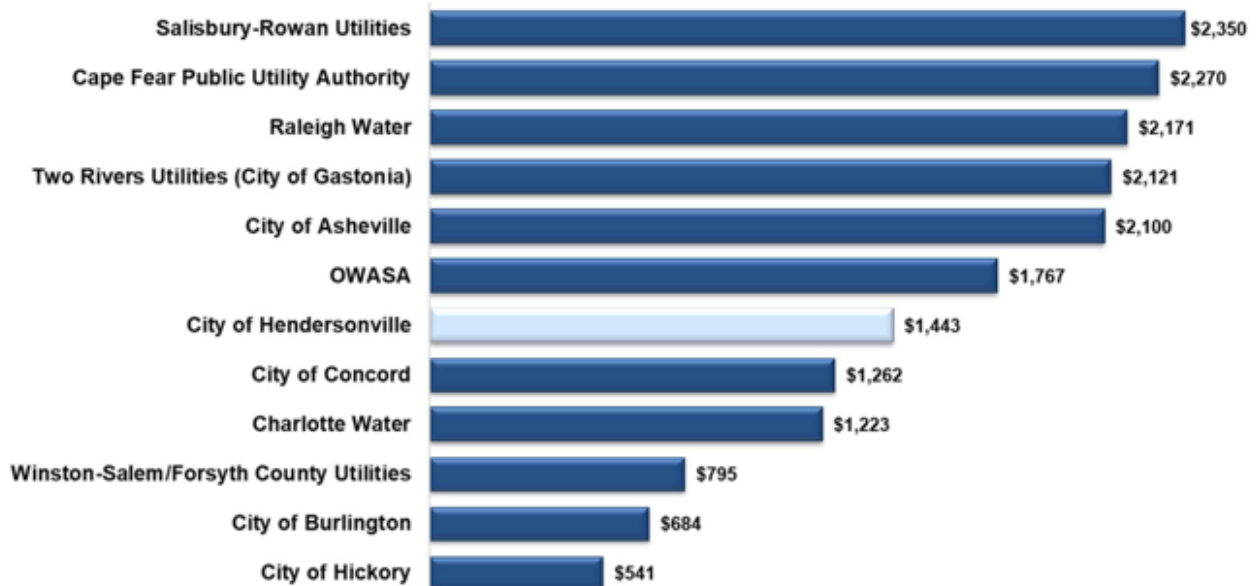
Meter Size	Water	Sewer	Combined
4"	\$52,368	\$96,978	\$149,347
6"	\$108,062	\$200,114	\$308,176
8"	\$232,748	\$431,015	\$663,763
10"	\$349,122	\$646,522	\$995,644

It is important to note that the City 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 for the calculated system development fees.

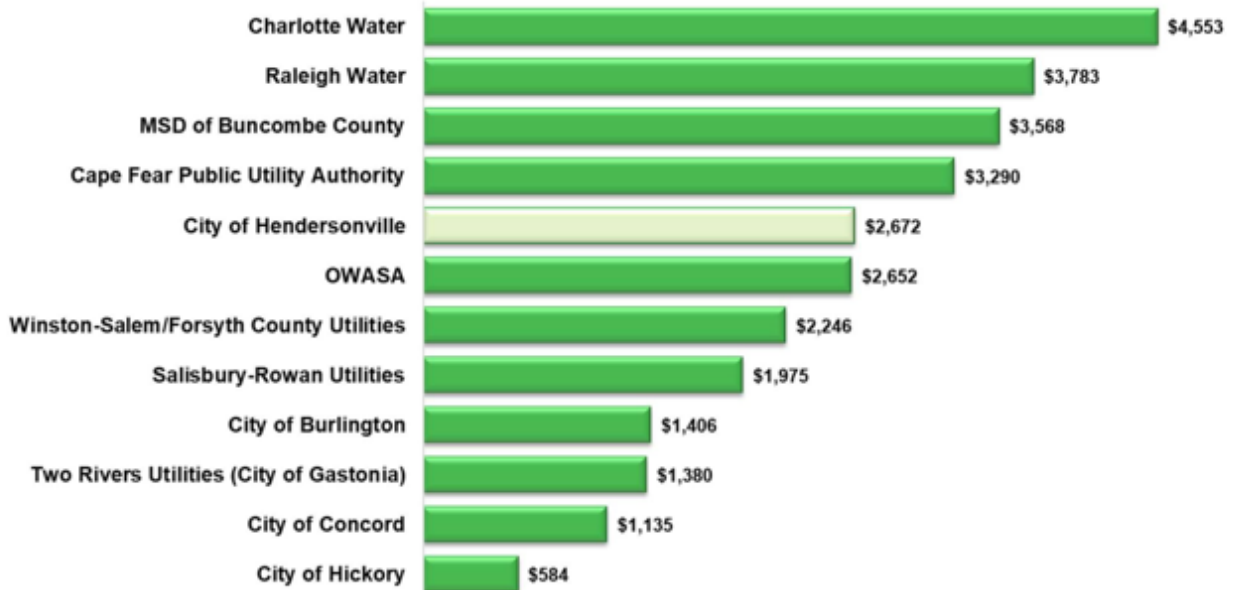
### 3.2 SYSTEM DEVELOPMENT FEE BENCHMARKING

System development fees are commonly adopted by utilities in North Carolina given the enabling legislation. A survey of current system development fees for surrounding and comparable utilities was completed to benchmark the calculated system development fees for the City. It is important to note that the system development fees used in the benchmarking are based on the fees that are currently in place as of the writing of this report. Since the enabling legislation requires an update of the fees every five years, many of the utilities are currently engaged with consultants to update the fees. The following figures present the results of the benchmarking.

**Figure 3.1 - Water System Development Fees (Residential 2,100 Sq. Ft.)**



**Figures 3.2 - Sewer System Development Fees (Residential 2,100 Sq. Ft.)**



The benchmarking results demonstrate that the calculated fees are comparable with the benchmarked utilities current system development fees.

### 3.3 CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis presented herein, Stantec has developed the following conclusions and recommendations:

- 1) We recommend that the City adopt the calculated water and sewer system development fees as demonstrated in Tables 3-1, and 3-2. This will allow the City to recover a portion of the cost of providing water and sewer capacity from new connections joining the system.
- 2) We recommend that following the adoption of system development fees, the fees be collected from all new connections consistent with the required within the SDF Act outlined below:
  - For new development involving the subdivision of land, the system development fee shall be collected at the later of either of the following: (1) The time of application for a building permit. (2) When water or sewer service is committed by the City.
  - For all other new development, the fees should be collected at the earlier of either of the following: (1) The time of application for connection of the individual unit of development to the service or facilities. (2) When water or sewer service is committed by the City.
- 3) We recommend that the City review its development fees at least every five years to ensure that it follows requirements established by the SDF Act and to ensure that they remain fair and equitable and continue to reflect its current cost of capacity. As the City continues to expand its facilities,



future changes in technology, demands, development patterns, or other factors may necessitate additional adjustments to its development fees.

- 4) We recommend that as part of any system development fee update, the City also evaluates the most appropriate accepted methodology for calculating its system unit cost of capacity as system capacity may change over time.

## **Disclaimer**

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*In preparing this report, Stantec utilized information and data obtained from the city 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 city 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.*



## Schedule 4: Capacity Summaries

### Water System Capacity

Treatment		
Water Treatment Plants	Existing Capacity (MGD)	Incremental Capacity (MGD)
Existing Capacity Expansion to 18	12.00	6.00
	12.00	6.00

### Sewer System Capacity

Treatment		
Wastewater Treatment Plants	Capacity (MGD)	Incremental Capacity (MGD)
Existing Capacity Expansion to 7.8	4.80	3.00
	4.80	3.00

Supply and Pumping		
	Capacity (MGD)	Incremental Capacity (MGD)
	12.00	6.00
	12.00	6.00

Pumping		
	Capacity (MGD)	Incremental Capacity (MGD)
	4.80	3.00
	4.80	3.00

Transmission & Distribution		
	Capacity (MGD)	Incremental Capacity (MGD)
	12.00	6.00
	12.00	6.00

Collection & Conveyance		
	Capacity (MGD)	Incremental Capacity (MGD)
	4.80	3.00
	4.80	3.00

## Schedule 5: Water System Development Fee - Combined

Functional Component:	Treatment / Supply / Pumping	Transmission and Distribution	Total
Gross Plant in Service Value	\$35,827,300	\$60,665,774	\$96,493,074
Total Expansion Capital Projects	\$63,485,535	\$45,005,000	\$108,490,535
Combined System Value	\$99,312,835	\$105,670,774	\$204,983,609
<b>Less:</b>			
Principal Credit (Outstanding Debt)	\$ 6,704,970	\$ 11,353,414	\$ 18,058,384
Specific Asset Contributions/Exclusions	1,219,302	8,960,275	10,179,577
General Allowance for Asset Contributions/Exclusions	-	-	-
Grants (Historical and Future)	-	-	-
Revenue Credit (Principal Future Debt during Planning Period)	29,570,505	20,962,580	50,533,085
Additional credit to meet 25% requirement	-	-	-
<b>Net System Value</b>	<b>\$ 61,818,058</b>	<b>\$64,394,506</b>	<b>\$126,212,563</b>
Revenue Credit % Used in Fee Calculation			46.58%
<b>Cost per Gallon:</b>			
Capacity	18.00	18.00	
<b>Unit Cost per Gallon:</b>	<b>\$3.43</b>	<b>\$3.58</b>	<b>\$7.01</b>

**Schedule 6: Sewer System Development Fee - Combined**

Functional Component:	Treatment and Storage	Collection Conveyance and Pumping	Total
Gross Plant in Service Value	\$28,145,176	\$35,802,595	\$63,947,771
Total Expansion Capital Projects	\$57,750,769	\$16,212,000	\$73,962,769
Gross System Value	\$85,895,945	\$52,014,595	\$137,910,540
Less:			
Principal Credit	\$ 6,446,996	\$ 8,201,021	\$ 14,648,017
Specific Asset Contributions/Exclusions	63,282	2,629,945	2,693,227
General Allowance for Asset Contributions/Exclusions	-	-	-
Grants (Historical and Future)	-	-	-
Revenue Credit (Principal Future Debt during Planning Period)	26,899,347	7,551,280	34,450,627
Additional credit to meet 25% requirement	-	-	-
<b>Net System Value</b>	<b>\$ 52,486,320</b>	<b>\$ 33,632,349</b>	<b>\$ 86,118,669</b>
Revenue Credit % Used in Fee Calculation			46.58%
Cost per Gallon:			
Capacity	7.80	7.80	
<b>Unit Cost per Gallon:</b>	<b>\$6.73</b>	<b>\$4.31</b>	<b>\$11.04</b>

**Schedule 7: Fee Summary**

Water			Sewer			Combined	
<b>Residential</b>			<b>Residential</b>			<b>Residential</b>	
Single Family (Heated Sq. Ft.)	Max Day Flow (gpd)	Calculated System Development Fee	Single Family (Heated Sq. Ft.)	Planning Flow (gpd)	Calculated System Development Fee	Single Family (Heated Sq. Ft.)	Calculated System Development Fee
<1000	178	\$1,247	<1000	209	\$2,305	<1000	\$3,552
1,000 - 1,500	190	\$1,332	1,000 - 1,500	223	\$2,468	1,000 - 1,500	\$3,797
1,501 - 2,000	194	\$1,358	1,501 - 2,000	228	\$2,517	1,501 - 2,000	\$3,876
2,001 - 2,500	206	\$1,443	2,001 - 2,500	242	\$2,672	2,001 - 2,500	\$4,115
2,501 - 3,000	214	\$1,500	2,501 - 3,000	252	\$2,778	2,501 - 3,000	\$4,278
3,001 - 3,500	230	\$1,613	3,001 - 3,500	271	\$2,987	3,001 - 3,500	\$4,600
3,501 - 4,000	246	\$1,724	3,501 - 4,000	289	\$3,193	3,501 - 4,000	\$4,918
4,000+	284	\$1,992	4,000+	334	\$3,688	4,000+	\$5,681
Multi-Family per-unit Master Metered	128	\$894	Multi-Family per-unit Master Metered	150	\$1,656	Multi-Family per-unit Master Metered	\$2,551
Mobile Homes	200	\$1,398	Mobile Homes	235	\$2,592	Mobile Homes	\$3,991
<b>Non-Residential</b>			<b>Non-Residential</b>			<b>Non-Residential</b>	
Meter Size	Max Day Flow (gpd)	Calculated System Development Fee	Meter Size	Planning Flow (gpd)	Calculated System Development Fee	Meter Size	Calculated System Development Fee
3/4"	356	\$2,494	3/4"	418	\$4,618	3/4"	\$7,112
1"	593	\$4,158	1"	697	\$7,697	1"	\$11,853
1.5"	1,185	\$8,312	1.5"	1,394	\$15,393	1.5"	\$23,708
2"	1,898	\$13,300	2"	2,231	\$24,629	2"	\$37,528
3"	4,148	\$29,093	3"	4,879	\$53,877	3"	\$82,970
4"	7,468	\$52,968	4"	8,783	\$98,978	4"	\$149,347
6"	15,405	\$108,062	6"	18,124	\$200,114	6"	\$308,176
8"	33,180	\$232,748	8"	39,035	\$431,015	8"	\$663,763
10"	49,770	\$345,122	10"	58,553	\$648,522	10"	\$995,644

Ken Gordon moved, seconded by John Stevens, to not move forward with the system development fees. Motion carried 5-2 to not move forward with System Development Fees. Adan Justus and Jay Egolf were nays.

**B. November 20, 2023 Special Meeting – John Connet, City Manager**

City Manager John Connet proposed that the Committee have a special called meeting on Monday, November 20, 2023, to go over the Gen H Comprehensive Plan with the consultants who have been working on it. Sarah Cosgrove moved to have the special called meeting on November 20, 2023. Motion carried unanimously.

**6. OTHER BUSINESS – None**

## 7. ADJOURNMENT

Rebecca Waggoner moved to adjourn. There being no further discussion the meeting was adjourned at 12:55 p.m. upon unanimous assent of the Committee.

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Ken Gordon, Chair

ATTEST:

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Jill Murray, City Clerk