



SYSTEM DEVELOPMENT FEE & COST RECOVERY PLAN INFRASTRUCTURE MASTER PLANNING COLUMBUS COUNTY, NORTH CAROLINA November 2023

Columbus County System Development Fee Plan

Purpose of the Report

Green Engineering was commissioned by the Columbus County Board of Commissioners to analyze its Utility Assets and create a Water System Development Fee (SDF) schedule. This action was initiated as a result of new growth that is now impacting the County's existing infrastructure capacity. This new demand for existing system components will exceed the current 20-year plan and require additional assets essential to meet the new anticipated demand without creating a negative impact on existing customers.

The development of a fee schedule is very timely with the recent passage of the North Carolina House Bill 436 (HB 436). Many utilities across the state have engaged in adopting fees to generate new revenue sources essential to cover the impact of new growth on existing utility facilities. The bill was ratified to address inconsistencies among public water and sewer providers including calculation methodologies and implementation.

This Bill provides specific guidelines that public water and sewer providers must follow to charge SDFs effective October 1, 2017. The law provided a grace period through July 1, 2018 for public providers to update fees in accordance with the new procedures and conditions.

Since the County of Columbus is now considering fee assessments, it is appropriate that it follow the newly adopted Act 162A, Article 8 which is defined as:

“AN ACT TO PROVIDE FOR THE UNIFORM AUTHORITY TO IMPLEMENT SYSTEM DEVELOPMENT FEES FOR PUBLIC WATER AND SEWER SYSTEMS IN NORTH CAROLINA AND TO CLARIFY THE APPLICABLE STATUTE OF LIMITATIONS.”

This Act was established upon the ratification of House Bill 436. Therefore, it should be the intent of the County to be consistent with this law. The North Carolina General Assembly amended this statute in 2019 (HB 873) with new changes relative to when these SDF's can be charged and collected.

Background

According to the University of North Carolina Environmental Finance Center's 2020 survey, about 39 % of water and 44% of sewer rate structures charge SDFs in North Carolina. A little less than 80% of the SDFs charged are either by meter size or are fixed. These fees vary due to system age, debt, grants, and other credits.

Research

Green Engineering reviewed the latest available fixed asset information and debt service costs provided as of the June 30, 2022, annual audit to determine the cost of capacity for the County. Certain assumptions were made in developing this analysis that were necessary to establish appropriate fee levels for the different types of customers based on equivalent residential units.

Green Engineering referred to the guidance as provided in the American Water Works Association (AWWA) System Buy-In approach. This analysis documents the results of the various analyses and the engineer's recommendations for implementing SDFs to be charged to new customers connecting to the County's water systems.

Application and Legal Considerations

The US Court System determined that charging certain fees for new customer connections to utility systems are legal only if they meet the requirements of the Rational Nexus Test. This test requires the government to show a rational nexus between the need for a public water system due to the growth in population in a subdivision and these expenditures of funds are collected from the subdivision with benefits accruing. Certain conditions must be met to acquire a true capacity-related fee. The following criteria is used to show these fees are valid:

1. *The required payment should primarily benefit those who must pay it because they receive a special benefit or service as a result 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; and*
4. *The required payments are imposed uniformly and equitably on all new customers based on their anticipated usage (i.e., a relationship between the fees paid and the benefits received).*

It is reasonable and rational for utility systems to ensure that they have adequate revenues for capital projects, and to set aside any fees collected in a capital funding account. All new customers must pay a fee based upon their anticipated usage or possible future demand. The court system has reasoned that it is rational for a utility system to prepare for future capital projects. While imposing capacity-related fees may not be the only source to acquire funds for capital projects, it is most certainly a legitimate method of accruing funds for the future.

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 many different 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 currently assess fees for the recovery of capital costs associated with new development and system growth. As defined in Chapter 162A, a system development fee is a charge or assessment for service imposed with respect to new development to fund costs of capital improvements necessitated by and attributable to such new development, to recoup costs of existing facilities which serve such new development, or a combination of those costs. Based on requirements of Chapter 162A, the calculation of the SDFs, must employ 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.

System Development Fees (SDFs) are defined as a one-time charge assessed against new development on a per lot basis to recover a proportional share of the costs of capital facilities when connecting to the County's system. These fees are collected at the time the Developer records the map. However, as referenced in HB 873, these **fees can only be collected at the time an individual lot receives a building permit.**

Typically, the cost basis for setting capacity fees is based on the system components that are necessary to serve, and that provide benefit to, all customers. These components typically include land, treatment plants, storage tanks, booster stations, lift stations, lines, and other related equipment and system appurtenances.

There are *three (3)* approaches for calculating water and sewer SDFs outlined in HB 436. They include the following:

- 1. Buy In Method**
- 2. Incremental Cost Method**
- 3. Combination of the above**

1. **Buy-In Method**

The Buy-In Method (Equity) approach is used when the system has enough capacity to serve new development so developers buy-in to existing infrastructure that the rate base has built and maintained. The cost of the facilities is based on fixed assets, records, and usually includes escalation of the depreciated value of those assets to current dollars.

2. **Incremental Cost Method**

The Incremental Cost approach is used when new facilities must be built to serve new development. This is most appropriate when existing facilities do not have adequate capacity to provide a service to new customers, and the cost can be tied to an approved Capital Improvement Plan (CIP) that covers at least a 10-year planning period.

3. **Combined Approach Method**

The Combined Approach Method is a combination of the Buy-In and the Incremental Cost approaches. It can be used when the existing assets provide some capacity to accommodate new customers, but where the CIP also identifies significant Capital Investment to add additional infrastructure to address future growth and capacity needs.

Summary of Results

To perform the System Development Fee Calculation, Green Engineering placed a request to County staff for the following resources:

1. Water fixed asset data with a current depreciation value.
2. Current outstanding debt along with associated annual debt payments.
3. Current 10-year Capital Improvement Plan.
4. Funding sources for the CIP.
5. Contributed Assets by Developers.
6. Grant funded assets.
7. Master Planning 20-year reports.
8. Water System Production capacity.

The SDF Team is made up of the Assistant County Manager, Finance Director and the administrative staff of the Public Utility Department.

The Selected Method

Once the selected method is established, a replacement value of the system must be determined at current market cost which is expressed as RCN, replacement cost new. §162A-211(b) (the first sentence) includes the following (**bold emphasis added**):

“The basis for the buy-in calculation for previously completed capital improvements shall be determined by using a generally accepted method of valuing the actual or replacement costs of the capital improvement for which the buy-in fee is being collected, less depreciation, debt credits, grants, and other generally accepted valuation adjustments.”

Columbus County’s SDF Analysis Team has used the Replacement Cost (New), Less Depreciation, or RCNLD method to establish the total value of the system as of the date of this report. This includes in-place infrastructure and projects which have been completed.

The Combined Approach Method was selected as the appropriate methodology to develop the County’s System Development Fee Policy. Currently, there is some residual treatment and production capacity in the system; however, it is not adequate to meet the current 20-year planning horizon as illustrated in the 10-year CIP and the newly developed 2043 Master Plan. *The Combined approach will require both the Buy-In and Incremental Cost Method.*

It is important to note that the projected demands on the water system within the next 10 years will exceed transmission, supply, storage, and treatment capacities. Because of these anticipated conditions forthcoming, both the Buy-In and Incremental Cost approach are required to be used in order to follow the statutory requirements and develop the proper System Development Fee Schedule.

The Buy In Approach

Using the Buy-In approach, Green Engineering determined the system cost for all the investment to date. This investment is what it has taken to provide the current water system capacity to serve both existing and new customers.

The assessment of cost was based upon reviewing the asset records with the Finance Department from inception of the system through June 30, 2022. The depreciated value of the current assets was adjusted to reflect the estimated replacement cost.

The **RCNLD** values all the current water assets which include production, treatment, transmission, storage, and distribution facilities. Nonessential assets like meters, equipment, and buildings were not included in developing the RCNLD. Therefore, those values are removed from the total assets. The Asset Appreciation results by asset category are illustrated in **Table I**.

TABLE I

REPLACEMENT COST NEW, LESS DEPRECIATION (RCNLD) – WATER ASSETS	
<u>Asset Category</u>	<u>RCNLD Value</u>
Administration	\$0
Production	\$3,750,000
Distribution	\$60,102,431
Storage	\$9,750,000
Transmission	\$1,500,000
<i>Total</i>	<i>\$75,092,431</i>

Adjustments were made to the replacement new less depreciation estimated to arrive at the RCNLD values. The adjustments followed the statute under Article 8, which included adjustments, contributed capital, grants, and remaining debt balance as described later under **Table II**.

Non-Essential Assets

All meters, vehicles, equipment, computers, and office space are excluded as part of the core essential assets. These assets were removed from the audit schedule.

Contributed Assets

Contributed assets donated to the Water System are deducted from the RCNLD value. The Lakeland Village System in District IV was donated; however, all assets exceed the standard 50-year depreciated and no value will be assigned. Additionally, this asset is no longer part of the buy in calculation since all of District IV's assets were removed from the buy in calculation process.

Outstanding Debt Service

Columbus County has accrued a lot of debt to finance the construction of its water system assets. Annual payments are made from a portion of the revenue received for services to pay back borrowed debt. To ensure new customers are not being assessed twice for these assets, outstanding debt on existing assets is deducted in the Replacement Cost New Less Depreciation (RCNLD) calculation process.

Grants

All grant contributions are also deducted in the RCNLD calculation.

TABLE II

RCNLD DEDUCTIONS	
RCNLD	\$75,092,431
Contributed Capital	\$0
Non-Essential (core) Assets	\$0
Outstanding Debt Deduction	(\$11,701,010)
Project Grants	(\$7,530,600)
Current Net Depreciated Value	(\$18,217,036)
Total System Adjusted Net Value (RCNLD)	\$37,643,785

The next table, Table III, shows the Cost per GPD of essential (Core) Utility Assets (Buy In Approach)

The Current adjusted RCNLD value for water must be converted to a unit cost. The **Unit Cost** is expressed in Cost per Gallon per Day. To determine this value the total net value of the RCNLD is divided by the total daily production value in gallons. The result is **Cost Per GPD**.

TABLE III

COST PER ESSENTIAL (CORE) ASSETS (BUY IN)	
(NSV) Net System Value	\$37,643,785
(EC) Existing Capacity(gallons)	1,403,000
Cost Per GPD (NSV/EC)	\$26.83 Per Gallon

Incremental Approach Calculation

Based upon the projected growth District IV, as reported by the new Water System Master Plan’s Capital Improvement Plan (CIP), future facility expansions will be required as well as additional water production capacities. Green Engineering used both the Capital Improvement Plan (CIP) and the Master Plan Facilities values to determine additional capacity cost. The following page illustration is **Table IV** – titled **Capital Improvement Expansion Projects for Columbus County Water System**.

TABLE IV	
CAPITAL IMPROVEMENT EXPANSION PROJECTS FOR COLUMBUS COUNTY WATER SYSTEM	
PHASE I: Marlowe Road from Dothan Road to S.C. Line. Well on Will Inman Road	\$767,265
PHASE II: Hwy 904 Tank to US Hwy 701	\$16,385,041
PHASE III: Dothan Road to NC 904 Tank	\$4,170,407
PHASE IV: Beaverdam Rd 701 to Peacock Rd; Beaverdam Rd to Shay Fisher Rd; BPS @ US 701 and Beaverdam	\$3,307,462
PHASE V: Beaverdam Rd; NC 410 Mercer Rd & Clarendon/Chadbourn Rd from peacock Rd to Rough & Ready Rd; 1.0 MG Ground Storage Tank & two (2) Wells	\$6,615,491
PHASE VI: Hickory Hill Road from Old Sta5e Road to Well Site	\$1,312,828
PHASE VII: Dothan Road from Marlowe Road, Old Dothan Road and Old Dothan Road to 1.0 MG Elevated Tank	\$5,904,125
PHASE VIII: Old Dothan Road from 1.0 MG Elevated Tank to NC Highway 905	\$9,006,176
TOTAL PROJECT COST	\$47,468,795

Refer to Master Plan Phases I-VIII Map at the end of this Report.

The **North Carolina General Statute 162A-207** “Minimum requirements” of **Article B** requires that a Revenue credit should be used against all future costs of required assets.

The Credit deduction must reflect the present value of projected revenues received by the water system (local government) or the outstanding principal debt for those CIP assets.

This Credit must not be any less than 25% of the aggregate cost of the Capital Improvements. The credit is required to ensure that the customers are not paying twice for the capacity either through a system development fee and/ or through utility rates each month for the debt service issued for those project assets that provide capacity.

The County projects to borrow approximately **\$32,312,574** to help fund the expansions.

Incremental Approach Calculation

The projected **\$32,313,574** will require an annual debt payment of \$2,592,877.
The revenue credit is equal to the net present value of these proposed 20 annual debt service payments.

The anticipated Revenue Credit is shown in the following **Table V**.

TABLE V

REVENUE CREDIT APPLIED TO WATER EXPANSION VALUES	
Total Expansion Cost	\$47,468,795
Revenue Credit (NPV)	(\$18,616,476)
Grant Funds	(\$15,151,400)
Net Capital Projects Credits	\$13,700,919

Incremental Approach Calculation

TABLE VI

COST PER GALLON OF FUTURE EXPANSION		
Description		Water
A.	Adjusted Expansion Cost	\$13,700,919.00
B.	New Capacity from Expansion {GPD}	1,700,000
	Cost Per GPD (A/B)	\$8.06

Combine Cost Allocation

Based on the Combined Cost Approach, Green Engineering used the net systems values of existing assets based on the Buy In approach and the Incremental approach to determine the county's total cost. This method combines the current cost per gallon plus the cost per gallon for the expansion following the statutory requirements. Table VII below illustrates the weighted average cost per gallon per day.

TABLE VII

COMBINE COST FOR COST PER GALLON CAPACITY		
	Cost Centers	Water Infrastructure
A.	Net Systems Assets (Buy-In)	\$37,463,785
B.	Net Project Cost (Incremental New)	\$13,700,919
C.	Total Cost to Utility (A+B)	\$51,344,704
D.	Total Existing and Proposed Capacity	3,103,000
	Cost Per GPD (C÷D)	\$16.55

Maximum Cost - - Justified Level of Water System Development Fees

The most equitable way to assess a water customer type is to base it on the amount of capacity required to provide adequate service. The NC Department of Environmental Quality provides design criteria to guide the utility on the predicable volume of water required by bedroom.

Different customer classifications require different capacities; therefore, to equitably assess each customer class an **Equivalent Residential Unit (ERU)** must be determined. Therefore, the cost per gallon per day of water consumed becomes the basic criteria to effectively assess each customer type.

Current Residential demand for Columbus County is approximately 4500 Gallons per month.

This equates to 150 gpd per residential customer (assuming 3 bedrooms per household or 50 gpd per bedroom per day). However, during the summer months, demand increases, thereby creating a peaking factor of 1.20.

150 gallons per day per customer x 1.2 = 180 gpd per residence. For a three-bedroom residence this equates to 60 gallons per day per bedroom.

TABLE VIII

SYSTEM DEVELOPMENT FEE CALCULATION FOR WATER	
Formula	Water System
A. Weighted Average Cost/Gallon/Day	\$16.55
B. Capacity required per ERU (gallons)	180
C. Capacity Fee per ERU (A*B)	\$2,978
D. Recommended first 5 years value	\$2,978

The System Development Fee ERU is based upon a three-bedroom home.

Assessment Approach

Table VIII above establishes a justified maximum development fee cost that can be applied by the County. **The ERU is based on capacity in gallons required to serve a resident.** For a residential customer, the system development fee is equal to the number of gallons’ times cost per gallon per day of capacity as referenced in Table VIII, line “A.”

Maximum Justified System Development Fees for Water Customers by Size of Tap

The Current ERU as shown in the previous Table VIII is for a standard 5/8 x 3/4 -inch meter which serves the residential customer class. Tap sizes increase to meet the projected customer demand based upon the volume of water required to meet that demand.

Non-Residential customers with larger meter requirements can be scaled proportionately to the standard ERU. Therefore, each meter size above the standard 5/8 x 3/4 -inch meter is a multiple of the capacity size according to AWWA M-1 Manual 1. The following chart in Table IX provides the maximum justified system fee for each meter size:

TABLE IX

<u>SYSTEM DEVELOPMENT FEE BY METER SIZE</u>			
<u>Meter Size</u>	<u>AWWA Capacity</u>	<u>Capacity Factor</u>	<u>Water SDF</u>
5/8 x 3/4"	30	1	\$2,978
1"	50	2.56	\$7,624
1.5 "	100	5.76	\$17,153
2"	160	10.24	\$30,495
3"	300	23.04	\$68,613
4"	500	40.96	\$121,979
6"	1000	92.16	\$274,453
8"	1600	163.84	\$487,916
**Over 8 inches to be Calculated.			

As allowed by statute, Columbus County may elect to assess System Development Fees less than the maximum cost that can be supported/justified as documented in the SDF process.

However, any discount on an ERU charge (cost per gallon) less than the cost justified in this process must be equitably applied to all customer classes and meter sizes.



System Development Fee Analysis Work Sheets and Map

- 1. Inventory of existing assets**
- 2. Buy-In Method Calculations**
- 3. Incremental Cost Method Calculations**
- 4. Combined Method Calculations**
- 5. Amortization Calculations & Net Present Value of New Assets**
- 6. AWWA Meter Size Calculations Chart**
- 7. Columbus County Master Plan Phases I-VIII Map (Table IV)**

INVENTORY OF EXISTING ASSETS			
DISTRIBUTION ASSETS	UNITS	RCN	EXTENDED RCN
12" WM	59,669	\$114	\$6,802,266
10" WM	137,663	\$70	\$9,636,410
8" WM	451,686	\$54	\$24,391,044
6" WM	433,443	\$34	\$14,737,062
4" WM	10,594	\$26	\$275,444
12" Valve	44	\$5,400	\$237,600
10" Valve	36	\$4,640	\$167,040
8" Valve	164	\$3,975	\$651,900
6" Valve	431	\$2,800	\$1,206,800
Hydrants	403	\$4,955	\$1,996,865
DISTRIBUTION TOTAL			\$60,102,431
PRODUCTION ASSETS	UNITS	RCN	EXTENDED RCN
Wells	5	\$750,000.00	\$3,750,000
PRODUCTION ASSETS TOTAL			\$3,750,000
TRANSMISSION AND STORAGE ASSETS	UNITS	RCN	EXTENDED RCN
BPS	2	\$745,000.00	\$1,490,000
District I Tank	250,000	\$6.50	\$1,625,000
District II Tank	250,000	\$6.50	\$1,625,000
	500,000	\$6.50	\$3,250,000
District III Tank	250,000	\$6.50	\$1,625,000
District V Tank	250,000	\$6.50	\$1,625,000
TRANSMISSION AND STORAGE TOTAL			\$14,990,000
OVERALL TOTAL			\$75,092,431

BUY-IN ASSETS: Water Assets eligible for inclusion in System Development Fee Calculation, Less Contributed Capital, and Other Assets

CALCULATION USING THE BUY-IN SYSTEM APPROACH		BUY-IN APPROACH
Fixed Assets for Water Collection System		RCN
Production - Water Supply Wells		\$3,750,000.00
Distribution - Water Lines		\$60,102,431.00
Water Storage - (5) Tanks (1,500,000 gallons)		\$9,750,000.00
Transmission - Booster Stations		\$1,490,000.00
Subtotal: Fixed Assets (1)		\$75,092,431.00
Adjustments:		
Debt Service Outstanding Principal Deduction		-\$11,701,010.00
Depreciation		-\$18,217,036.00
Grants		-\$7,530,600.00
Cumulative Capital		\$0.00
Total System Adjustments (2)		-\$37,448,646.00
Fixed Assets Total		\$75,092,431.00
Adjustments Total		-\$37,448,646.00
Total Net Value (3)		\$37,643,785.00
Daily Production Existing System Capacity (in GPD)		1,403,000
Cost Per GPD (system)		\$26.83
Daily ERU (in GPD)		150
Adjusted ERU (GPD) 150 x 1.2 Peak Day Residential Demand		180
Calculated System Development Fee Per ERU		\$4,830.00
Current System Development Fee per ERU		\$0.00
Buy In Recommended SDF (4)		\$4,830.00
<p>(1) Replacement cost New based on today's current market value.</p> <p>(2) Represents adjustment to be subtracted from current market value through cost escalation.</p> <p>(3) RCNLD Replacement Cost New Less Deprecation, Debt & Grants.</p> <p>(4) Recommended System Development Fee (SDF) rounded down to \$4,830 as maximum fee.</p>		

INCREMENTAL COST ASSETS SYSTEM: Water Assets eligible for inclusion in System Development Fee Calculation, Less Contributed Capital, and Other Assets	
CALCULATION USING THE INCREMENTAL APPROACH	Incremental Approach
	NEW
New Assets Phases I - VIII	
Water Lines	\$33,093,795.00
Tanks	\$7,400,000.00
Booster Station	\$1,200,000.00
Wells	\$5,775,000.00
Subtotal: Fixed Assets (1)	\$47,468,795.00
Adjustments:	
Grant	\$15,151,400.00
NPV (Revenue Credit)	\$18,613,635.00
Total Adjustments (2)	\$33,765,035.00
Fixed Assets (NEW) Total	\$47,468,795.00
Adjustments Total	\$33,765,035.00
NET NEW System Value (3)	\$13,703,760.00
Proposed System Capacity (in GPD)	1,700,000
Cost per GPD (System)	\$8.06
Daily ERU (in GPD)	150
Adjusted ERU (GPD) 150 x 1.2 Peak Day Residential Demand	180
Calculated System Development Fee Per ERU	\$1,450.00
Current System Development Fee per ERU	\$0.00
Incremental Recommended SDF (4)	\$1,450.00
<p>(1) Total New construction cost for Phases I - VIII.</p> <p>(2) Statue requires to deduct grants & NPV of capital borrowed.</p> <p>(3) Net value of new assets installed.</p> <p>(4) Recommended System Development Fee (SDF) rounded down to \$1,450 as maximum fee.</p>	

COMBINED SYSTEM: Water Assets eligible for inclusion in System Development Fee Calculation, Less Contributed Capital, and Other Assets	
CALCULATION USING THE COMBINED SYSTEM APPROACH	Combined Approach
NET Fixed Assets for Water Distribution System (Buy-In Method) (RCNLD)	\$37,643,785.00
New Water Assets (Incremental) (1)	\$13,700,919.00
Subtotal: Fixed Assets (2)	\$51,344,704.00
Adjustments:	
Debt Service Outstanding Principal Deduction	\$0.00
Net System Assets	\$51,344,704.00
New Combined Capacity (in GPD) 10 wells (3)	\$3,103,000.00
Cost per GPD (System)	\$16.55
Daily ERU (in GPD)	150
Adjusted ERU (GPD) 150 x 1.2 Peak Day Residential Demand	180
Calculated System Development Fee Per ERU	\$2,978.89
Current System Development Fee per ERU	\$0.00
Combined Recommended SDF (4)	\$2,978.00
<p>(1) Replacement cost new based on today's current market value.</p> <p>(2) Represents the replacement cost new less depreciation for the Buy-In of existing system assets plus the Incremental cost of new assets to be added.</p> <p>(3) Combined capacity is existing system of 1,403,000 gpd + 1,700,000 gpd of new supply (5 existing wells + 5 new wells).</p> <p>(4) Recommended System Development Fee (SDF) rounded down to \$2,978 as maximum fee.</p>	

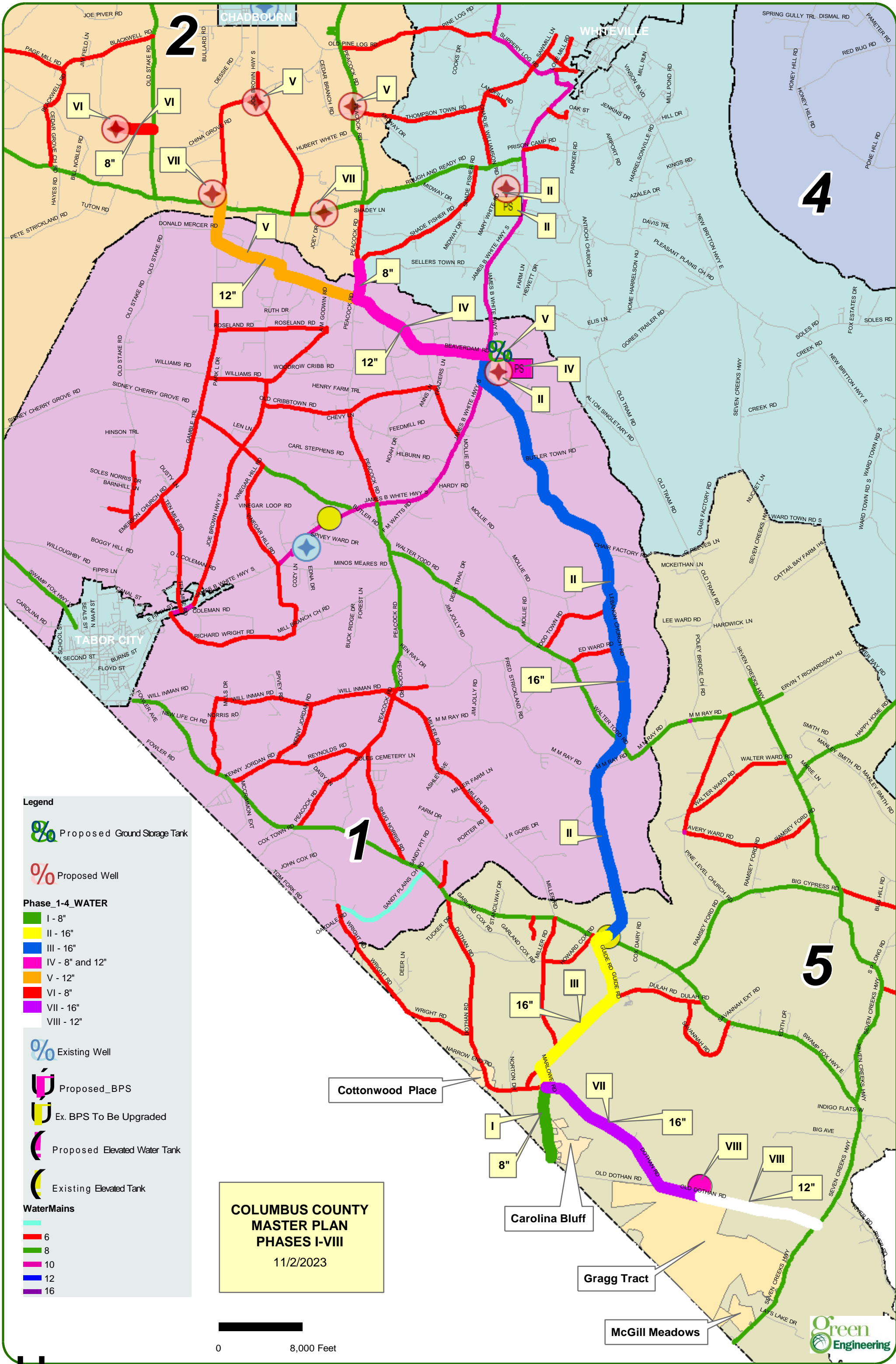
AMORTIZATION OF CONSOLIDATED DEBT FOR PHASES I - VIII

Annual Interest Rate	5.00%
Years	20
Payments per year	1
Amount	\$32,312,574.00

Years	Monthly Payment Amount (PMT Formula)	Interest Amount (IPMT Formula)	Principal Amount (PPMT Formula)	Balance Owed (Loan Amount + First Principal. Then, First balance + Subsequent Principal)
1	(\$2,592,844.54)	(\$1,615,628.70)	(\$977,215.84)	\$31,335,358.16
2	(\$2,592,844.54)	(\$1,566,767.91)	(\$1,026,076.63)	\$30,309,281.54
3	(\$2,592,844.54)	(\$1,515,464.08)	(\$1,077,380.46)	\$29,231,901.08
4	(\$2,592,844.54)	(\$1,461,595.05)	(\$1,131,249.48)	\$28,100,651.59
5	(\$2,592,844.54)	(\$1,405,032.58)	(\$1,187,811.96)	\$26,912,839.64
6	(\$2,592,844.54)	(\$1,345,641.98)	(\$1,247,202.55)	\$25,665,637.08
7	(\$2,592,844.54)	(\$1,283,281.85)	(\$1,309,562.68)	\$24,356,074.40
8	(\$2,592,844.54)	(\$1,217,803.72)	(\$1,375,040.82)	\$22,981,033.58
9	(\$2,592,844.54)	(\$1,149,051.68)	(\$1,443,792.86)	\$21,537,240.72
10	(\$2,592,844.54)	(\$1,076,862.04)	(\$1,515,982.50)	\$20,021,258.22
11	(\$2,592,844.54)	(\$1,001,062.91)	(\$1,591,781.63)	\$18,429,476.60
12	(\$2,592,844.54)	(\$921,473.83)	(\$1,671,370.71)	\$16,758,105.89
13	(\$2,592,844.54)	(\$837,905.29)	(\$1,754,939.24)	\$15,003,166.65
14	(\$2,592,844.54)	(\$750,158.33)	(\$1,842,686.20)	\$13,160,480.45
15	(\$2,592,844.54)	(\$658,024.02)	(\$1,934,820.51)	\$11,225,659.93
16	(\$2,592,844.54)	(\$561,283.00)	(\$2,031,561.54)	\$9,194,098.39
17	(\$2,592,844.54)	(\$459,704.92)	(\$2,133,139.62)	\$7,060,958.77
18	(\$2,592,844.54)	(\$353,047.94)	(\$2,239,796.60)	\$4,821,162.18
19	(\$2,592,844.54)	(\$241,058.11)	(\$2,351,786.43)	\$2,469,375.75
20	(\$2,592,844.54)	(\$123,468.79)	(\$2,469,375.75)	\$0.00
	(\$51,856,890.73)			
	20 years of Principal Payments		(\$32,312,574.00)	
	Net Present Value Calculation			\$32,312,574.00
			NPV	\$18,613,634.99

Non-Residential customers with larger meter requirements can be scaled proportionately to the standard ERU. Therefore, each meter size above the standard 5/8 x 3/4 -inch meter is a multiple of the capacity size according to AWWA M-1 Manual 1. The following chart in Table IX provides the maximum justified system fee for each meter size:

SYSTEM DEVELOPMENT FEE BY METER SIZE			
<u>Meter Size</u>	<u>AWWA Capacity</u>	<u>Capacity Factor</u>	<u>Water SDF</u>
5/8 x 3/4"	30	1	\$2,978
1"	50	2.56	\$7,624
1.5 "	100	5.76	\$17,153
2"	160	10.24	\$30,495
3"	300	23.04	\$68,613
4"	500	40.96	\$121,979
6"	1000	92.16	\$274,453
8"	1600	163.84	\$487,916
**Over 8 inches to be Calculated.			



**COLUMBUS COUNTY
MASTER PLAN
PHASES I-VIII
11/2/2023**

0 8,000 Feet

