

Woodfin Sanitary Water and Sewer District System Reduction Fee Study

PURPOSE

The purpose of this study is to review the District's system reduction fees as directed within NC General Statutes 130A-64(b), which further references NC General Statutes 162A-8, System Development Fees.

METHODOLOGY

The "Buy-In Method" was utilized as provided for under Article 8, GS 162A-205 (3). Under this method, each user's proportional share of the District's water capacity is determined and fees are calculated accordingly. This method is useful when (as in the District's case) existing capacity is sufficient for current and foreseeable future needs. The Buy-In Method was determined as follows:

- Determine the total replacement value of existing District facilities, including pipes and appurtenances, treatment plant facilities, land, storage facilities, and required buildings and equipment, with adjustments made for depreciation and developer-contributed infrastructure, as appropriate.
- Determine the cost per unit of capacity by dividing the replacement value of existing District infrastructure, less depreciation & contributed systems, by total District water treatment capacity.
- Determine the average daily demand for a basic residential connection (5/8" meter capacity), otherwise known as an equivalent residential unit (ERU), by dividing average daily residential consumption by total average residential connections.
- Multiply the cost per unit of capacity by the ERU to determine a base cost.
- Determine a scale for larger non-residential metered connections based on meter capacity ratio increases.

PREPARATION

This study was reviewed and prepared by Joseph Martin, District Director. He is a Doctor of Public Administration, with recognized methodology and statistics credentials, and teaches public finance and budgeting for two major universities. He also has fifteen years of experience with the District and designed and maintains the District's GIS data and billing systems.

SCHEDULE OF FEES CALCULATION

1.DETERMINE TOTAL REPLACEMENT VALUE OF DISTRICT FACILITIES

The District's total replacement value of facilities was calculated using several sources, including the District's financial audits (for book and depreciation purposes), the District's Geographic Information System (GIS) for line, valve, and other appurtenance data, Buncombe County tax records for land valuation, and recent project and line item bids from qualified, licensed utility contractors for current replacement costs.

Once total replacement values were calculated for all categories, depreciation, developer-contributed infrastructure, and state grant infrastructure was deducted, resulting in a total replacement value as follows:

- Distribution System Water Lines: \$21,937,161.14
- Real Property (Land): 4,846,800.00
- Valves, Hydrants, & Appurtenances: 4,824,691.20
- Water Treatment Facilities: 1,050,147.81
- Tanks & Storage: 880,169.00
- Buildings: 48,272.77
- Machinery & Equipment: 44,524.14

Total: \$33,631,766.06

2. DETERMINE THE COST OF CAPACITY PER-UNIT

The District's cost per capacity of unit was calculated by dividing the total replacement cost of the District's system by the District's water treatment capacity. The District owns and operates a water treatment facility with a total capacity of 2.0 million gallons per day (MGD). The District's total replacement cost was \$33,631,766.06.

- Total District treatment capacity: 2.0 Million Gallons per Day
- Total replacement cost: \$33,631,766.06
- Cost per gallon of capacity: \$16.82/gallon

3. DETERMINE AVERAGE RESIDENTIAL DAILY DEMAND

The District's lowest charge for system reduction fees, and concurrent lowest demand on the system, is for a single residential unit, and thus is the service unit, or equivalent residential unit (ERU) as provided for within Article 8, GS 162-201 (8). The ERU consumption was calculated by dividing the total average daily demand (ADD) for residential customers by the average total residential customers, as compiled and submitted within the District's Local Water Supply Plan. For 2017, the District's ADD for residential customers was .690 MGD, and the average total

residential customers at any given time was 3,700. Sampling of random residential billing records from the beginning of 2018 was performed to confirm results were within expectations.

- Calculated ADD: 690,000 gallons per day
- Average residential connections: 3,700
- Equivalent residential unit (ERU) daily consumption: 186.49 gallons

4. DETERMINE THE EQUIVALENT RESIDENTIAL UNIT (ERU) BASE COST

The ERU base cost was derived by multiplying the average daily ERU consumption by the cost per gallon of capacity to determine the ERU base cost, and the system reduction fee based on current data that may be charged for an ERU connection (5/8" meter size) to the system:

- \$16.82 per gallon of capacity x 186.49 gallons = \$3,136.76

5. DETERMINE A SCALE FOR LARGER NON-RESIDENTIAL METERED CONNECTIONS BASED ON METER CAPACITY RATIO INCREASES

The scale for larger, non-residential meter connections was developed by applying a multiplication factor based on meter capacities, using the ERU (5/8" meter size) connection as the base. Meter capacities are obtained from American Water Works Association (AWWA) capacity standards.

- 5/8" Meter (ERU) - \$3,136.76
- 1" Meter (50 GPM – 2.5 scaling factor) - \$7,841.90
- 1.5" Meter (100 GPM – 5.0 scaling factor) - \$15,683.80
- 2" Meter (160 GPM – 8.0 scaling factor) - \$25,094.08
- 3" Meter (320 GPM – 16.0 scaling factor) - \$50,188.16
- 4" Meter (500 GPM – 25.0 scaling factor) - \$78,419.00
- 6" Meter (1000 GPM – 50.0 scaling factor) - \$156,838.00

SUMMARY

The purpose of this study was to determine District fees were fair and appropriate in accordance with North Carolina General Statutes 130A-64(b) and 162-A, Article 8. Questions or comments regarding this study or related documentation may be directed to Dr. Joseph Martin at frontdesk@woodfinwater.com or by calling (828) 253-5551.