

One-time Fees for Residential Water and Sewer Connections in North Carolina

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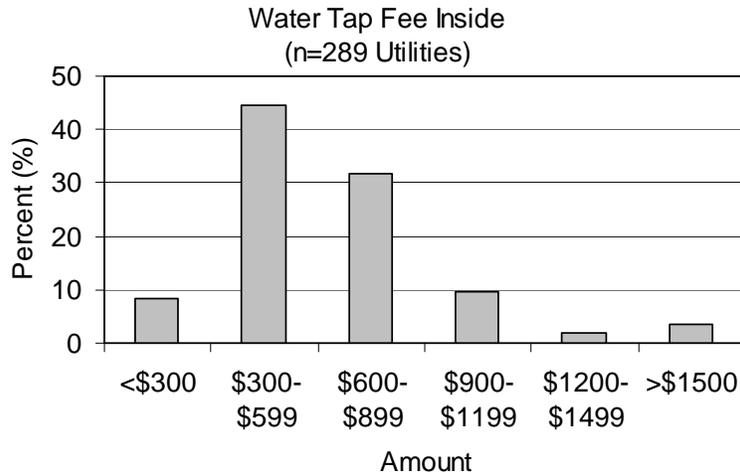
The Environmental Finance Center has conducted a survey of initial, one-time fees for new residential customers of North Carolina water and sewer utilities. Generally, utilities charge three types of fees in North Carolina: tap fees, impact fees and special assessments. Tap fees are designed to recover all or a portion of the cost (materials and labor) of water or sewer service line installation while impact fees are associated with system capacity development. Utilities have great flexibility in setting tap and impact fees. As a result, the basis for determining fees and fee amounts varies widely. On the other hand, special assessments are a distinctly defined in the NC General Statutes and may only be assessed by utilities (municipalities, counties and authorities) under specific circumstances defined by the authorizing statute (§162A-216, §153A-185 and §162A-6, respectively). Special assessments were not included in this survey. Findings on water and sewer tap and impact fees for 325 NC utilities surveyed are detailed in this memo.

Tap Fees

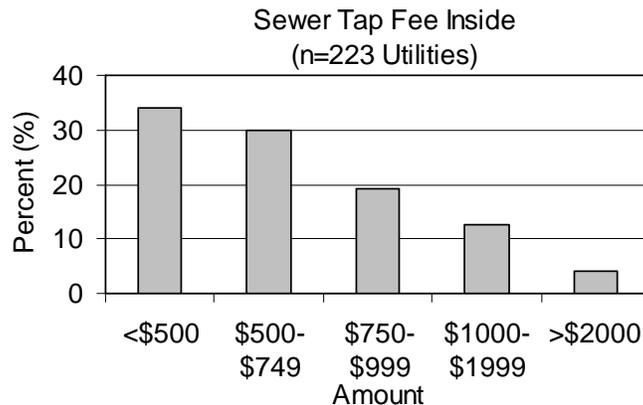
The tap fee is intended to recover costs associated with service line installation. In the case of water connections, costs may include the tap, pipe material and installation, water meter, meter box and other associated costs. Following are findings on residential tap fees:

1) Out of 325 utilities surveyed, 307 reported charging a tap fee in the event of new connection for water service. Most utilities (76%) charge between \$300 and \$900 for their water tap fee. Given the cost of installation, it is unlikely that charges in this range would cover the actual cost of service line installation in most cases. In smaller towns, where it is more common to charge at cost, the average tap costs are closer to \$1000 - \$1500. One utility director reported that costs can be much higher than this: in the case that a cross-street directional bore is required the actual cost can peak around \$5000. As a consequence, many smaller utilities do not publish a tap fee schedule. Instead, they have project-dependent fees. For example, the City of Monroe has a \$925 tap fee but will charge at cost if the actual cost is more than 125% of that fee.

A histogram of tap fee amounts for new connections inside political boundaries is given in Figure 1. The histogram is based on 289 responses, the remaining 18 responses not included in the histogram correspond to 18 utilities that reported having a tap fee set at project cost.

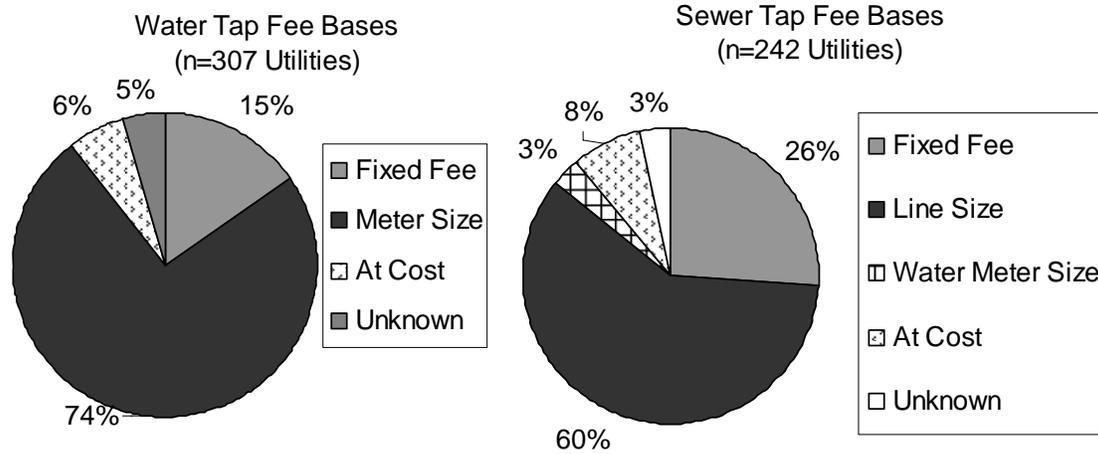


Out of 280 utilities that provide sewer service, 242 report charging tap fees in the event of a new sewer line connection. A histogram of tap fee amounts, for new sewer connections inside political boundaries, is given in Figure 2. The histogram is based on 223 responses, the remaining 19 responses not included in the histogram correspond to 19 utilities that reported having a sewer tap fee set at project cost.



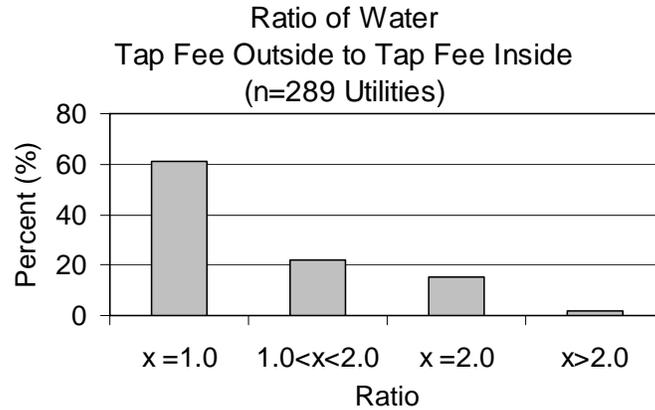
2) It is somewhat common to charge a lower fee for connections made when the water or sewer main is laid. The justification is that it costs the utility less if they do not have to excavate to make a new connection. There are also several instances among NC utilities where a tap fee may be reduced for areas where the local government wishes to promote growth. This practice is based on the theory that lowering charges encourages development. Hyde County, for example, may lower their water tap fees from \$600 to \$100, for areas in which they choose to encourage growth during specific periods. Other utilities that have this practice include the North Lenoir Water Corporation and Northampton County.

3) It is very common to charge water tap fees based on meter size. Roughly 74% of 307 utilities report that the basis for their water tap fees is the line size. Another 15% have a fixed fee while 6% charge at cost for all new connections. Sewer tap fees may be charged on the basis of sewer line size; out of 242 NC utilities that charge sewer tap fees, 60% use a sewer line size basis. Most of the remaining utilities (26%) have a fixed fee for sewer connections; however 8% charge at cost and 3% base their sewer tap fee on the water meter size.

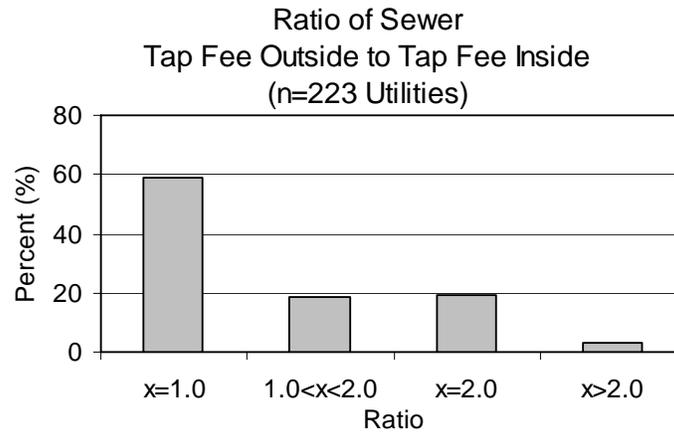


4) In many cases the bases for setting tap fees may depend on the type of development. 8% of 307 water utilities and 11% of 242 sewer utilities have separate tap fee schedules for residential and non-residential connections. In most cases, non-residential tap fees are higher.

5) Most utilities charge the same tap fee regardless of whether the connection is made to property inside or outside of political boundaries. Roughly 61% of 289 utilities have the same water tap fee both outside and in (a ratio of outside to inside tap fees of 1.0). For 22% of utilities, the ratio is set between 1.0 and 2.0, while another 15% set their ratio at 2 (i.e. double rates for outside customers).



For new sewer connections the distribution is similar.



As a result, the average tap fee for water and sewer service for customers living outside political boundaries is higher among the utilities in our survey. The mean tap fees for water and sewer service both inside and outside political boundaries are listed in the following table.

| | Mean Residential Tap Fee | |
|---------|------------------------------|------------------------------|
| | Water (n = 289 utilities) | Sewer (n = 223 utilities) |
| Inside | \$ 625 | \$ 694 |
| Outside | \$ 774 | \$ 886 |

Impact Fees

The impact fee is intended to recover costs associated with system capacity development. Water system capacity features include source water supply and collection, treatment facilities, storage, pumps and distribution. Sewer system capacity features include collection systems and mains as well as treatment and discharge facilities. The

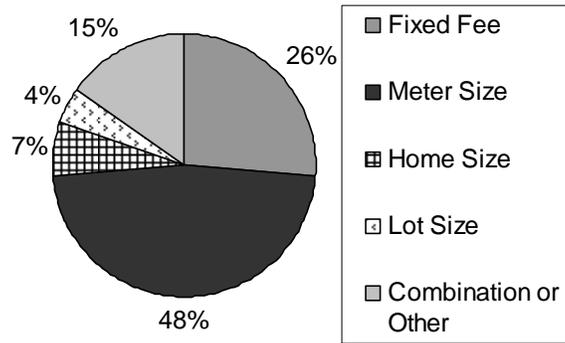
two classic approaches for calculating impact fees are: 1) the equity method (also referred to as system buy-in) where new customers are assessed a fee proportional to the equity position of existing customers and 2) the incremental cost method in which new customers are assessed the increment of cost to expand system capacity to serve them¹. Anecdotally, many utilities reported having no particular basis for calculating impact fees. Ideally, impact fee amounts would have some reasonable connection to the size of the demand exerted on system capacity by new development. The following is a list of some of our findings on residential impact fees:

- 1) Impact fees go by many names including System Development Charges, Connection Fees, Tap-on charges, Acreage Fees, Capacity Development, Facilities Charge and the list goes on. These names say very little about how the impact fee is charged or how it is used.
- 2) In a survey of 325 utilities that provide water service, 129 reported having a water impact fee. 12 of those utilities only charge water impact fees in the event that the water main needs to be extended to reach the development; these fees are typically calculated according to the length of the extension in linear feet abutting. Out of the remaining 117 utilities reporting water impact fees, most base their fee on the meter size (48%) or they have a fixed impact fee per new construction (26%). In addition, 7% use the size of the new home to calculate their impact fees. For example, the Town of Cary and OWASA base their impact fees on both meter size and the square footage for new residential connections while they use meter size for non-residential connections. The justification for a square footage basis comes from an OWASA study showing disproportionately greater consumption by residential customers with larger homes.

Most of the remaining 15% of utilities use some combination of the above parameters in setting impact fees. The Town of Apex, for example, has a design flow schedule depending on the “land use category” (e.g. 300 gpd/ bed for hospitals vs 500 gpd/machine for laundries vs 250 gpd/unit for multi-family residential complexes, etc.). They charge \$15 per gpd for combined water/sewer service. They also charges an acreage fee based on the zoning district, e.g., the fee is \$2437 / acre for medium density residential zoning.

¹ Manual of Water Supply Practices: M1 *Principles of Water Rates, Fees and Charges*, 5th Edition. American Water Works Association. Denver, CO. 2000.

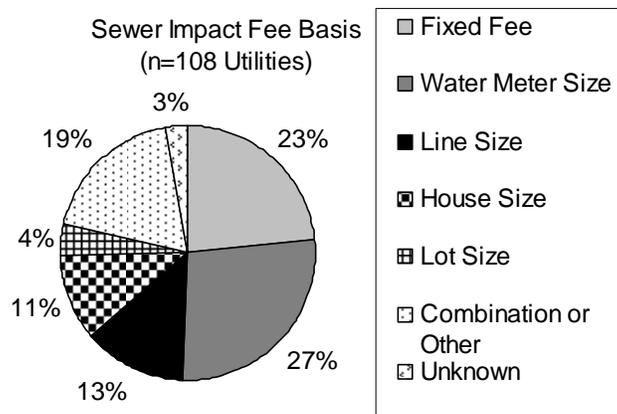
Water Impact Fee Bases
(n=117 Utilities)



In a survey of 280 utilities that provide sewer service, 117 reported having a sewer impact fee. Nine of those utilities only charge sewer impact fees in the event that the sewer main needs to be extended to reach the development; these fees are typically calculated according to the length of the extension in linear feet abutting. Out of the remaining 108 utilities, the largest fraction (27%) set their sewer impact fee according to the size of the water meter. 23% have a fixed impact fee for all new sewer connections and 13% base their sewer impact fees on the sewer line size.

As with water capacity demand, the amount of sewer system capacity demand exerted by a new development can often be correlated with parameters such as the size of the building or size of the lot. Thus, sewer impact fees are frequently based on the number of bedrooms or square footage in a new house (11% in our survey) or on the lot acreage (4% in our survey).

Sewer Impact Fee Basis
(n=108 Utilities)



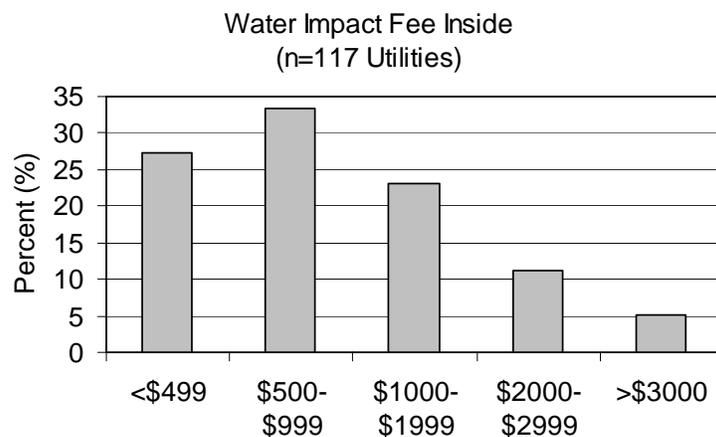
Some utilities have explicitly tied consumption patterns to home size in their impact fee calculation. The Town of Boone, for example, charges \$2.50 /gallon per day (gpd) for water service and \$3/gpd for sewer. The design flow in Boone is 90 gpd / bedroom for residential service. Thus a three bedroom house would be charge a

combined water/sewer impact fee of $\$2.50 \times (3 \times 90) + \$3 \times (3 \times 90) = \1485 . Another 4% of utilities use the size of the lot (acreage fees) to determine the amount of the impact fee. This approach is frequently justified by noting that large lot sizes may disproportionately affect peak demands during the irrigation season.

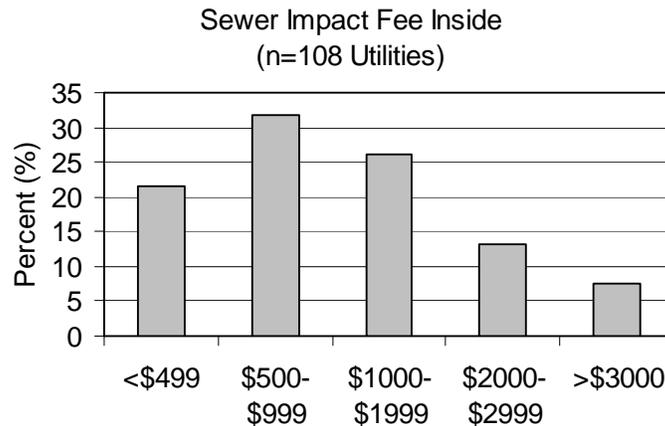
3) There are several instances of unique methods for calculating impact fees. The City of Jacksonville has charges based on the number of water using fixtures in the house. For their residential water impact fee the charges are \$80 / fixture for the first three, \$25 / fixture for the next four, \$10 / fixture for the next eight and \$5 / fixture for all over the first fifteen fixtures. For all non-residential connections the impact fee is based on meter size. For their residential sewer impact fee the schedule is \$180 / fixture for the first three, \$130 / fixture for the next five, etc.

The City of Rocky Mount also has a distinctive fee schedule that is worth mentioning. In lieu of an impact fee for customers inside the municipal boundaries, they charge only in the case of water main extensions: \$20 / linear foot of main abutting (\$40 / linear foot for “full charge”) and sewer main extensions \$25 / linear foot abutting (\$50 / linear foot for “full charge”). For customers outside municipal boundaries they charge a water impact fee equal to the greater of \$750 per acre or \$350 in the case of a 3/4” tap, \$400 in the case of a 1” tap, etc. Likewise, for customers outside municipal boundaries they charge a sewer impact fee equal to the greater of \$750 per acre or \$400 in the case of a 4” connection, \$550 in the case of a 6” connection, etc. (These fees are based on a schedule effective 07/04 and may not be current).

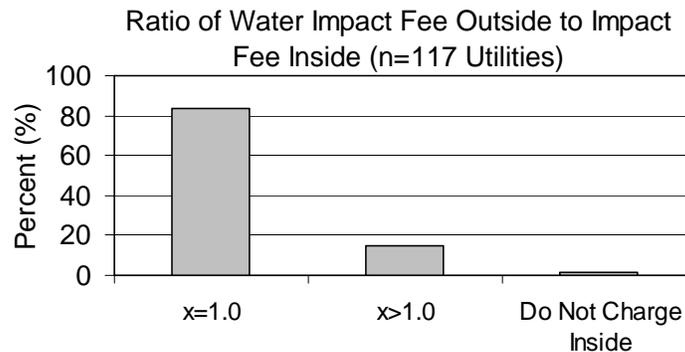
4) A histogram of water impact fees for 117 utilities was developed. Given the many bases for calculating impact fees, a set of parameters was needed to standardize impact fee calculations for all 117 utilities. The histogram below was developed assuming a water connection was being made for a new residential development with 3 bedrooms, 1700 square feet, a lot size of 0.5 acres and with the smaller of either a 5/8” or a 3/4” water meter that uses 360 gallons per day (unless otherwise specified by the utility).



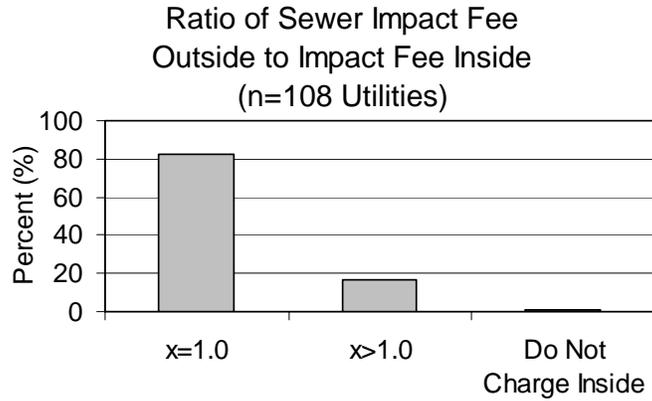
To develop the following histogram of sewer impact fees for all 108 sewer utilities, the parameters were: 3 bedrooms, 1700 square feet, a lot size of 0.5 acres, with the smaller of either a 5/8" or a 3/4" water meter and a 4" sewer line that uses 360 gallons per day (unless otherwise specified by the utility).



5) Most utilities (84% of 117) charge the same water impact fee for new developments inside and outside political boundaries. A small fraction charge more for outside developments, and a few more charge only for outside developments.



The distribution for sewer impact fees is similar. The fraction of 108 sewer utilities that have the same charge both inside and outside political boundaries is 82%.

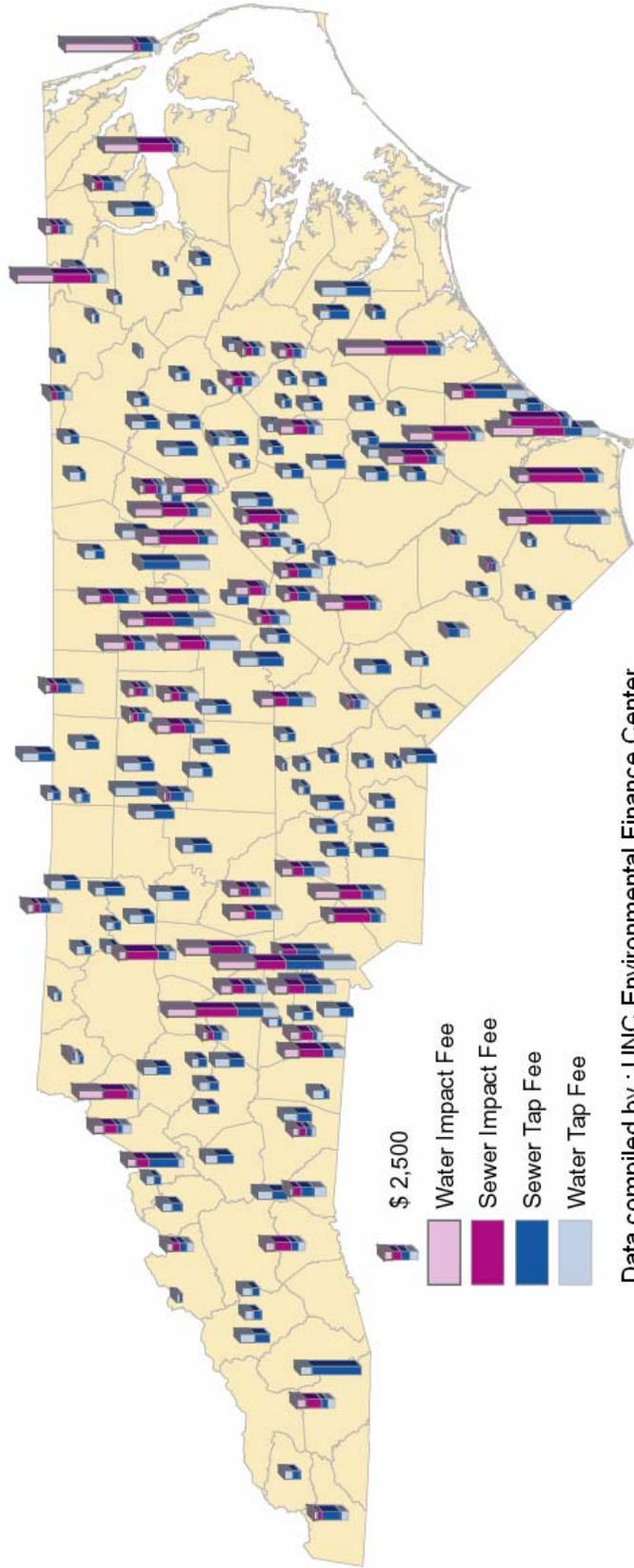


As a result of the fraction of water and sewer utilities which charge more for connections made outside political boundaries, the mean outside fees are slightly higher. The mean impact fees for water and sewer service both inside and outside political boundaries are listed in the following table.

| | Mean Residential Impact Fee | |
|---------|------------------------------|------------------------------|
| | Water (n = 117 utilities) | Sewer (n = 108 utilities) |
| Inside | \$ 1,024 | \$ 1,230 |
| Outside | \$ 1,153 | \$ 1,330 |

The following map shows the total amount of tap and impact fees charged in the event that new water and sewer connections are made for residential service for selected service providers.

Combined Residential Tap and Impact Fees for Selected Water and Sewer Providers - 2005



Data compiled by : UNC Environmental Finance Center



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