

# Caroline County Water and Sewer Rate Analysis



Feb 10, 2009

# Rate Overview

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- Utilities Goal
- Utilities Rate Objective
- Winter Usage for Summer Billing
- Tiered Rates
- Irrigation Rates
- Milford System Integration
- Eliminate Meter Rental Fees
- Capacity Charge (fixed fee)
- Proposed Rates & Structures
- Availability Fees Structure

# Utilities Goal

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**“To establish a viable self sustaining enterprise system that is accountable to all of the shareholders to include the Customers, Board of Supervisors, Regulatory Agencies, General Public and the Environment.”**

# Utilities Rates Objective

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The utilities department will need to continue to develop a rate structure which will provide sufficient revenues to finance operations, maintenance associated with the County's Utility systems & Debt Service. These rate structures will need to be reviewed on an annual basis to ensure that the utilities department will be a self sustaining enterprise fund.

# Winter Usage for Summer Billing

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- Sewer fees are billed using the water meter consumption due to the inability to meter sewer usage in a cost effective way.
- This impacts the users who are using water for outdoor activities i.e. watering landscape, washing vehicles, filling pools and sprinkler systems.
- This method allows us to average a users water usage during the months of Dec., Jan., and Feb. and apply them to the summer usage billing for June, July and Aug. We then add a 25% increase to the winter usage calculation. The customer is then billed the lesser of the calculated winter average bill or actual usage.

# Tiered Rate Structure

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- This rate structure allows us to assess fees based on gallons of usage that impact users with higher consumption.
- Tier 4 has the highest rate per gallon and is designed to assist with water conservation.

# Irrigation Rates

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- Irrigation meters are currently charged the same rate as a residential connection plus a meter capacity fee if applicable.
- As Irrigation Meters are not a necessity and their usage impacts the water system in an unfavorable way. Irrigation Rates have been developed to limit their usage with out unnecessary liability to the system.
- There are currently 12 Irrigation meters in the system.

|                            | Actual<br><u>2005</u> | Actual<br><u>2006</u> | Actual<br><u>2007</u> | Actual<br><u>2008</u> | Budget<br><u>2009</u> | Projected<br><u>2010</u> |
|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------|
| <b>Revenues</b>            |                       |                       |                       |                       |                       |                          |
| Bulk Permit Fee            | 975                   | 2,441                 | 1,750                 | 1,400                 | 0                     | 1,400                    |
| Interest on Investments    | 34,530                | 58,515                | 90,126                | 53,568                | 55,543                | 55,543                   |
| Admin Fees                 | 38,171                | 11,430                | 4,665                 | 4,100                 | 0                     | 3,115                    |
| Refunds                    | 14                    | 2,000                 | 30,776                | 0                     | 0                     | 0                        |
| User Charges - Milford     | 42,304                | 45,140                | 48,787                | 48,041                | 51,042                | 61,511                   |
| Other-Milford              | 1,862                 | 1,516                 | 1,460                 | 2,188                 | 1,230                 | 1,230                    |
| Res Charges - Water        | 39,007                | 96,999                | 145,977               | 154,123               | 173,402               | 71,711                   |
| Res Charges - Sewer        | 79,548                | 143,609               | 194,331               | 204,399               | 229,968               | 257,270                  |
| Res Capacity               |                       |                       |                       |                       |                       | 204,288                  |
| Irrigation                 |                       |                       |                       |                       |                       | 111,568                  |
| Comm Charges - Water       | 174,093               | 213,284               | 262,768               | 313,301               | 352,492               | 279,484                  |
| Comm Charges - Sewer       | 287,665               | 285,699               | 324,737               | 339,812               | 382,320               | 750,816                  |
| Comm Capacity              |                       |                       |                       |                       |                       | 162,159                  |
| Service Charges-other      | 51,082                | 52,574                | 57,680                | 57,868                | 0                     | 5,425                    |
| Operating Revenues         | 749,251               | 913,207               | 1,163,057             | 1,178,800             | 1,245,997             | 1,965,522                |
| <b>Expenditures</b>        |                       |                       |                       |                       |                       |                          |
| Utilities Administration   | 0                     | 0                     | 35,024                | 255,289               | 353,222               | 487,474                  |
| Water Supply & Treatment   | 460,258               | 440,858               | 494,046               | 427,943               | 412,153               | 475,264                  |
| Wastewater Treatment       | 502,839               | 606,422               | 582,990               | 553,934               | 593,856               | 638,766                  |
| Utilities Collections      | 146,510               | 168,447               | 153,903               | 167,182               | 172,788               | 209,619                  |
| Milford                    | 71,956                | 75,060                | 88,279                | 62,174                | 66,724                | 74,776                   |
| Transfer to CIP            | 815,692               | 37,788                | 253,482               | 0                     | 0                     | 50,000                   |
| Total Expenditures         | 1,997,255             | 1,328,575             | 1,607,724             | 1,466,522             | 1,598,743             | 1,935,898                |
| Revenues over Expenditures | -1,248,004            | -415,368              | -444,667              | -287,722              | -352,746              | 29,624                   |
| Transfer from General Fund | 1,248,004             | 415,368               | 444,667               | 287,722               | 352,746               | 0                        |

# Milford Cost - VS- County Cost for Operations & Maintenance for Water

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|                                 |          |           |
|---------------------------------|----------|-----------|
| 2008 Actual O&M Expences        | \$62,174 | \$427,943 |
| 2008 Comercial Income           | \$5,361  | \$352,492 |
| Residential Expences =          | \$56,813 | \$75,451  |
| Number of Resedential Customers | 286      | 532       |
| Rate per month                  | \$16.55  | \$11.82   |

These rates are strictly O&M and do not include  
Utilities Administration and Debt Services

# Current Residential Rates

## County System

Water User 0-6,000 gallons  
(monthly billing)

- \$21.00 Capacity Charge
- Cost per 1,000 gallons above 6,000 gallons per month \$3.675

Sewer User 0-6,000 gallons  
(monthly billing)

- \$23.10 Capacity Charge
- Cost per 1,000 gallons above 6,000 gallons per month \$4.20

## Milford System

(Shown as monthly billing)

Water User 0-6,000 gallons

- \$11.00 Capacity Charge
- Cost per 1,000 gallons above 6,000 gallons per month \$1.60

Water User 0-18,000 gallons (quarterly billing)

- \$33.00 Capacity Charge
- Cost per 1,000 gallons above 6,000 gallons per month \$1.60

Sewer User

(No Sewer Rate For Sanitary District)

# Proposed Residential Water Rates

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## **Capacity Fee - \$14.00 per bill**

- **Tier - 1 - Water Used 0-4,000 gal.**  
\$1.25 per 1,000 gal. used
- **Tier - 2 - Water Used 4,000-8,000 gal.**  
\$1.50 per 1,000 gal. used
- **Tier - 3 - Water User 8,000–10,000 gal.**  
\$3.50 per 1,000 gal. used
- **Tier - 4 - Water User 10,000 - + gal.**  
\$4.00 per 1,000 gal. used

# Percent of Customers Effected By Each Tier

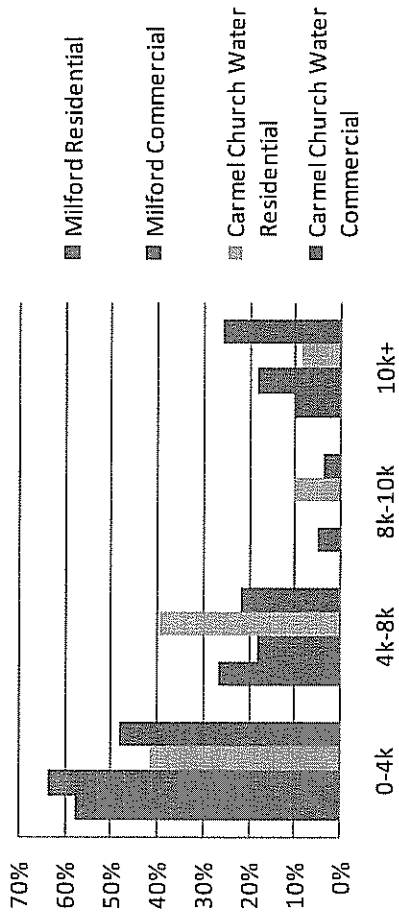
## County

## Milford

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- **Capacity Fee - \$14.00 per bill**
- **Tier - 1 - (41% of customers)**
  - Water Used 0-4,000 gal. \$1.25 per 1,000 gal. used
- **Tier - 2 - (39% of customers)**
  - Water Used 4,000-8,000 gal. \$1.50 per 1,000 gal. used
- **Tier - 3 - (10% of customers)**
  - Water User 8,000–10,000 gal. \$3.50 per 1,000 gal. used
- **Tier - 4 - (9% of customers)**
  - Water User 10,000 - + gal. \$4.00 per 1,000 gal. used
- **Capacity Fee - \$14.00 per bill**
- **Tier - 1 - (58% of customers)**
  - Water Used 0-4,000 gal. \$1.25 per 1,000 gal. used
- **Tier - 2 - (27% of customers)**
  - Water Used 4,000-8,000 gal. \$1.50 per 1,000 gal. used
- **Tier - 3 - (5% of customers)**
  - Water User 8,000–10,000 gal. \$3.50 per 1,000 gal. used
- **Tier - 4 - (10% of customers)**
  - Water User 10,000 - + gal. \$4.00 per 1,000 gal. used

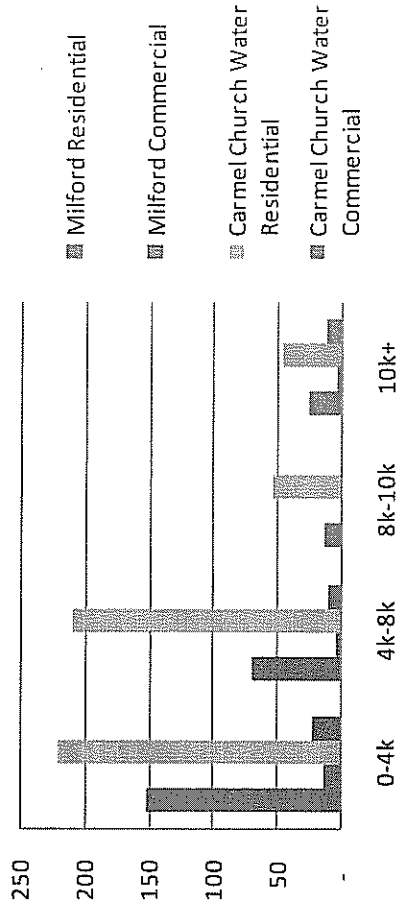
## 5/8" Customers Average Monthly Usage Ranges



|        | Milford Residential | Milford Commercial | Carmel Church Water Residential | Carmel Church Water Commercial |
|--------|---------------------|--------------------|---------------------------------|--------------------------------|
| 0-4k   | 58%                 | 27%                | 5%                              | 10%                            |
| 4k-8k  | 41%                 | 39%                | 10%                             | 9%                             |
| 8k-10k | 64%                 | 18%                | 0%                              | 18%                            |
| 10k+   | 48%                 | 22%                | 4%                              | 26%                            |

Number of 5/8" Customers

## 5/8" Customers Average Monthly Usage Ranges



Number of 5/8" Customers

|              | Milford Residential | Milford Commercial | Carmel Church Water Residential | Carmel Church Water Commercial |
|--------------|---------------------|--------------------|---------------------------------|--------------------------------|
| 0-4k         | 152                 | 71                 | 14                              | 27                             |
| 4k-8k        | 14                  | 4                  | -                               | 4                              |
| 8k-10k       | 220                 | 210                | 55                              | 47                             |
| 10k+         | 24                  | 11                 | 2                               | 13                             |
| <b>Total</b> | <b>264</b>          | <b>22</b>          | <b>532</b>                      | <b>50</b>                      |

# Current County Rate - VS- Proposed Rate\*

|                  | Monthly Usage | Current    |            |            | Proposed   |            |            |
|------------------|---------------|------------|------------|------------|------------|------------|------------|
|                  |               | Water Bill | Sewer Bill | Total Bill | Water Bill | Sewer Bill | Total Bill |
| Res. & Com. 5/8" | 2,000         | \$21.00    | \$23.10    | \$44.10    | \$16.50    | \$34.50    | \$51.00    |
| Res. & Com. 5/8" | 4,000         | 21.00      | 23.10      | 44.10      | 19.00      | 51.00      | 70.00      |
| Res. & Com. 5/8" | 6,000         | 21.00      | 23.10      | 44.10      | 22.00      | 68.00      | 90.00      |
| Res. & Com. 5/8" | 8,000         | 28.35      | 31.50      | 59.85      | 25.00      | 85.00      | 110.00     |
| Res. & Com. 5/8" | 10,000        | 35.70      | 39.90      | 75.60      | 32.00      | 102.50     | 134.50     |
| Commercial 1"    | 50,000        | 182.70     | 207.90     | 390.60     | 252.50     | 671.25     | 923.75     |
| Commercial 2"    | 150,000       | 675.20     | 627.90     | 1,303.10   | 731.23     | 1,793.42   | 2,524.65   |

\* Note: Assumes no winter averaging

# System Combined Water

|                  | Current       |                    |                   | Proposed      |            |            |
|------------------|---------------|--------------------|-------------------|---------------|------------|------------|
|                  | Monthly Usage | Milford Water Bill | County Water Bill | Monthly Usage | Water Bill | Water Bill |
| Res.5/8 Tier - 1 | 2,000         | \$11.00            | \$21.00           | 2,000         | \$16.50    | \$16.50    |
| Res.5/8 Tier - 1 | 4,000         | \$11.00            | \$21.00           | 4,000         | \$19.00    | \$19.00    |
| Res.5/8 Tier - 2 | 6,000         | \$11.00            | \$21.00           | 6,000         | \$22.00    | \$22.00    |
| Res.5/8 Tier - 3 | 8,000         | \$14.20            | \$28.35           | 8,000         | \$25.00    | \$25.00    |
| Res.5/8 Tier - 4 | 10,000        | \$17.40            | \$35.70           | 10,000        | \$32.00    | \$32.00    |

# County System

## Proposed Residential Sewer Rates

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- **Capacity Fee - \$18.00 per bill**
- **Tier - 1 - (36% of customers)**
  - Sewer Used 0-4,000 gal. \$8.25 per 1,000 gal. used
- **Tier - 2 - (29% of customers)**
  - Sewer Used 4,000-8,000 gal. \$8.50 per 1,000 gal. used
- **Tier - 3 - (11% of customers\*)**
  - Sewer User 8,000–10,000 gal. \$8.75 per 1,000 gal. used
- **Tier - 4 - (24% of customers\*)**
  - Sewer User 10,000 - + gal. \$9.50 per 1,000 gal. used

\*Note – these % will decrease with the Winter Billing for summer use

# County System

## Current Commercial Rates

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■ Water and sewer user fees are the same as residential fees, plus a meter capacity fee as shown below.

- Water \$21.00 (0-6,000 gal included and \$3.675 for each 1,000 gal over the 6,000 gal.)
- Sewer \$23.10 (0-6,000 gal included and \$4.20 for each 1,000 gal over the 6,000 gal.)

- 5/8" No Fee
- 1" \$30.00 per month
- 1.5" \$65.00 per month
- 2" \$125.00 per month
- 3" \$250.00 per month
- 4" \$500.00 per month
- 6" \$1,000.00 per month

# County System Proposed Commercial Rates All Sizes

|       |                     |                 | Tier 1    | Tier 2            | Tier 3            | Tier 4            |              |
|-------|---------------------|-----------------|-----------|-------------------|-------------------|-------------------|--------------|
|       | Number of Customers | Capacity Charge | Up to     | From Tier 1 Up to | From Tier 2 Up to | From Tier 3 Up to |              |
| Water |                     |                 | \$1.25    | \$1.50            | \$3.50            | \$4               | \$ Per 1,000 |
| 5/8"  | 50                  | \$14            | 4,000     | 8,000             | 10,000            | +                 |              |
| 1"    | 14                  | \$35            | 10,000    | 20,000            | 25,000            | +                 |              |
| 1.5"  | 7                   | \$63            | 20,000    | 37,000            | 46,250            | +                 |              |
| 2"    | 33                  | \$100           | 53,400    | 92,500            | 115,625           | +                 |              |
| 3"    | 1                   | \$151           | 192,240   | 309,875           | 387,344           | +                 |              |
| 6"    | 2                   | \$257           | 1,461,024 | 2,076,163         | 2,595,203         | +                 |              |
| Sewer |                     |                 | \$8.25    | \$8.50            | \$8.75            | \$9.50            | \$ Per 1,000 |
| 5/8"  | 35                  | \$18            | 4,000     | 8,000             | 10,000            | +                 |              |
| 1"    | 13                  | \$45            | 10,000    | 20,000            | 25,000            | +                 |              |
| 1.5"  | 7                   | \$81            | 20,000    | 37,000            | 46,250            | +                 |              |
| 2"    | 32                  | \$129           | 53,400    | 92,500            | 115,625           | +                 |              |
| 3"    | 1                   | \$194           | 192,240   | 309,875           | 387,344           | +                 |              |
| 6"    | 2                   | \$331           | 1,461,024 | 2,076,163         | 2,595,203         | +                 |              |

# Comparison of Various Utility Systems within Virginia

Monthly Utility Bill  
assuming 5,000 gal/month

| <u>Utility System</u>                      | <u>Water</u>   | <u>Wastewater</u> | <u>Total</u>   | <u># Connections</u> |
|--|----------------|-------------------|----------------|----------------------|
| Greensville Water and Sewer Authority      | \$45.24        | \$98.41           | \$143.65       | 1,770                |
| Middleton, Town of                         | \$45.00        | \$55.74           | \$100.74       | 516                  |
| Buckingham County PSA                      | \$49.20        | \$49.20           | \$98.40        | 308                  |
| Campbell Co PSA                            | \$31.90        | \$65.25           | \$97.15        | 8,700                |
| Onancock, Town of                          | \$33.71        | \$61.30           | \$95.01        | 606                  |
| Carroll Co PSA                             | \$38.50        | \$46.50           | \$85.00        | 2,200                |
| Hallifax County Service Auth               | \$28.00        | \$56.75           | \$84.75        | 40                   |
| Hamilton, Town of                          | \$40.00        | \$44.50           | \$84.50        | 484                  |
| Appomattox, Town of                        | \$33.00        | \$50.35           | \$83.35        | 672                  |
| <b>Bowling Green, Town of</b>              | <b>\$23.62</b> | <b>\$59.05</b>    | <b>\$82.67</b> | <b>840</b>           |
| Washington County Service Auth             | \$31.10        | \$51.00           | \$82.10        | 1,385                |
| Gordonsville, Town of                      | \$32.45        | \$48.37           | \$80.82        | 744                  |
| <b>Caroline County (Proposed)</b>          | <b>\$20.50</b> | <b>\$59.50</b>    | <b>\$80.00</b> | <b>796</b>           |
| Montgomery PSA                             | \$37.65        | \$37.65           | \$75.30        | 2,582                |
| Fauquier Co Water & Sanitation Auth        | \$30.42        | \$42.05           | \$72.47        | 5,407                |
| Purcellville, Town of                      | \$24.75        | \$44.90           | \$69.65        | 2,200                |
| Bedford Co PSA                             | \$32.50        | \$35.00           | \$67.50        | 8,870                |
| Rapidan Service Authority                  | \$28.33        | \$38.98           | \$67.31        | 1,770                |
| New Market, Town of                        | \$17.30        | \$49.56           | \$66.86        | 996                  |
| Hanover County                             | \$17.91        | \$38.69           | \$56.60        | 18,041               |
| King George                                | \$24.60        | \$31.95           | \$56.55        | 1,650                |
| <b>Caroline County (current)</b>           | <b>\$21.00</b> | <b>\$23.10</b>    | <b>\$44.10</b> | <b>532</b>           |
| Spotsylvania County                        | \$21.64        | \$21.66           | \$43.30        | 25,864               |
| Stafford County                            | \$13.77        | \$26.89           | \$40.66        | 32,592               |
| <b>Milford Sanitary District (current)</b> | <b>\$11.00</b> | <b>-</b>          | <b>\$11.00</b> | <b>264</b>           |

# Current Availability Fee Structure

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## **AVAILABILITY FEES**

Availability Fees are assessed for all new connections to the system based on the anticipated consumption of each individual customer. A Minimum Availability Fee is assessed for all customers with a consumption of 400 gallons per day or less. All other Availability Fees are assessed per gallon of usage.

MINIMUM AVAILABILITY FEE      \$7,000

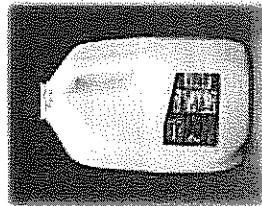
PER GALLON AVAILABILITY FEE    \$17.50/gallon

# Proposed Availability Fee Structure

| Meter Size         | Water         | Sewer         | Multiplier |
|--------------------|---------------|---------------|------------|
| 5/8-3/4 inch meter | \$ 7,000.00   | \$ 7,000.00   |            |
| 1 inch meter       | \$ 17,500.00  | \$ 17,500.00  | 2.5        |
| 1 1/2 inch meter   | \$ 35,000.00  | \$ 35,000.00  | 2          |
| 2 inch meter       | \$ 56,000.00  | \$ 56,000.00  | 1.6        |
| 3 inch meter       | \$ 112,000.00 | \$ 112,000.00 | 2          |
| 4 inch meter       | \$ 179,200.00 | \$ 179,200.00 | 1.6        |
| 6 inch meter       | \$ 358,400.00 | \$ 358,400.00 | 2          |



Deer Park Bottle  
Water \$8.26 per gal



Milk \$4.29 per gal.



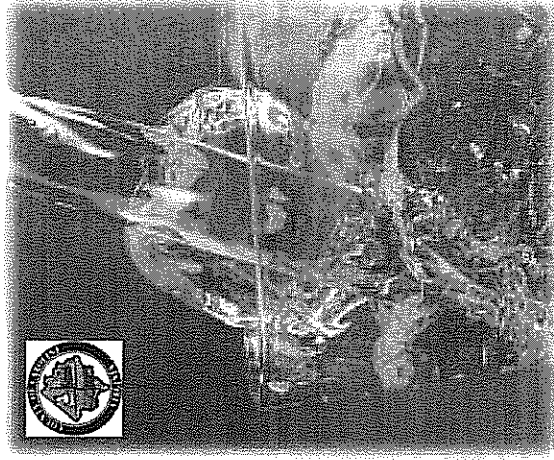
TV Service  
29.99 Per Month  
(basic package)



Cell Phone Service  
39.99 Per Month  
(basic package)



Internet Service  
49.99 Per Month  
(basic package)



Caroline County Water  
Cost Per Gallon \$0.00125  
(Tier 1)

# Utilities Goal

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## **“To establish a viable self sustaining enterprise system”**

that is accountable to all of the shareholders  
to include the Customers, Board of Supervisors,  
Regulatory Agencies, General Public and the Environment.”