Revenuesheds: An Essential Tool to Understanding How to Finance Watershed Protection

February 3, 2011
Smart Growth Conference
Charlotte, North Carolina

Jeff Hughes
Environmental Finance Center
University of North Carolina
(919) 843-4956
jhughes@sog.unc.edu
www.efc.unc.edu
Topics

• Revenuesheds – what are they and why are they important
• Examples
• Tools
<table>
<thead>
<tr>
<th>River Basin Name</th>
<th>Number of Local Governments</th>
<th>Square Miles Within North Carolina</th>
<th>Local Governments Per 1000 Square Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad</td>
<td>38</td>
<td>1,513</td>
<td>18</td>
</tr>
<tr>
<td>Cape Fear</td>
<td>145</td>
<td>9,271</td>
<td>15</td>
</tr>
<tr>
<td>Catawba</td>
<td>82</td>
<td>3,285</td>
<td>21</td>
</tr>
<tr>
<td>Chowan</td>
<td>25</td>
<td>1,309</td>
<td>13</td>
</tr>
<tr>
<td>French Broad</td>
<td>36</td>
<td>2,829</td>
<td>13</td>
</tr>
<tr>
<td>Hiwassee</td>
<td>7</td>
<td>643</td>
<td>5</td>
</tr>
<tr>
<td>Little Tennessee</td>
<td>17</td>
<td>1,796</td>
<td>6</td>
</tr>
<tr>
<td>Lumber</td>
<td>62</td>
<td>3,327</td>
<td>17</td>
</tr>
<tr>
<td>Neuse</td>
<td>98</td>
<td>5,657</td>
<td>13</td>
</tr>
<tr>
<td>New</td>
<td>12</td>
<td>753</td>
<td>8</td>
</tr>
<tr>
<td>Pasquotank</td>
<td>23</td>
<td>2,199</td>
<td>5</td>
</tr>
<tr>
<td>Roanoke</td>
<td>65</td>
<td>3,499</td>
<td>10</td>
</tr>
<tr>
<td>Savannah</td>
<td>6</td>
<td>171</td>
<td>6</td>
</tr>
<tr>
<td>Tar-Pamlico</td>
<td>70</td>
<td>4,625</td>
<td>11</td>
</tr>
<tr>
<td>Watauga</td>
<td>9</td>
<td>205</td>
<td>24</td>
</tr>
<tr>
<td>White Oak</td>
<td>23</td>
<td>1,048</td>
<td>20</td>
</tr>
<tr>
<td>Yadkin</td>
<td>118</td>
<td>7,221</td>
<td>13</td>
</tr>
</tbody>
</table>
Local Government and Non-Profit Utilities
- Cape Fear River Basin
- Sewer Utilities

Data Sources: USGS National Mapping Division, 2002; NC Center for Geographic Information Analysis, 2007

Created by: Jordan McMillen
UNC Environmental Finance Center
June, 2007
Local Government and Non-Profit Utilities

- Cape Fear River Basin
- Sewer Utilities
- Water Utilities
- Stormwater Utilities

Data Sources: USGS National Mapping Division, 2002; NC Center for Geographic Information Analysis, 2007

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UNC Environmental Finance Center
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What can be done?

• Watershed utility surcharges
• Watershed protection districts
• Inter-local agreements
• Revenue sharing
<table>
<thead>
<tr>
<th>Service Area (mi²)</th>
<th>Total Revenue</th>
<th>% of Total Area</th>
<th>Revenue</th>
<th>% of Total Area</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>160</td>
<td>$29,998,000</td>
<td>37%</td>
<td>$11,099,000</td>
<td>63%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>132</td>
<td>$36,219,000</td>
<td>42%</td>
<td>$15,212,000</td>
<td>58%</td>
</tr>
<tr>
<td>Stormwater</td>
<td>99</td>
<td>$8,686,000</td>
<td>46%</td>
<td>$3,996,000</td>
<td>54%</td>
</tr>
<tr>
<td>County Wastewater</td>
<td>-</td>
<td>$8,147,000</td>
<td>100%</td>
<td>$8,147,000</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>$83,052,000</strong></td>
<td></td>
<td><strong>$38,455,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Population (2000) | 3,085,040 | 1,762,301 | 1,322,739 |
| Per Capita        | $27       | $22       | $34       |
| Impaired Stream (Mi) | 884 | 425 | 459 |
| Per Mile          | **$94,000** | **$90,000** | **$97,000** |
Potential Source of Revenue: Water Utilities

Mills River – median flow ~ 87 MGD
Hendersonville – average withdrawal = 7.13 MGD
Asheville – capacity to withdraw = 7 MGD – mix of Mills River and French Broad
Hendersonville Water Utility Trends

- **Water Connections**
- **Sewer Connections**
- **Ave Water Use (MGD)**
- **Ave Sewer Use (MGD)**

The graph shows the trends of water connections, sewer connections, average water use, and average sewer use from 2000 to 2009.
### Example Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Rate Change for Mills River consumers</th>
<th>Increased Revenues</th>
<th>Leveraged funds with 20-year loan at 5% interest</th>
<th>Leveraged funds with 20-year loan at 1.75% interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$0.50 increase in Base Rate</td>
<td>$277,264</td>
<td>$2,772,641</td>
<td>$4,107,616</td>
</tr>
<tr>
<td>B</td>
<td>$1.00 increase in Base Rate</td>
<td>$554,528</td>
<td>$5,545,282</td>
<td>$8,215,232</td>
</tr>
<tr>
<td>C</td>
<td>$0.05 increase in per ccf (Asheville)</td>
<td>$241,545</td>
<td>$2,415,448</td>
<td>$3,578,442</td>
</tr>
<tr>
<td></td>
<td>$0.07 increase in per kgal (Hendersonville)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>$0.25 increase in per ccf (Asheville)</td>
<td>$1,186,661</td>
<td>$11,866,607</td>
<td>$17,580,158</td>
</tr>
<tr>
<td></td>
<td>$0.34 increase in per kgal (Hendersonville)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Capacity for Watershed Protection Investment for Watertown

Instructions:
This dashboard shows the impact of rate changes on the average customer’s monthly bill, as well as the amount of money that can be generated for a dedicated watershed fund or a specific project.

Double click box to the right to enter the utility name.

Enter Project Goals:
1) Select the dashboard goal: ○ Target project spending year 1 ○ Dedicated funding stream
2) Depending on whether the goal is to meet a target or to allocate a percentage of the revenue as a dedicated funding stream for watershed protection - enter the required information below.

Target Spending Year 1
$250,000

3) Enter billing units for water / wastewater: ○ CCF ○ kgal
4) Select years for loan:  
5) Enter interest rate or percent allocated: 2.00%

Enter Utility Rates and Changes:
1) Select tabs that apply to your municipality or utility.
2) Enter current average bill information (use the spinner or enter values directly).
3) Select the percent of accounts affected by rate changes (who is paying) and how those accounts are changing over time.
4) Use the sliders to increase the monthly base / rate charge.
5) Adjust rates until you reach the target goal or dedicated annual revenue stream.
6) Click the green help buttons for visual examples.

Dashboard Developed by the Environmental Finance Center at UNC www.efc.unc.edu
Capacity for Watershed Protection Investment for Watertown

Data Entry

Current Base Charge ($/month): $10.00

Amount included in base charge (Kgal): 0

Current rate ($/Kgal): $5.00

Average Use (Kgal/month): Residential 4.5, Commercial 25.0

Number of Accounts: Residential 10,000, Commercial 2,000

Change Fees and Demand

Base Charge Increase: $0.50

Rate per Kgal Increase: $0.00

Accounts to include in Bill Change: Residential 100%, Commercial 100%

Annual Water Use Change: Residential -1.00%, Commercial -1.00%

Annual Account Change: Residential 1.00%, Commercial 1.00%

Customer Impact

Residential Bill
Average Bill Increase: $0.50

% Bill Increase: 1.54%

Commercial Bill
Average Bill Increase: $0.50

% Bill Increase: 0.37%

Total Revenue Generated

Loan Term (Years): 20
Interest Rate: 2.00%

Total Monthly Bill Increase
Residential $0.50, Commercial $0.50

Total Financing $250,000

Watershed Protection Revenues Year 1: $72,000

Funds Available for Year One Investment
One-Time Cost Share, Financed

Revenue Available for Ongoing Expenses
(After debt service payments are made)

Save/Load Scenario, Year, Reset, Print
For More Information

Jeff Hughes
Environmental Finance Center
University of North Carolina
(919) 843-4956
jhughes@sog.unc.edu
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