

# Coosa-North Georgia Supplemental Document: Summary of Management Practice Decision Making Process

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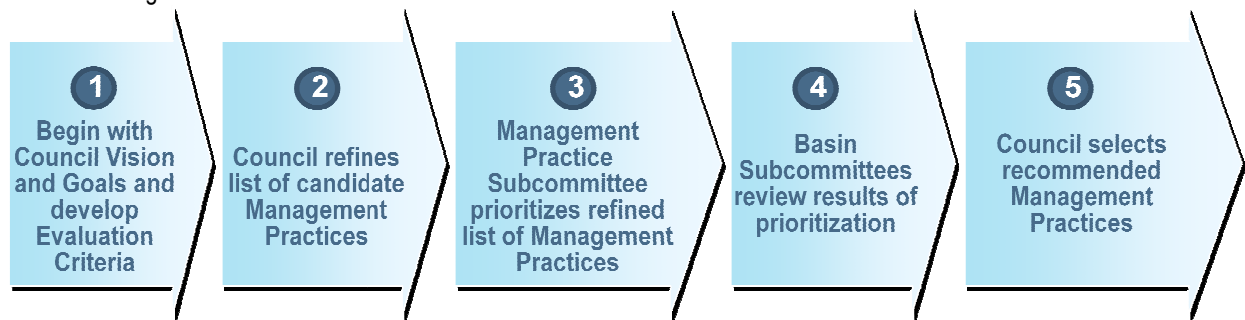
DATE: November 1, 2010

## Introduction

This memorandum describes the management practice decision making process that was endorsed by the Coosa-North Georgia WPC at the July 14, 2010 meeting. Exhibit 1 provides the basic steps in the selection of recommended Management Practices for further modeling by GA EPD and ultimately, inclusion in the Coosa - North Georgia WPC Regional Water Plan.

### EXHIBIT 1

Decision Making Flow Chart



This approach to decision making provides a variety of benefits to the council as they consider the wide variety of management practices:

- Build momentum and consensus
- Decision aid to support “human” decision
- Provides mechanism where multiple competing objectives (as defined by the Council’s goals) can be evaluated and compared against each other
- Transparent process, everyone can see why one practice scores higher than another

- Provide a clear, defensible and well-documented results

## Vision, Goals and Evaluation Criteria

The development of this decision making process began in early 2009 at the project kickoff meeting where the members discussed important issues to keep in mind during the planning process through the “35 exercise”. The council continued these discussions for a number of months and ultimately adopted the Council’s Vision Statement on November 19, 2009 and Council’s Goals on March 31, 2010 as identified below in Exhibit 2.

### EXHIBIT 2

Coosa – North Georgia WPC Adopted Vision and Goals

| <b>Vision</b>  |
|--|
| Enhance the potential and quality of life for all communities through sustainable use of water resources in the region and state with partnerships among a broad spectrum of stakeholders                                  |
| <b>Goals</b>   |
| 1. Plan for appropriate levels of water storage, water sources, and long-term supply to meet anticipated need for local communities.   |
| 2. Minimize adverse effects to local communities and adjacent regions, and, when possible, enhance, natural systems.   |
| 3. Ensure that management practices support economic development and optimize existing water and wastewater infrastructure.  |
| 4. Promote alternative technologies that conserve, return, and recycle water; protect water quality; and ensure adequate capacity for water storage within the Coosa-North Georgia region.                                 |
| 5. Promote properly managed wastewater discharges.   |
| 6. Educate stakeholders in the region on the importance of water resources, including water conservation, efficiency, and pollution prevention.  |
| 7. Identify practices that reduce nonpoint source pollution and control stormwater to protect and enhance water quality and ecosystems in lakes and streams, particularly those in Priority Watersheds and listed streams. |
| 8. Develop an ongoing adaptive management approach to measure, share, and evaluate water use data and information.   |

These goals and objectives were used to develop specific evaluation criteria supporting each goal to allow objective scoring of projects on a 10-point performance scale. Key attributes of the evaluation criteria are as follows:

- Linked to values – evaluation criteria were linked to the Council’s vision and goals and articulate what is important for the Council to accomplish.
- Non-redundant – evaluation criteria do not address overlapping aspects of management practices. (Redundant evaluation criteria could result in “double-counting” for that particular aspect in the scoring process).
- Independent – Accomplishment of one evaluation criteria cannot be dictated by any other measure.

A draft set of evaluation criteria were presented to the Council on July 14, 2010. These criteria are summarized in Exhibit 3 and the complete criteria are included as Appendix A.

**EXHIBIT 3**

## Summary of Evaluation Criteria

|  |
|--|
| <b>WS: WATER SUPPLY/QUANTITY</b> - Plan for appropriate levels of water storage, water sources, and long-term supply to meet anticipated need for local communities.   |
| <b>WQ: WATER QUALITY</b> - Protect and enhance water quality and ecosystems in lakes and streams, particularly those in priority and listed watersheds.  |
| <b>AT: ALTERNATIVE TECHNOLOGIES</b> - Use of alternative technologies that conserve, return, and recycle water; protect water quality; and ensure adequate capacity for water storage within the Coosa-North Georgia region. |
| <b>ED: ECONOMIC DEVELOPMENT</b> - Ensure that management practices support economic development and optimize existing water and wastewater infrastructure.   |
| <b>AE: ADVERSE EFFECTS</b> - Minimize adverse effects to local communities and adjacent regions, and, when possible, enhance, natural systems.   |
| <b>ES: EDUCATE STAKEHOLDERS</b> - Educate stakeholders in the region on the importance of water resources, including water conservation, efficiency, and pollution prevention.   |

**Council Refines Candidate Management Practices**

The Council began the identification and refinement of management practices in late 2009 with discussions about the various types of practices. This discussion was developed further in early 2010 council meetings and was the primary topic at four Basin Subcommittee (Etowah, Chattahoochee, Oostanaula and Tennessee) meetings held in June 2010. Based on these discussions, a list of seventy-nine potential management practices was developed for four categories of practices (Demand Management/Water Conservation, Water Supply, Wastewater, and Water Quality). The initial list was based on a combination of recent management practices developed for other studies in the region to ensure that regionally accepted practices were taken into consideration and this list is attached as Appendix B.

On July 14, 2010, the Council reviewed this list and made a number of edits such that final list of management practices to be evaluated further was reduced from seventy-nine to sixty-one and reduced to sixty at a later date during the decision making process. These sixty practices are included as Appendix C. Following the decision making process, additional direction from the Council resulted in further reduction in the number of management practices, and the results are located in the Coosa-North Georgia Water Development & Conservation Plan.

**Total Benefits Prioritization of Management Practices**

To facilitate the efficient evaluation of the management practices the Council selected a subcommittee from around the region and representing a variety of sectors to perform a detailed evaluation of the practices against the Council selected Evaluation Criteria.

The results of any prioritization are best regarded and applied as *decision aids*. Results should inform rather than dictate the decision. The analysis provides a way of organizing and comparing complex information. To the extent the Council believes that the evaluation criteria represent the important issues, the weights and performance measures are appropriate, and the scores are accurate, they may be confident in the results.

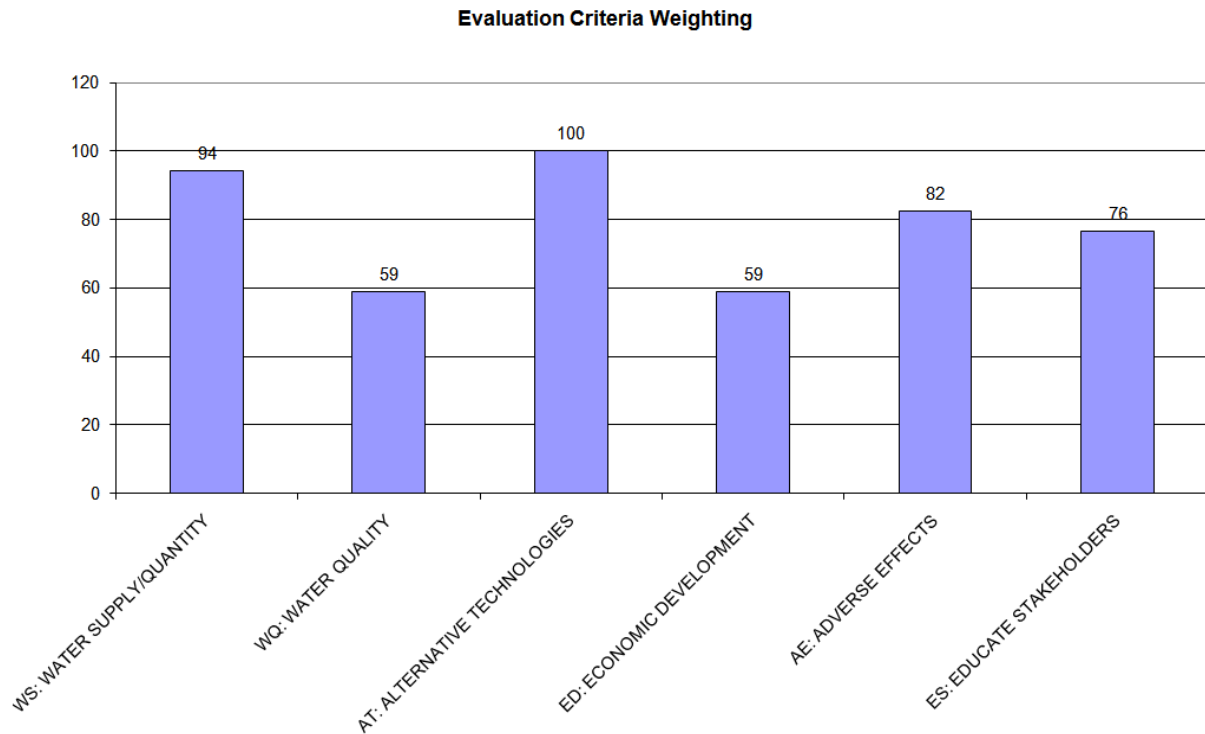
Also, sensitivity analysis often provides insights. If the results of the prioritization do not change unless there are substantial changes in weights, then the Council may be confident

in the results. If the results do change, further reflection about scales, weights, and goals will help illuminate the tradeoffs faced by the Council.

The prioritization workshop was held with a subcommittee on August 5, 2010 and began with a weighting exercise where each of the six evaluation criteria were assigned an initial weighting. Exhibit 4 provides the resulting output from the evaluation criteria weighting exercise. These weights were reviewed and approved by the basin subcommittees and the full council. The weights reflect the respective importance of each criterion to the council members.

#### EXHIBIT 4

##### Initial Evaluation Criteria Weighting



With the criteria weighting set, the subcommittee proceeded to assign group scores for each of the management practices against each of the six evaluation criteria to calculate a total benefit score for each practice. These scores were summarized to allow the Council to easily see to what extent each practice supports each criterion. Using this summary, the Council compared practices and refined the scores to better reflect importance relative to each other. See Appendix D for final benefit scores for each practice category (Water Conservation, Water Supply, Wastewater, and Water Quality).

In addition to the total benefits calculation, the subcommittee reviewed a rough order of magnitude cost evaluation of each of the management practices that was performed by CH2M HILL. Each practice was assigned a relative cost of high, medium or low (See Appendix C). These estimates were primarily used to compare practices against each other within each of the four categories of management practices, although they provided some benefit in comparing costs across categories.

The relative cost was used by the council to select management practices that will be acceptable for use in the region. It is important to note that the actual costs for any given community will likely vary widely based on the size of the community, level of implementation already underway, and other local conditions.

### **Basin Subcommittees Review Results and Selects Management Practices**

A “Strawman” of the final recommended list of management practices was developed for review by the council during Council Meeting #7 on September 15, 2010. The council members split into groups representing the four Basin Subcommittees to evaluate the results of the total benefit scores, order of magnitude cost, and appropriateness of management practice implementation in their respective Basins. Based on these facilitated discussions, the Basin Subcommittees came to an agreement on the final forty-five management practices that will be implemented in the Coosa-North Georgia Regional Water Plan. Appendix E illustrates the final Basin Subcommittee votes for each accepted practice.

# Appendix A- Evaluation Criteria

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Appendix A  
**2010 COOSA-NORTH GEORGIA WATER PLANNING COUNCIL**  
 Management Practice Evaluation Criteria

**CNG WPC VISION: Enhance the resources and quality of life for all communities through sustainable use of water resources in the region and state with partnerships among a broad spectrum of stakeholders.**

| 0<br>(Negative Impact)   | 2<br>(No Impact)  | 4<br>(Low Impact)  | 7<br>(Medium Impact)   | 10<br>(High Impact)   |
|--|---|--|--|---|
| <b>WS: WATER SUPPLY/QUANTITY</b> Plan for appropriate levels of water storage, water sources, and long-term supply to meet anticipated need for local communities.   |   |  |  |   |
| Decreases supply within the planning area<br>OR<br>Eliminates potential supplies from future use   | Does not impact supply or capacity  | Provides SOME increase in storage capacity<br>OR<br>Maintains and protects existing supplies<br>OR<br>Ensures adequate supplies for emergencies                        | Provides MODERATE increase in storage capacity   | Provides SIGNIFICANT increase in storage capacity<br>AND<br>Maintains and protects existing supplies<br>AND<br>Ensures adequate supplies for emergencies  |
| <b>WQ: WATER QUALITY</b> Protect and enhance water quality and ecosystems in lakes and streams, particularly those in priority and listed watersheds.  |   |  |  |   |
| Potential to degrade water quality and ecosystems in lakes and streams   | Provides no decreases in point and/or nonpoint source pollutant loads<br>OR<br>Provides no enhancements to water quality and ecosystems<br>OR<br>Provides no increases in reliability or efficiency of infrastructure | Provides SOME water quality improvements<br>OR<br>Provides SOME ecosystem improvements<br>OR<br>Provides SOME increases in reliability or efficiency of infrastructure | Provides MODERATE water quality improvements<br>OR<br>Provides MODERATE ecosystem improvements<br>OR<br>Provides MODERATE increases in reliability or efficiency of infrastructure | Provides SIGNIFICANT water quality improvements, including those in priority and/or listed watersheds<br>OR<br>Provides SIGNIFICANT ecosystem improvements, including those in priority and/or listed watersheds<br>OR<br>Provides SIGNIFICANT increases in reliability or efficiency of infrastructure |
| <b>AT: ALTERNATIVE TECHNOLOGIES</b> Use of alternative technologies that conserve, return, and recycle water; protect water quality; and ensure adequate capacity for water storage within the Coosa-North Georgia region. |   |  |  |   |
| N/A  | Produces no changes in the manner water resources are managed   | Provides SOME use of alternative technology for conservation, reuse, water quality protection, and/or water storage.   | Provides MODERATE use of alternative technology for conservation, reuse, water quality protection, and/or water storage.   | Provides SIGNIFICANT use of alternative technology for conservation, reuse, water quality protection, and/or water storage.   |
| <b>ED: ECONOMIC DEVELOPMENT</b> Ensure that management practices support economic development and optimize existing water and wastewater infrastructure.   |   |  |  |   |
| Decreases supply to inhibit economic growth<br>OR<br>Decreases system efficiency   | Does not promote or hinder economic development<br>OR<br>No increases or losses in existing water and wastewater infrastructure efficiency  | Provides SOME economic development benefits or increase in water and wastewater system efficiency  | Provides MODERATE economic development benefits or increase in water and wastewater system efficiency  | Provides SIGNIFICANT economic development benefits or increase in water and wastewater system efficiency  |
| <b>AE: ADVERSE EFFECTS</b> Minimize adverse effects to local communities and adjacent regions, and, when possible, enhance, natural systems.   |   |  |  |   |
| Provides adverse effects to local communities or adjacent regions  | No positive or negative impact on local communities and adjacent regions  | SOMEWHAT prevents adverse impacts to local communities and adjacent regions<br>OR<br>Builds partnerships among adjacent regions  | MODERATELY prevents adverse impacts to local communities and adjacent regions<br>AND<br>Builds partnerships among adjacent regions   | SIGNIFICANTLY prevents adverse impacts to local communities and adjacent regions<br>AND<br>Builds partnerships among adjacent regions   |
| <b>ES: EDUCATE STAKEHOLDERS</b> Educate stakeholders in the region on the importance of water resources, including water conservation, efficiency, and pollution prevention.   |   |  |  |   |
| Potential to discourage public participation<br>OR<br>May result in negative media coverage  | Will not motivate stakeholders to engage water management planning or management practice implementation<br>AND<br>No increased understanding of management practices and associated costs                            | Improves stakeholder and/or public understanding of water resource management<br>OR<br>Potential to secure positive media coverage                                     | Encourages stakeholders to take voluntary action to protect and conserve water resources<br>OR<br>Results in MODERATE levels of media coverage                                     | SIGNIFICANTLY motivates stakeholders to take action to conserve, increase efficiency, and protect water resources.  |

# Appendix B- Initial Management Practice List

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## Appendix B

### COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - DEMAND MANAGEMENT (WD)

| Number | Sector                  | Element   | Description/Comments  | Committee Discussions | Stewardship Act | WCIP     | EPA Reg 4 Reservoir Guidelines | MNGWPD   | Etowah Initiative | Dalton Utilities | Habersham County | City of Rome | Town of Mount Airy |
|--------|-------------------------|---|---|-----------------------|-----------------|----------|--------------------------------|----------|-------------------|------------------|------------------|--------------|--------------------|
| 1      | All                     | Implement education and public awareness programs                                     | -Develop a local public education program<br>-Perform public education and outreach activities<br>-Perform public participation and involvement activities  | <b>X</b>              |                 | <b>X</b> | <b>X</b>                       | <b>X</b> | <b>X</b>          | <b>X</b>         | <b>X</b>         |              | <b>X</b>           |
| 2      | All                     | Develop water conservation goals  |   | <b>X</b>              |                 | <b>X</b> | <b>X</b>                       |          |                   |                  | <b>X</b>         |              |                    |
| 3      | Institutional           | Assess and reduce water system leakage  | STEWARDSHIP ACT: 1/1/12 deadline for systems service more than 10,000 people, 1/1/13 deadline for other systems above 3,300 people<br>-Assess local water losses annually<br>-Develop a program for identifying and reducing local water system loss<br>-Set a goal for real water losses | <b>X</b>              | <b>X</b>        | <b>X</b> | <b>X</b>                       | <b>X</b> | <b>X</b>          | <b>X</b>         | <b>X</b>         |              | <b>X</b>           |
| 4      | Institutional           | Install 1.28 gpf toilets & low flow urinals in government buildings                   | -Develop a list of eligible government buildings<br>-Develop a retrofit schedule and program<br>-Retrofit fixtures  |                       | <b>X</b>        |          | <b>X</b>                       | <b>X</b> |                   |                  |                  |              |                    |
| 5      | Institutional           | Non-Potable Reuse   | -Irrigation with high quality treated effluent in areas such as golf courses and parks  | <b>X</b>              |                 | <b>X</b> | <b>X</b>                       | <b>X</b> |                   |                  |                  |              |                    |
| 6      | Residential             | Conservation pricing  | -Eliminate declining block rate structures<br>-Perform a rate and revenue analysis<br>-Irrigation meter pricing<br>-Billing system functionality<br>-Review and update pricing  | <b>X</b>              |                 | <b>X</b> | <b>X</b>                       | <b>X</b> | <b>X</b>          | <b>X</b>         | <b>X</b>         | <b>X</b>     |                    |
| 7      | Residential             | Conduct residential water audits  | -Develop a water audit program<br>-Distribute water audits guidelines   |                       |                 | <b>X</b> |                                | <b>X</b> |                   |                  | <b>X</b>         | <b>X</b>     |                    |
| 8      | Residential             | Distribute low-flow retrofit kits to residential users                                | -Purchase low flow retrofit kits<br>-Distribute low flow retrofit kits  |                       |                 | <b>X</b> | <b>X</b>                       | <b>X</b> | <b>X</b>          |                  |                  |              |                    |
| 9      | Residential             | New watering restriction  | -Limits allowable periods for residential irrigation  |                       | <b>X</b>        |          |                                |          |                   |                  |                  |              |                    |
| 10     | Residential, Commercial | Sub-meters in new multi-family buildings  | -STEWARDSHIP ACT: "All new multi-unit residential buildings permitted on or after July 1, 2012, shall be constructed in a manner which will permit the measurement by a county, municipal, or other public water system or by the owner or operator of water use by each unit."           |                       | <b>X</b>        | <b>X</b> | <b>X</b>                       | <b>X</b> |                   |                  |                  |              |                    |
| 11     | Residential, Commercial | Replace older, inefficient plumbing fixtures  | -Establish a replacement strategy<br>-Enhance replacement program   | <b>X</b>              | <b>X</b>        | <b>X</b> | <b>X</b>                       | <b>X</b> | <b>X</b>          |                  |                  |              |                    |
| 12     | Residential, Commercial | Rain sensor shut-off switches on new irrigation systems                               | -Enact rain sensor shut-off requirements<br>-Update building inspection checklists  |                       |                 | <b>X</b> |                                | <b>X</b> |                   |                  |                  |              |                    |
| 13     | Residential, Commercial | High-efficiency cooling towers in new construction permitted on or after July 1, 2012 | -Consider inclusion of audits for existing cooling towers to identify opportunities to conserve   |                       | <b>X</b>        |          |                                |          |                   |                  |                  |              |                    |

## Appendix B

### COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - DEMAND MANAGEMENT (WD)

| Number | Sector                    | Element  | Description/Comments  | Committee Discussions | Stewardship Act | WCIP     | EPA Reg 4 Reservoir Guidelines | MNGWPD   | Etowah Initiative | Dalton Utilities | Habersham County | City of Rome | Town of Mount Airy |
|--------|---------------------------|--|---|-----------------------|-----------------|----------|--------------------------------|----------|-------------------|------------------|------------------|--------------|--------------------|
| 14     | Residential, Commercial   | Provide incentives for water wise landscaping                              |   |                       |                 |          | <b>X</b>                       |          | <b>X</b>          |                  |                  |              |                    |
| 15     | Commercial                | Conduct commercial water audits  | -Train personnel<br>-Advertise water audit program<br>-Conduct audits with interested commercial partners<br>-Report results to commercial partners |                       |                 | <b>X</b> |                                | <b>X</b> |                   |                  |                  | <b>X</b>     |                    |
| 16     | Commercial                | Require new car washes to recycle water                                    | -Adopt a local ordinance or regulation  |                       |                 |          |                                | <b>X</b> |                   |                  |                  |              |                    |
| 17     | Agriculture               | New ag permit requirements   | -Addresses existing active and inactive permits   | <b>X</b>              | <b>X</b>        |          |                                |          |                   |                  |                  |              |                    |
| 18     | Agriculture               | Meter water withdrawals  |   | <b>X</b>              |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |
| 19     | Agriculture, Golf Courses | Minimize water lost to leaks   |   |                       |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |
| 20     | Agriculture               | Variable rate irrigation systems   |   |                       |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |
| 21     | Agriculture               | Conservation tillage   |   |                       |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |
| 22     | Golf Courses              | Develop site specific plan to conserve water                               |   |                       |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |
| 23     | Golf Courses              | Precondition turf grass through agronomic programs to minimize water needs |   |                       |                 | <b>X</b> |                                |          |                   |                  |                  |              |                    |

Stewardship Act - 2010 SB 370

WCIP - Water Conservation Implementation Plan

EPA Reg 4 Reservoir Guidelines - Environmental Protection Agency Region 4 Guidelines on Water Efficiency Measures For Water Supply projects in the Southeast (6-21-10)

MNGWPD - Metropolitan North Georgia Water Planning District

## Appendix B

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER SUPPLY (WS) |  |   |                       |           |          |          |          |                  |                  |              |                    |
|---|--|---|-----------------------|-----------|----------|----------|----------|------------------|------------------|--------------|--------------------|
| Number  | Element  | Description/Comments  | Committee Discussions | EPA Reg 4 | MNGWPD   | NWGRWP   | UERBG    | Habersham County | Dalton Utilities | City of Rome | Town of Mount Airy |
| 1   | Develop water master plans every five (5) years  | -Create and utilize a local water master plan with a 30 year planning horizon<br>-Update local water master plan  | <b>X</b>              |           | <b>X</b> |          |          |                  |                  |              |                    |
| 2   | Develop water budgets on regional/watershed scale  | - Update regional planning work completed to date periodically<br>- Evaluate potential for partnerships in meeting future water supply including sources such as Tennessee River  | <b>X</b>              | <b>X</b>  |          | <b>X</b> | <b>X</b> | <b>X</b>         |                  |              |                    |
| 3   | Use Integrated Resource Management Approach - recognize interrelationships between water, wastewater, stormwater, and energy | - Evaluate cost-benefits of various water resources planning measures across water, wastewater, stormwater  | <b>X</b>              | <b>X</b>  |          |          |          | <b>X</b>         |                  |              |                    |
| 4   | Expand existing reservoirs   | -Evaluate potential expansion of existing facilities<br>- Evaluate potential for NRCS impoundments to serve as WS sources   | <b>X</b>              |           |          |          |          |                  |                  |              |                    |
| 5   | Construction of new reservoirs   | - Evaluate when needed to meet demands<br>- Begin process to permit as will be complex  | <b>X</b>              |           | <b>X</b> | <b>X</b> | <b>X</b> |                  | <b>X</b>         |              |                    |
| 6   | Develop new groundwater wells  | - Evaluate potential for groundwater (often as supplemental supply)<br>- Permit/implement as needed and practicable<br>- Consider role for aquifer storage and recovery (ASR)   | <b>X</b>              |           |          |          | <b>X</b> | <b>X</b>         |                  |              |                    |
| 7   | Indirect Potable Reuse   | Return highly treated wastewater to water supply reservoirs   | <b>X</b>              |           | <b>X</b> |          |          |                  |                  |              |                    |
| 8   | Expand existing/construct new water treatment plants   | - Evaluate when needed to meet demands<br>- Begin process to permit   | <b>X</b>              |           | <b>X</b> |          | <b>X</b> | <b>X</b>         |                  |              |                    |
| 9   | Develop or update local emergency water plans  | -Adopt a written emergency water supply plan<br>-Assess the need for establishment and maintenance of service connections<br>-If interconnections are needed, meet interconnection reliability targets<br>-Update the emergency water supply plan<br>- Evaluate potential to purchase from other water systems for short term<br>- Continue to Evaluate longer term solutions |                       |           | <b>X</b> |          | <b>X</b> | <b>X</b>         | <b>X</b>         |              | <b>X</b>           |
| 10  | Water System Asset Management  | -Map water system assets<br>-Develop a water system asset management program<br>-Coordinate asset management and leak detection programs  |                       |           | <b>X</b> |          |          |                  |                  |              |                    |
| 11  | Source water supply watershed protection   | -Identify water supply watersheds<br>-Adopt Environmental Planning Criteria<br>-Coordination on watershed protection  | <b>X</b>              | <b>X</b>  | <b>X</b> |          |          |                  | <b>X</b>         |              |                    |

EPA Reg 4 Reservoir Guidelines - Environmental Protection Agency Region 4 Guidelines on Water Efficiency Measures For Water Supply projects in the Southeast (6-21-10)

MNGWPD - Metropolitan North Georgia Water Planning District

NWGRWP - Northwest Georgia Regional Water Resources Partnership

UERBG - Upper Etowah River Basin Group

## Appendix B

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER (WW) |   |  |                       |          |                   |                  |                  |              |
|---|---|--|-----------------------|----------|-------------------|------------------|------------------|--------------|
| Number  | Element   | Description/Comments   | Committee Discussions | MNGWPD   | Etowah Initiative | Habersham County | Dalton Utilities | City of Rome |
| 1   | Evaluate wastewater treatment and disposal options to meet future demands/Develop local wastewater master plans and update every 5 years at a minimum | <ul style="list-style-type: none"> <li>- Evaluate future wastewater capacity needs</li> <li>- Identify and evaluate options to treat and dispose of wastewater</li> <li>- Consider opportunities for reuse (indirect potable, non-potable, etc.)</li> </ul>  | <b>X</b>              | <b>X</b> |                   | <b>X</b>         | <b>X</b>         |              |
| 2   | Provide sewer service to new residential development in water supply watersheds   | <ul style="list-style-type: none"> <li>- Work with local developers to ensure they understand program</li> </ul>   |                       |          |                   |                  | <b>X</b>         |              |
| 3   | Coordinate with local government on the development of a private wastewater system ordinance  | <ul style="list-style-type: none"> <li>-Adopt a private wastewater system ordinance</li> <li>-Provide a copy of the ordinance to Georgia EPD and Georgia DCA</li> </ul>  | <b>X</b>              | <b>X</b> |                   |                  |                  |              |
| 4   | Develop recommendations for decentralized sewer system  | <ul style="list-style-type: none"> <li>- Evaluate potential for designing decentralized systems so can tie on to central sewer when available</li> <li>- Identify implementation issues</li> <li>- Develop design standards</li> <li>- Implement design standards</li> <li>-Establis policies for connections to public sewer</li> </ul> | <b>X</b>              | <b>X</b> |                   |                  |                  |              |
| 5   | Develop and implement a local wastewater education and public awareness program   |  |                       | <b>X</b> |                   |                  |                  |              |
| 6   | Provide local government with acceptable parameters for septage disposal at facilities  | <ul style="list-style-type: none"> <li>-Develop a plan and acceptable parameters for septage disposal</li> <li>-Collect septage manifests and provide to County Board of Health</li> <li>-Consider septage disposal needs when upgrading or designing new wastewater treatment facilities</li> </ul>                                     |                       | <b>X</b> |                   |                  |                  |              |
| 7   | Septic system planning  | <ul style="list-style-type: none"> <li>-Determine future septic system areas and local requirements</li> <li>-Develop near term and long-term policies for transitioning unsewered areas to sewerred areas.</li> </ul>   | <b>X</b>              | <b>X</b> |                   |                  |                  |              |
| 8   | Septic system critical area management  | <ul style="list-style-type: none"> <li>-Identify critical areas</li> <li>-Conduct additional management of septic systems in those critical areas</li> </ul>   | <b>X</b>              | <b>X</b> |                   |                  |                  |              |
| 9   | Septic system maintenance education   | <ul style="list-style-type: none"> <li>-Implement a septic System homeowner education program</li> <li>-Provide information to homeowners at closing</li> <li>-Identify septic systems on plats</li> </ul>   | <b>X</b>              | <b>X</b> | <b>X</b>          |                  |                  |              |
| 10  | Track septic system pumping history   | <ul style="list-style-type: none"> <li>- Identify implementation issues</li> <li>- Develop tracking system</li> <li>- Implement tracking system</li> <li>- Pass pumping history on to new homeowners</li> </ul>  |                       |          |                   |                  |                  |              |

## Appendix B

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER (WW) |   |   |                       |          |                   |                  |                  |              |
|---|---|---|-----------------------|----------|-------------------|------------------|------------------|--------------|
| Number  | Element   | Description/Comments  | Committee Discussions | MNGWPD   | Etowah Initiative | Habersham County | Dalton Utilities | City of Rome |
| 11  | Study effects of failing septic systems on water quality              | - Develop plan to evaluate effects of septic systems on water quality<br>- Perform monitoring<br>- If needed, develop program to reduce pollutant loading from septic systems   | <b>X</b>              |          | <b>X</b>          |                  |                  |              |
| 12  | Sewer system inventory and mapping                                    | -Determine sewer system mapping strategy<br>-Collect field data for sewer system database development<br>-Create a sewer system map<br>-Update sewer system maps  |                       | <b>X</b> |                   |                  | <b>X</b>         | <b>X</b>     |
| 13  | Sewer system inspection and maintenance program                       | -Establish and implement inspection and maintenance program   |                       | <b>X</b> |                   |                  | <b>X</b>         | <b>X</b>     |
| 14  | Sewer system inspection and maintenance training                      | -Review existing staff certifications<br>-Secure additional needed training   |                       | <b>X</b> |                   |                  |                  |              |
| 15  | Sewer system rehabilitation program                                   | -Prioritize rehabilitation projects<br>-Develop schedule and budget<br>-Implement rehabilitation program<br>-Annual planning and budgeting<br>-Rehabilitation project documentation   |                       | <b>X</b> |                   |                  |                  | <b>X</b>     |
| 16  | Capacity certification program  | -Maintain a flow and rainfall monitoring program<br>-Maintain a hydraulic model or manual calculation approach<br>-Determine system capacity<br>-Maintain procedures for certifying available capacity<br>-Certify availability of capacity for proposed developments |                       | <b>X</b> |                   |                  |                  |              |
| 17  | Grease management program   | -Develop procedures for grease control and enforcement<br>-Fats, oils and grease (FOG) education  |                       | <b>X</b> |                   |                  | <b>X</b>         |              |
| 18  | Sewer system overflow emergency response program, location inspection | -Review overflow response program<br>-Add SOPs to ensure proper response to overflows   |                       | <b>X</b> |                   |                  | <b>X</b>         | <b>X</b>     |
| 19  | Sewer system asset management   | -Select a Computerized Maintenance Management System (CMMS) or asset Management approach<br>-Implement a CMMS or asset Management System  |                       | <b>X</b> |                   |                  |                  |              |

MNGWPD - Metropolitan North Georgia Water Planning District

## Appendix B

### COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY (WQ)

| Number | Category                     | Element  | Description  | Committee Discussions | MS4      | MNGWPD   | Lake Allatoona- Upper Etowah WPP        | Dalton Utilities | Town of Mount Airy |
|--------|------------------------------|--|--|-----------------------|----------|----------|---|------------------|--------------------|
| 1      | Agricultural                 | Fence cattle away from streams   | Fence cattle out of streams to prevent stream bank erosion and attenuate pollutants. Provide an alternative water source for cattle.   | <b>X</b>              |          |          |   |                  |                    |
| 2      | Agricultural                 | Fertilizer/Nutrient Management Programs  | Apply fertilizer at rates that are used by plants to avoid excessive nutrient runoff   | <b>X</b>              |          |          |   |                  |                    |
| 3      | Agricultural                 | Cropland Management Practices  | Conservation Tillage, Cover Crop, Field Border, Riparian Forested Buffer, Land Conversion (Crop to Forest), Strip Cropping, Nutrient Management  |                       |          |          |   |                  |                    |
| 4      | Agricultural                 | Animal Waste Management Programs includes waste storage/coverage, manure testing, composting | Practices to reduce runoff carrying pollutants from animal waste; includes practices to store/cover and compost manure   | <b>X</b>              |          |          |   |                  |                    |
| 5      | Agricultural                 | Forestry Management Practices  | Streamside Management Zones, Mechanical Site Preparation and Main Haul Roads (as adopted and enforced by the GA Forestry Commission).  | <b>X</b>              |          |          |   |                  |                    |
| 6      | Erosion and Sediment Control | Erosion and Sediment Control Program   | Practices to reduce runoff from construction sites when a given threshold of land is disturbed; may need to develop compliance and enforcement for existing programs<br>Training program for contractors who implement erosion and sediment control programs | <b>X</b>              | <b>X</b> | <b>X</b> | <b>Pickens,<br/>Dawson,<br/>Lumpkin</b> |                  |                    |
| 7      | Stormwater                   | Post-Development Stormwater Management   | Managing runoff from new development and redevelopment areas such that pre- and post-construction runoff volume is maintained  | <b>X</b>              | <b>X</b> | <b>X</b> | <b>X</b>                                |                  |                    |
| 8      | Stormwater                   | Site Design Practices  | Encouraging site design practices which minimize environmental impacts. This can include: conservation subdivisions where larger amounts of open space are left on development (individual lot size reduced, but overall density allowed)                    |                       |          |          |   |                  |                    |
| 9      | Stormwater                   | Stormwater Infrastructure Inventory  | Inventory and map stormwater system  |                       |          | <b>X</b> |   |                  |                    |
| 10     | Stormwater                   | Stormwater Operations and Maintenance Program  | Develop a program to inspect and monitor stormwater control structures to ensure they are built and maintained as planned  |                       |          | <b>X</b> | <b>X</b>                                |                  |                    |
| 11     | Stormwater                   | Pollution Prevention/ Good Housekeeping for Local Operations                                 | Local governments develop practices to prevent pollutant runoff from their land  |                       | <b>X</b> | <b>X</b> |   |                  |                    |
| 12     | Stormwater                   | Illicit Discharge Detection and Elimination Program  | Identify illicit discharges to stormwater system and develop a program to eliminate them   |                       | <b>X</b> | <b>X</b> |   |                  |                    |
| 13     | Stormwater                   | Local Education and Public Awareness Program   | Develop a program to educate the public about measures they can take to minimize their impacts on water resources  |                       | <b>X</b> | <b>X</b> | <b>X</b>                                | <b>X</b>         |                    |
| 14     | Stormwater                   | Stormwater Capital Improvement Projects  | Replace failing stormwater infrastructure to manage flooding, water quality and other environmental benefits   |                       |          | <b>X</b> |   | <b>X</b>         |                    |
| 15     | Stormwater                   | Regional BMPs - regional ponds, habitat protection   | Includes regional stormwater ponds and other watershed practices such as stream or buffer restoration  |                       |          |          |   | <b>X</b>         |                    |
| 16     | Riparian Buffers             | Stream Buffer Protection   | Practice in which a vegetated (often forested) corridor is left along side streams. Buffers protect habitat and filter pollutants  | <b>X</b>              |          | <b>X</b> | <b>Pickens,<br/>Dawson</b>              |                  |                    |

## Appendix B

### COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY (WQ)

| Number | Category                    | Element  | Description   | Committee Discussions | MS4 | MNGWPD   | Lake Allatoona- Upper Etowah WPP        | Dalton Utilities | Town of Mount Airy |
|--------|-----------------------------|--|---|-----------------------|-----|----------|---|------------------|--------------------|
| 17     | Floodplain Protection       | Floodplain Management/Flood Damage Prevention - Existing Floodplains | Site plan review practices to prohibit or minimize development in the floodplain  |                       |     | <b>X</b> |   |                  | <b>X</b>           |
| 18     | Floodplain Protection       | Future-Conditions Floodplain Delineation and Protection              | Develop future flood maps based on future land use and use for management decisions   |                       |     | <b>X</b> |   |                  |                    |
| 19     | Land Use Planning           | Comprehensive Land Use Planning and Zoning                           | Land use planning and zoning can be used to encourage development in certain areas and discourage development in environmentally sensitive areas<br>Open Space Planning and Acquisition - Protecting open space along riparian corridors, wetlands, groundwater recharge areas can help protect water resources |                       |     | <b>X</b> |   |                  |                    |
| 20     | Natural Resource Protection | Litter Control   | Litter prevention protects streams as well as aesthetics; could also include street sweeping  | <b>X</b>              |     | <b>X</b> | <b>Pickens,<br/>Dawson,<br/>Lumpkin</b> |                  |                    |
| 21     | Natural Resource Protection | Part V. Environmental Planning Criteria                              | This includes protection of endangered species, wetlands, aquifer recharge areas, drinking water supplies   |                       |     | <b>X</b> | <b>X</b>                                | <b>X</b>         | <b>X</b>           |
| 22     | Natural Resource Protection | Tree Conservation  | Protecting older growth trees from development protects water resources and provides an aesthetic benefit   |                       |     |          |   |                  |                    |
| 23     | Other Practices             | Total Maximum Daily Load (TMDL) Management                           | Evaluate existing impaired waters, investigating potential pollutant sources, and participating in the TMDL development and implementation planning process   |                       |     | <b>X</b> |   |                  |                    |
| 24     | Other Practices             | Water Quality Credit Trading   | Point to point trading, Non-point to Point trading  | <b>X</b>              |     |          |   |                  |                    |
| 25     | Monitoring                  | Long-term Ambient Trend Monitoring                                   | Long term monitoring can help watershed stakeholders evaluate whether watershed practices are working   |                       |     | <b>X</b> | <b>X</b>                                | <b>X</b>         |                    |
| 26     | Monitoring                  | Habitat and Biological Monitoring                                    | Often runoff will impact biological communities before pollutants exceed state standards.<br>Biological monitoring can help watershed stakeholder evaluate whether watershed practices are working  |                       |     | <b>X</b> | <b>X</b>                                | <b>X</b>         |                    |

MS4 - Municipal Separate Storm Sewer System Permit (Counties: Catoosa, Floyd, Walker, Whitfield; Cities: Chickamauga, Dalton, Fort Oglethorpe, Lookout Mountain, Ringgold, Rome, Rossville, Tunnell Hill, Varnell)

MNGWPD - Metropolitan North Georgia Water Planning District

# Appendix C- Revised Management Practice List

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Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION |               |   |   |  |               |                |
|--|---------------|---|---|--|---------------|----------------|
| Number   | Sector        | Practice  | Description/Comments  | References   | Total Benefit | Relative Costs |
| 1  | All           | Implement education and public awareness programs                             | <ul style="list-style-type: none"> <li>-Develop a local public education program</li> <li>-Perform public education and outreach activities</li> <li>-Perform public participation and involvement activities</li> </ul>  | <ul style="list-style-type: none"> <li>-EPA's Water Sense program can be accessed at: <a href="http://www.epa.gov/WaterSense/">http://www.epa.gov/WaterSense/</a></li> <li>-AWWA's Water Conservation Education Programs contains a database of existing water conservation education programs: <a href="http://www.awwa.org/waterwiser/corepage.cfm?CI=9&amp;showLogin=N">http://www.awwa.org/waterwiser/corepage.cfm?CI=9&amp;showLogin=N</a></li> </ul> | 49.74         | Low            |
| 2  | All           | Develop water conservation goals  | Region-wide   | <ul style="list-style-type: none"> <li>Georgia Water Conservation Implementation Plan includes a purpose statement at the beginning of the Introduction; sector specific goals are included in each subsequent chapter: <a href="http://www.conservewatergeorgia.net/documents/wcip.html">http://www.conservewatergeorgia.net/documents/wcip.html</a></li> </ul>   | 90.55         | Low            |
| 3  | Institutional | Assess and reduce water system leakage  | <p>STEWARDSHIP ACT: 1/1/12 deadline for systems service more than 10,000 people, 1/1/13 deadline for other systems above 3,300 people</p> <ul style="list-style-type: none"> <li>-Assess local water losses annually</li> <li>-Develop a program for identifying and reducing local water system loss</li> <li>-Set a goal for real water losses</li> </ul> | <ul style="list-style-type: none"> <li>Stewardship Act can be accessed at: <a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a></li> </ul>  | 66.89         | High           |
| 4  | Institutional | Install 1.28 gpf toilets & low flow/waterless urinals in government buildings | <ul style="list-style-type: none"> <li>-Develop a list of eligible government buildings</li> <li>-Develop a retrofit schedule and program</li> <li>-retrofit fixtures</li> <li>-Tax incentives</li> </ul>   | <ul style="list-style-type: none"> <li>Stewardship Act can be accessed at: <a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a></li> </ul>  | 48.99         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION |               |  |   |   |               |                |
|--|---------------|--|---|---|---------------|----------------|
| Number   | Sector        | Practice   | Description/Comments  | References  | Total Benefit | Relative Costs |
| 5  | Institutional | Non-Potable Reuse                                      | -Irrigation with high quality treated effluent in areas such as golf courses, parks, and residences   | Section 7 of Metropolitan North Georgia Water Supply and Water Conservation Plan includes information on non-potable reuse:<br><a href="http://www.northgeorgiawater.com/html/88.htm">http://www.northgeorgiawater.com/html/88.htm</a>  | 64.45         | Medium         |
| 6  | Residential   | Conservation pricing                                   | -Eliminate declining block rate structures<br>-Perform a rate and revenue analysis<br>-Irrigation meter pricing (non-punitive)<br>-Billing system functionality<br>-Review and update pricing | MNGWPD includes an example rate structure and other references on its website:<br><a href="http://www.northgeorgiawater.com/html/217.htm">http://www.northgeorgiawater.com/html/217.htm</a>   | 64.35         | Low            |
| 7  | Residential   | Conduct voluntary residential water audits             | -Develop a water audit program<br>-Distribute water audits guidelines   | MNGWPD has developed a "do it yourself" water audit program for its customers. Information found at:<br><a href="http://www.northgeorgiawater.com/html/212.htm">http://www.northgeorgiawater.com/html/212.htm</a>   | 29.35         | Low            |
| 8  | Residential   | Distribute low-flow retrofit kits to residential users | -Purchase low flow retrofit kits<br>-Distribute low flow retrofit kits<br>-Tier 4   | Georgia Water Conservation Implementation Plan includes a purpose statement at the beginning of the Introduction; sector specific goals are included in each subsequent chapter:<br><a href="http://www.conservewatergeorgia.net/documents/wcip.html">http://www.conservewatergeorgia.net/documents/wcip.html</a> | 62.31         | Medium         |
| 9  | All           | New watering restriction                               | -Limits allowable periods for residential irrigation (10am-4pm w/ exceptions)   | Stewardship Act can be accessed at:<br><a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a>  | 61.14         | Low            |

## Appendix C

### COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION

| Number | Sector                  | Practice  | Description/Comments  | References  | Total Benefit | Relative Costs |
|--------|-------------------------|---|---|---|---------------|----------------|
| 10     | Residential, Commercial | Sub-meters in new multi-family buildings  | -STEWARDSHIP ACT: "All new multi-unit residential buildings permitted on or after July 1, 2012, shall be constructed in a manner which will permit the measurement by a county, municipal, or other public water system or by the owner or operator of water use by each unit." | Stewardship Act can be accessed at: <a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a>   | 51.69         | Low            |
| 11     | Residential, Commercial | Replace older, inefficient plumbing fixtures  | -Establish a replacement strategy<br>-Enhance replacement program<br>-Tier 4  | Stewardship Act can be accessed at: <a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a>   | 48.99         | Medium         |
| 12     | Residential, Commercial | Rain sensor shut-off switches on new irrigation systems                               | -Enact rain sensor shut-off requirements<br>-Update building inspection checklists  | In 2004, the Georgia General Assembly passed a law (Georgia Code Section 12-5-6), which requires rain sensor shut-off switches on new landscape irrigation systems for both residential and nonresidential properties within the MNGWPD. Further information is found at: <a href="http://www.northgeorgiawater.com/html/284.htm">http://www.northgeorgiawater.com/html/284.htm</a> | 45.46         | Low            |
| 13     | Residential, Commercial | High-efficiency cooling towers in new construction permitted on or after July 1, 2012 | -Consider inclusion of audits for existing cooling towers to identify opportunities to conserve   | Stewardship Act can be accessed at: <a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a>   | 46.46         | Low            |
| 14     | Residential, Commercial | Provide incentives for water wise landscaping   | -Tier 4   | Georgia Green Industry Association ( <a href="http://www.ggia.org">www.ggia.org</a> ) and Metro Atlanta Landscape and Turf Association ( <a href="http://www.maltandscape.com">www.maltandscape.com</a> ) promote the use of "Right Plant, Right Place" concepts and the use of the Xeriscape™ practices.   | 71.17         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION |              |  |   |   |               |                |
|--|--------------|--|---|---|---------------|----------------|
| Number   | Sector       | Practice   | Description/Comments  | References  | Total Benefit | Relative Costs |
| 15   | Commercial   | Conduct commercial water audits                          | -Train personnel<br>-Advertise water audit program<br>-Conduct audits with interested commercial partners<br>-Report results to commercial partners | MNGWPD includes links to several resources on its website concerning commercial water audits:<br><a href="http://www.northgeorgiawater.com/html/210.htm">http://www.northgeorgiawater.com/html/210.htm</a>  | 29.35         | Low            |
| 16   | Commercial   | Require new automatic/tunnel car washes to recycle water | -Adopt a local ordinance or regulation  | MNGWPD has developed an example ordinance:<br><a href="http://northgeorgiawater.org/files/Public_Comment_on_Example_Car_Wash_Ordinance.pdf">http://northgeorgiawater.org/files/Public_Comment_on_Example_Car_Wash_Ordinance.pdf</a>   | 41.95         | Low            |
| 17   | Agriculture  | New ag permit requirements                               | -Addresses existing active and inactive permits   | Stewardship Act can be accessed at:<br><a href="http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm">http://www.legis.state.ga.us/legis/2009_10/sum/sb370.htm</a>  | 20.00         | Low            |
| 18   | Agriculture  | Meter water withdrawals                                  | -100,000 gpd or greater   | Recommendations in the WCIP can be viewed at:<br><a href="http://www.conservewatergeorgia.net/documents/wcip.html">http://www.conservewatergeorgia.net/documents/wcip.html</a>  | 25.85         | Medium         |
| 19   | Golf Courses | Minimize water lost to leaks                             |   | GAEPD has developed a standard water conservation plan outline for self-supplied golf courses which can be viewed at:<br><a href="http://www.gaepd.org/Files_PDF/forms/wpb/golfwconsplan.pdf">www.gaepd.org/Files_PDF/forms/wpb/golfwconsplan.pdf</a>   | 45.46         | Medium         |
| 20   | Agriculture  | Variable rate irrigation systems                         |   | This University of Georgia PowerPoint presentation provides a good overview variable rate irrigation and its benefits; does not discuss costs or potential barriers to installing:<br><a href="http://www.cpes.peachnet.edu/kharrison/Agricultural%20Irrigation/Variable%20Rate%20Irrigation.ppt">http://www.cpes.peachnet.edu/kharrison/Agricultural%20Irrigation/Variable%20Rate%20Irrigation.ppt</a> | 88.80         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION |              |  |                      |  |               |                |
|--|--------------|--|----------------------|--|---------------|----------------|
| Number   | Sector       | Practice   | Description/Comments | References   | Total Benefit | Relative Costs |
| 21   | Agriculture  | Conservation tillage   |                      | <p>-North Carolina State University has developed information on conservation tillage:<br/> <a href="http://www.ncsu.edu/sustainable/tillage/tillage.html">http://www.ncsu.edu/sustainable/tillage/tillage.html</a></p> <p>-University of Georgia Cooperative Extension has published "Water Savings through Conservation Tillage" at<br/> <a href="http://pubs.caes.uga.edu/caespubs/pubcd/c916/c916.htm">http://pubs.caes.uga.edu/caespubs/pubcd/c916/c916.htm</a></p> <p>-EPA's Watershed Academy includes a module on agricultural practices:<br/> <a href="http://www.epa.gov/owow/watershed/wacademy/acad2000/agmodule/agbmp1.htm">http://www.epa.gov/owow/watershed/wacademy/acad2000/agmodule/agbmp1.htm</a></p> | 57.53         | Low            |
| 22   | Golf Courses | Develop site specific plan to conserve water                               |                      | <p>GAEPD has developed a standard water conservation plan outline for self-supplied golf courses which can be viewed at:<br/> <a href="http://www.gaepd.org/Files_PDF/forms/wpb/golfwconsp1an.pdf">www.gaepd.org/Files_PDF/forms/wpb/golfwconsp1an.pdf</a></p>   | 90.55         | Low            |
| 23   | Golf Courses | Precondition turf grass through agronomic programs to minimize water needs |                      | <p>-GAEPD has developed a standard water conservation plan outline for self-supplied golf courses which can be viewed at:<br/> <a href="http://www.gaepd.org/Files_PDF/forms/wpb/golfwconsp1an.pdf">www.gaepd.org/Files_PDF/forms/wpb/golfwconsp1an.pdf</a></p> <p>-Georgia Water Conservation Implementation Plan includes a purpose statement at the beginning of the Introduction; sector specific goals are included in each subsequent chapter:<br/> <a href="http://www.conservewatergeorgia.net/documents/wcip.html">http://www.conservewatergeorgia.net/documents/wcip.html</a></p>  | 60.55         | Low            |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER CONSERVATION |        |  |                      |  |               |                |
|--|--------|--|----------------------|--|---------------|----------------|
| Number   | Sector | Practice                                     | Description/Comments | References   | Total Benefit | Relative Costs |
| 24   | All    | Encourage certified irrigation professionals |                      | -Georgia Green Industry Association ( <a href="http://www.ggia.org">www.ggia.org</a> ) endorses the certification provided through the Irrigation Association <a href="http://www.irrigation.org">www.irrigation.org</a> . | 71.17         | Low            |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER SUPPLY |   |  |  |               |                |
|--|---|--|--|---------------|----------------|
| Number   | Practice  | Description/Comments   | References   | Total Benefit | Relative Costs |
| 25   | Develop water master plans every five (5) years | <ul style="list-style-type: none"> <li>-Create and utilize a local water master plan with a 30 year planning horizon</li> <li>-Update local water master plan</li> <li>-Update regional planning work completed to date periodically</li> <li>-Evaluate potential for partnerships in meeting future water supply including sources such as Tennessee River</li> <li>-Evaluate cost-benefits of various water resrouces and use Integrated Resource Management Approach to recognize interrelationships between, water, wastewater, stormwater, and energy</li> <li>-Adopt a written emergency water supply plan</li> <li>-Assess the need for establishment and maintenance of service connections</li> <li>-If interconnections are needed, meet interconnection reliability targets</li> <li>-Update the emergency water supply plan</li> <li>- Evaluate potential to purchase from other water systems for short term</li> <li>- Continue to Evaluate longer term solutions</li> </ul> | <p>The MNGWPD has developed a water supply master plan and will do updates at least every five years. The Plan can be viewed at:<br/> <a href="http://www.northgeorgiawater.com/html/88.htm">http://www.northgeorgiawater.com/html/88.htm</a></p>  | 94.45         | Low            |
| 26   | Expand or convert existing reservoirs           | <ul style="list-style-type: none"> <li>-Evaluate potential expansion of existing facilities</li> <li>- Evaluate potential for NRCS impoundments to serve as WS sources</li> </ul>  | <ul style="list-style-type: none"> <li>-Schnabel Engineering evaluated the potential to use USDA impoundments in Georgia for water supply in a 2007 report entitled "Inventory and Assessment of USDA/Soil and Water Conservation District Watershed Dams".</li> <li>-Douglas County, Dog River Reservoir:<br/> <a href="http://www.ddcwsa.com/water-service/the-reservoir.html">http://www.ddcwsa.com/water-service/the-reservoir.html</a></li> </ul> | 84.71         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER SUPPLY |  |   |   |               |                |
|--|--|---|---|---------------|----------------|
| Number   | Practice   | Description/Comments  | References  | Total Benefit | Relative Costs |
| 27   | Construction of new reservoirs for off-stream and in-stream purposes | <ul style="list-style-type: none"> <li>- Evaluate when needed to meet demands</li> <li>- Begin process to permit as will be complex</li> </ul>  | <ul style="list-style-type: none"> <li>-USACE Savannah District would need to issue a 404 permit for any new reservoir. Information is found at:<br/><a href="http://www.sas.usace.army.mil/regulatory/permits.html">http://www.sas.usace.army.mil/regulatory/permits.html</a></li> <li>-Project information on the Hard Labor Creek project is found at:<br/><a href="http://hardlaborcreek.com/">http://hardlaborcreek.com/</a></li> </ul>  | 67.57         | High           |
| 28   | Develop new groundwater wells  | <ul style="list-style-type: none"> <li>- Evaluate potential for groundwater (often as supplemental supply)</li> <li>- Permit/implement as needed and practicable</li> <li>- Consider role for aquifer storage and recovery (ASR)</li> </ul> | <ul style="list-style-type: none"> <li>Georgia EPD's website contains permitting forms and other information:<br/><a href="http://www.gaepd.org/Documents/epdforms_wpb.html">http://www.gaepd.org/Documents/epdforms_wpb.html</a></li> </ul>  | 63.28         | Medium         |
| 29   | Indirect Potable Reuse   | <ul style="list-style-type: none"> <li>-Return highly treated wastewater to water supply reservoirs</li> </ul>  | <ul style="list-style-type: none"> <li>-GAEPD has developed guidelines for water reclamation and urban water reuse and is available at:<br/><a href="http://www.gaepd.org/Files_PDF/techguide/wpb/reuse.pdf">www.gaepd.org/Files_PDF/techguide/wpb/reuse.pdf</a></li> <li>-GAEPD also developed a guidance document on evaluating the feasibility of reuse water for coastal communities:<br/><a href="http://www1.gadnr.org/cws/Documents/Reuse_Feasibility_Analysis.pdf">www1.gadnr.org/cws/Documents/Reuse_Feasibility_Analysis.pdf</a></li> <li>-Clayton County's treatment wetlands are described at:<br/><a href="http://www.ccwa.us/operations/water.reclamation.aspx">http://www.ccwa.us/operations/water.reclamation.aspx</a></li> </ul> | 67.66         | Medium         |
| 30   | Expand existing/construct new water treatment plants                 | <ul style="list-style-type: none"> <li>- Evaluate when needed to meet demands</li> <li>- Begin process to permit</li> </ul>   | <ul style="list-style-type: none"> <li>GAEPD's website contains information on permitting and applicable forms:<br/><a href="http://www.gaepd.org/Documents/epdforms_wpb.html">http://www.gaepd.org/Documents/epdforms_wpb.html</a></li> </ul>  | 86.36         | High           |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER SUPPLY |                               |   |  |               |                |
|--|-------------------------------|---|--|---------------|----------------|
| Number   | Practice                      | Description/Comments  | References   | Total Benefit | Relative Costs |
| 31   | Water System Asset Management | <ul style="list-style-type: none"> <li>-Map water system assets</li> <li>-Develop a water system asset management program</li> <li>-Coordinate asset management and leak detection programs</li> </ul>  | <p>Georgia Association of Water Professionals has formed an Asset Management Committee. A brief overview is found at:<br/> <a href="http://gawp.org/committees.php#asset">http://gawp.org/committees.php#asset</a></p>   | 64.16         | Medium         |
| 32   | Source water protection       | <ul style="list-style-type: none"> <li>-Identify water supply watersheds</li> <li>-Adopt Environmental Planning Criteria</li> <li>-Coordination on watershed protection</li> <li>-Emphasize "non-intrusive" environmental criteria and alternative ways to protect watershed</li> </ul> | <p>DCA website, document "Rules of Georgia Department of Natural Resources EPD; Chapters 391-3-16 Rules for Environmental Planning Criteria":<br/> <a href="http://www.dca.ga.gov/development/PlanningQualityGrowth/programs/downloads/EPC.pdf">http://www.dca.ga.gov/development/PlanningQualityGrowth/programs/downloads/EPC.pdf</a></p> | 67.56         | Low            |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER |   |   |   |               |                |
|--|---|---|---|---------------|----------------|
| Number   | Practice  | Description/Comments  | References  | Total Benefit | Relative Costs |
| 33   | Evaluate wastewater treatment and disposal options to meet future demands/Develop local wastewater master plans and update every 5 years at a minimum | <ul style="list-style-type: none"> <li>- Evaluate future wastewater capacity needs</li> <li>- Identify and evaluate options to treat and dispose of wastewater</li> <li>- Consider opportunities for reuse (indirect potable, non-potable, etc.)</li> </ul>   | The MNGWPD has developed a wastewater management plan and will do updates at least every five years. The Plan can be viewed at: <a href="http://www.northgeorgiawater.com/html/87.htm">http://www.northgeorgiawater.com/html/87.htm</a>   | 94.45         | Low            |
| 34   | Provide sewer service to new residential development in water supply watersheds   | <ul style="list-style-type: none"> <li>- Work with local developers to ensure they understand program.</li> <li>-developers/homeowners to pay costs of new infrastructure</li> </ul>  |   | 53.54         | High           |
| 35   | Coordinate with local government on the development of a private wastewater system ordinance  | <ul style="list-style-type: none"> <li>-Adopt a private wastewater system ordinance</li> <li>-Provide a copy of the ordinance to Georgia EPD and Georgia DCA</li> </ul>   | MNGWD Wastewater Management Plan, Section 8 Page 8-11:<br><a href="http://www.northgeorgiawater.com/files/Sec8_Septic_WW_May2009.pdf">http://www.northgeorgiawater.com/files/Sec8_Septic_WW_May2009.pdf</a>   | 53.77         | Low            |
| 36   | Develop recommendations for decentralized sewer system  | <ul style="list-style-type: none"> <li>- Evaluate potential for designing decentralized systems so can tie on to central sewer when available</li> <li>- Identify implementation issues</li> <li>- Develop design standards</li> <li>- Implement design standards</li> <li>-Establish policies for connections to public sewer</li> </ul> | <ul style="list-style-type: none"> <li>-Local governments across the country require minimum design standards within their planning areas where sewer is not currently available. HUD has a publication for developers: <a href="http://www.hud.gov/offices/adm/hudclips/handbooks/hsg/4940.3/index.cfm">http://www.hud.gov/offices/adm/hudclips/handbooks/hsg/4940.3/index.cfm</a></li> <li>-Athens-Clarke County has developed standard specifications for wastewater systems: <a href="http://74.231.24.153/DepartmentsEngineering.asp">http://74.231.24.153/DepartmentsEngineering.asp</a></li> <li>-MNGWPD has recommendations for decentralized systems: <a href="http://www.northgeorgiawater.org/html/175.htm">http://www.northgeorgiawater.org/html/175.htm</a></li> </ul> | 53.77         | Low            |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER |   |   |  |               |                |
|--|---|---|--|---------------|----------------|
| Number   | Practice  | Description/Comments  | References   | Total Benefit | Relative Costs |
| 37   | Develop and implement a local wastewater education and public awareness program | -Grant Program- Incentive based programs that encourage septic tank management  | MNGWPD has developed recommendations for septic system education:<br><a href="http://www.northgeorgiawater.org/html/175.htm">http://www.northgeorgiawater.org/html/175.htm</a>   | 49.74         | Low            |
| 38   | Septic System Management  | <ul style="list-style-type: none"> <li>-Develop a plan and acceptable parameters for septage disposal</li> <li>-Collect septage manifests and provide to County Board of Health</li> <li>-Consider septage disposal needs when upgrading or designing new wastewater treatment facilities</li> <li>-Determine future septic system areas and local requirements</li> <li>-Develop near term and long-term policies for transitioning unsewered areas to sewerred areas.</li> <li>-Identify critical areas</li> <li>-Conduct additional management of septic systems in those critical areas</li> <li>-Implement a septic system homeowner education program</li> <li>-provide information to homeowners at closing</li> <li>-Identify septic systems on plats</li> <li>- Identify implementation issues</li> <li>- Develop tracking system</li> <li>- Implement tracking system</li> <li>- Pass pumping history on to new homeowners</li> </ul> | <a href="http://www.northgeorgiawater.org/html/175.htm">http://www.northgeorgiawater.org/html/175.htm</a><br><br><a href="http://www.northgeorgiawater.com/files/Sec10_StateRecommendations_WW_May2009.pdf">http://www.northgeorgiawater.com/files/Sec10_StateRecommendations_WW_May2009.pdf</a><br><br><a href="http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=158">http://www.dca.state.ga.us/toolkit/ToolDetail.asp?GetTool=158</a><br><br><a href="http://www.ces.ncsu.edu/wake/environmentalquality/septic.php">http://www.ces.ncsu.edu/wake/environmentalquality/septic.php</a><br><br>EPA website, Septic Systems FAQs:<br><a href="http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=261">http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=261</a> | 60.68         | Medium         |

## Appendix C

| <b>COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER</b> |  |  |  |               |                |
|---|--|--|--|---------------|----------------|
| Number  | Practice   | Description/Comments   | References   | Total Benefit | Relative Costs |
| 39  | Study effects of failing septic systems on water quality         | <ul style="list-style-type: none"> <li>- Develop plan to Evaluate effects of septic systems on water quality</li> <li>- Perform monitoring</li> <li>- If needed, Develop program to reduce pollutant loading from septic systems</li> <li>-State funded study</li> </ul>   | EPA website, Septic Systems FAQs:<br><br><a href="http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=261">http://cfpub.epa.gov/owm/septic/septic.cfm?page_id=261</a>   | 60.68         | Medium         |
| 40  | Sewer system inventory and mapping                               | <ul style="list-style-type: none"> <li>-Determine sewer system mapping strategy</li> <li>-Collect field data for sewer system database development</li> <li>-Create a sewer system map</li> <li>-Update sewer system maps</li> </ul>   | Most utilities are implementing CMOM programs that include mapping.  | 61.07         | Medium         |
| 41  | Sewer system inspection, maintenance, and rehabilitation program | <ul style="list-style-type: none"> <li>-Establish and implement inspection and maintenance program</li> <li>-Review existing staff certifications</li> <li>-Secure additional needed training</li> <li>-Prioritize rehabilitation projects</li> <li>-Develop schedule and budget for rehabilitation</li> <li>-Implement rehabilitation program</li> <li>-Annual planning and budgeting</li> <li>-Rehabilitation project documentation</li> </ul> | MNGWPD requires its members to have a sewer system inspection and maintenance program which includes training:<br><a href="http://www.northgeorgiawater.com/html/173.htm">http://www.northgeorgiawater.com/html/173.htm</a><br><br>Most utilities are implementing CMOM programs that include inspection, maintenance, and rehabilitation requirements | 61.07         | Medium         |
| 42  | Capacity certification program                                   | <ul style="list-style-type: none"> <li>-Maintain a flow and rainfall monitoring program</li> <li>-Maintain a hydraulic model or manual calculation approach</li> <li>-Determine system capacity</li> <li>-Maintain procedures for certifying available capacity</li> <li>-Certify availability of capacity for proposed developments</li> </ul>  | Most utilities are implementing CMOM program that includes hydraulic capacity components.  | 61.07         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WASTEWATER |   |  |   |               |                |
|--|---|--|---|---------------|----------------|
| Number   | Practice  | Description/Comments   | References  | Total Benefit | Relative Costs |
| 43   | Grease management program   | -Develop procedures for grease control and enforcement<br>-Fats, oils and grease (FOG) education | Most utilities are implementing a fats, oils and grease program as part of their CMOM programs.   | 61.07         | Low            |
| 44   | Sewer system overflow emergency response program, location inspection | -Review overflow response program<br>-Add SOPs to ensure proper response to overflows            | Most utilities are implementing CMOM program that includes procedures to minimize spills and a notification process when they do occur. | 61.07         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY |                              |  |  |   |               |                |
|---|------------------------------|--|--|---|---------------|----------------|
| Number  | Category                     | Practice   | Description  | References  | Total Benefit | Relative Costs |
| 45  | Agricultural                 | Fertilizer/Nutrient Management Programs, Cropland Management Practices, Animal Waste Management Programs | -Apply fertilizer at rates that are used by plants to avoid excessive nutrient runoff<br>-Conservation Tillage, Cover Crop, Field Border, Riparian Forested Buffer, Land Conversion (Crop to Forest), Strip Cropping, Nutrient Management<br>-Practices to reduce runoff carrying pollutants from animal waste; includes practices to store/cover and compost manure         | EPA's Watershed Academy includes an agriculture module with nutrient management practices:<br><a href="http://cfpub.epa.gov/watertrain/moduleFrame.cfm?module_id=33&amp;parent_object_id=1362&amp;object_id=1362">http://cfpub.epa.gov/watertrain/moduleFrame.cfm?module_id=33&amp;parent_object_id=1362&amp;object_id=1362</a> | 69.51         | Low            |
| 46  | Agricultural                 | Forestry Management Practices  | -Streamside Management Zones, Mechanical Site Preparation and Main Haul Roads (as adopted and enforced by the GA Forestry Commission).   | The Georgia Forestry Commission educates the forest industry about practices to protect water quality and promotes management practices.<br><a href="http://www.gfc.state.ga.us/ForestManagement/bmp.cfm">http://www.gfc.state.ga.us/ForestManagement/bmp.cfm</a>   | 57.17         | Low            |
| 47  | Erosion and Sediment Control | Erosion and Sediment Control Program   | -Practices to reduce runoff from construction sites when a given threshold of land is disturbed; may need to develop compliance and enforcement for existing programs<br>Training program for contractors who implement erosion and sediment control programs  | The Georgia Erosion and Sedimentation Act and GAEPD rules regarding erosion and sediment control are located at:<br><a href="http://www.gaepd.org/Documents/rules_exist.html">http://www.gaepd.org/Documents/rules_exist.html</a>   | 64.28         | Low            |
| 48  | Stormwater                   | Post-Development Stormwater Management & Site Design Practices   | -Managing runoff from new development and redevelopment areas such that pre- and post-construction runoff volume is maintained<br>-Encouraging site design practices which minimize environmental impacts. This can include: conservation subdivisions where larger amounts of open space are left on development (individual lot size reduced, but overall density allowed) | -Georgia Stormwater Management Manual can be downloaded at:<br><a href="http://www.georgiastormwater.com/">http://www.georgiastormwater.com/</a><br>-EPA fact sheet can be downloaded at:<br><a href="http://cfpub.epa.gov/npdes/stormwater/sfinal.cfm">http://cfpub.epa.gov/npdes/stormwater/sfinal.cfm</a>                    | 76.62         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY |                       |  |   |  |               |                |
|---|-----------------------|--|---|--|---------------|----------------|
| Number  | Category              | Practice   | Description   | References   | Total Benefit | Relative Costs |
| 49  | Stormwater            | Stormwater Infrastructure Inventory & Operations and Maintenance Program   | -Inventory and map stormwater system<br>-Develop a program to inspect and monitor stormwater control structures to ensure they are built and maintained as planned  | EPA fact sheets can be downloaded at:<br><a href="http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm">http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm</a>   | 49.57         | Medium         |
| 50  | Stormwater            | Pollution Prevention/ Good Housekeeping for Local Operations and Illicit Discharge Detection and Elimination Program | -Local governments develop practices to prevent pollutant runoff from their land<br>-Identify illicit discharges to stormwater system and develop a program to eliminate them   | EPA fact sheets can be downloaded at:<br><a href="http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm">http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm</a>   | 56.36         | Low            |
| 51  | Stormwater            | Local Education and Public Awareness Program   | -Develop a program to educate the public about measures they can take to minimize their impacts on water resources  | EPA fact sheets can be downloaded at:<br><a href="http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm">http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm</a>   | 49.74         | Low            |
| 52  | Stormwater            | Regional BMPs - regional ponds, natural systems protection   | -Includes regional stormwater ponds and other watershed practices such as stream or buffer restoration  | EPA fact sheets can be downloaded at:<br><a href="http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm">http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm</a>   | 70.78         | High           |
| 53  | Riparian Buffers      | Stream Buffer Protection   | -Practice in which a vegetated (often forested) corridor is left along side streams to filter polutants   | -Model ordinances are reviewed by Etowah Initiative at:<br><a href="http://www.etowahhpc.org/research/documents/tech_rpt_stream_buffers_4-30-07.pdf">http://www.etowahhpc.org/research/documents/tech_rpt_stream_buffers_4-30-07.pdf</a><br>-MNGWPD model ordinance at:<br><a href="http://www.northgeorgiawater.com/html/86.htm">http://www.northgeorgiawater.com/html/86.htm</a> | 67.56         | Medium         |
| 54  | Floodplain Protection | Floodplain Management/Flood Damage Prevention & Deliniation and Protection   | -Site plan review practices to prohibit or minimize development in the floodplain (existing floodplains)<br>-Develop future flood maps based on future land use and use for management decisions (future floodplains) | MNGWPD model ordinance at:<br><a href="http://www.northgeorgiawater.com/html/86.htm">http://www.northgeorgiawater.com/html/86.htm</a>  | 66.98         | Medium         |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY |  |   |  |  |               |                |
|---|--|---|--|--|---------------|----------------|
| Number  | Category                                       | Practice  | Description  | References   | Total Benefit | Relative Costs |
| 55  | Land Use Planning, Natural Resource Protection | Comprehensive Land Use Planning & Part V. Environmental Planning Criteria | -Encourage development in certain areas and discourage development in environmentally sensitive areas, including protecting open space along riparian corridors, wetlands, groundwater recharge areas can help protect water resources<br>-This includes protection of endangered species, wetlands, aquifer recharge areas, drinking water supplies | -MNGWPD has model conservation subdivision ordinance at:<br><a href="http://www.northgeorgiawater.com/html/86.htm">http://www.northgeorgiawater.com/html/86.htm</a><br>-University of Georgia's School of Environmental Design prepared paper on land development practices which protect water quality:<br><a href="http://www.uga.edu/coastalnemo/Documents/Literature/landdevelopmenttoprotectwaterquality.pdf">http://www.uga.edu/coastalnemo/Documents/Literature/landdevelopmenttoprotectwaterquality.pdf</a><br>-The Environmental Planning Criteria rules are found at:<br><a href="http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf">http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf</a> | 60.26         | Low            |
| 56  | Natural Resource Protection                    | Litter Control  | -Litter prevention protects streams as well as aesthetics; could also include street sweeping  | The Environmental Planning Criteria rules are found at:<br><a href="http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf">http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf</a>   | 49.97         | Low            |
| 57  | Natural Resource Protection                    | Tree Conservation   | -Protecting older growth trees from development protects water resources and provides an aesthetic benefit   | The Environmental Planning Criteria rules are found at:<br><a href="http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf">http://www.dca.ga.gov/development/PlanningQualityGrowth/DOCUMENTS/Laws.Rules.Guidelines.Etc/GAPanningAct.pdf</a>   | 63.47         | Low            |

Appendix C

| COOSA-NORTH GEORGIA WPC: POTENTIAL MANAGEMENT PRACTICES - WATER QUALITY |                 |  |  |   |               |                |
|---|-----------------|--|--|---|---------------|----------------|
| Number  | Category        | Practice   | Description  | References  | Total Benefit | Relative Costs |
| 58  | Other Practices | Total Maximum Daily Load (TMDL) Management                 | -Evaluate existing impaired waters, investigating potential pollutant sources, and participating in the TMDL development and implementation planning process   | -Information about the requirements of the Clean Water Act can be found on EPA's website at:<br><a href="http://www.epa.gov/owow/tmdl/intro.html">http://www.epa.gov/owow/tmdl/intro.html</a><br>-Georgia TMDLs downloaded at:<br><a href="http://www.georgiaepd.org/Documents/techguide_wpb.html#tmdl">http://www.georgiaepd.org/Documents/techguide_wpb.html#tmdl</a>   | 67.17         | Medium         |
| 59  | Other Practices | Water Quality Credit Trading                               | -Point to point trading, Non-point to Point trading  | Basic information on water quality credit trading can be found on EPA's website at:<br><a href="http://www.epa.gov/owow/watershed/trading.htm">http://www.epa.gov/owow/watershed/trading.htm</a>  | 69.35         | Medium         |
| 60  | Monitoring      | Long-term Ambient Trend Monitoring & Biological Monitoring | -Long term monitoring can help watershed stakeholders evaluate whether watershed practices are working<br>-Often runoff will impact biological communities before pollutants exceed state standards. Biological monitoring can help watershed stakeholder evaluate whether watershed practices are working | -Information on performing benthic sampling is found at:<br><a href="http://www.georgiaepd.org/Documents/techguide_wpb.html#fiqa">http://www.georgiaepd.org/Documents/techguide_wpb.html#fiqa</a><br>-Information on how to submit data to EPD for its 303(d) list of impaired waters is found at:<br><a href="http://www.georgiaepd.org/Documents/techguide_wpb.html#fiqa">http://www.georgiaepd.org/Documents/techguide_wpb.html#fiqa</a> | 50.55         | Medium         |

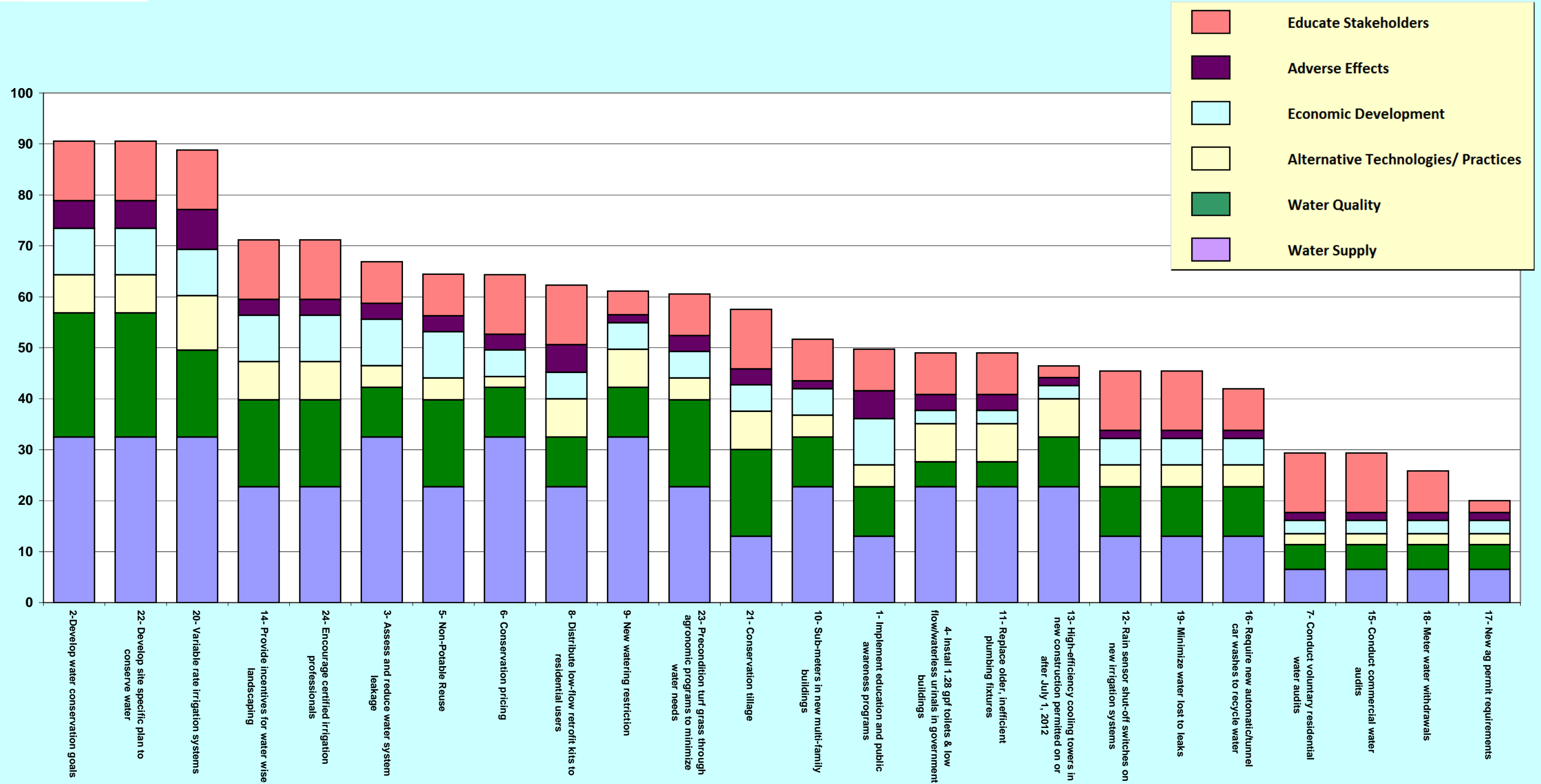
# Appendix D- Final Benefit Scores

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### Appendix D



## Total Benefit Score for Water Conservation



## Appendix D

## Coosa-North Georgia Prioritization Scoring

| Number | Element  | Category           | Sector       | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|--|--------------------|--------------|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 20     | Variable rate irrigation systems   | Water Conservation | Agriculture  | 10           | 7             | 10                                  | 7                    | 10              | 10                   | 88.80         | Medium        |         |
| 21     | Conservation tillage   | Water Conservation | Agriculture  | 4            | 7             | 7                                   | 4                    | 4               | 10                   | 57.53         | Low           |         |
| 18     | Meter water withdrawals  | Water Conservation | Agriculture  | 2            | 2             | 2                                   | 2                    | 2               | 7                    | 25.85         | Medium        |         |
| 17     | New ag permit requirements   | Water Conservation | Agriculture  | 2            | 2             | 2                                   | 2                    | 2               | 2                    | 20.00         | Low           |         |
| 2      | Develop water conservation goals   | Water Conservation | All          | 10           | 10            | 7                                   | 7                    | 7               | 10                   | 90.55         | Low           |         |
| 24     | Encourage certified irrigation professions                                 | Water Conservation | All          | 7            | 7             | 7                                   | 7                    | 4               | 10                   | 71.17         | Low           |         |
| 9      | New watering restriction   | Water Conservation | All          | 10           | 4             | 7                                   | 4                    | 2               | 4                    | 61.14         | Low           |         |
| 1      | Implement education and public awareness programs                          | Water Conservation | All          | 4            | 4             | 4                                   | 7                    | 7               | 7                    | 49.74         | Low           |         |
| 16     | Require new automatic/tunnel car washes to recycle water                   | Water Conservation | Commercial   | 4            | 4             | 4                                   | 4                    | 2               | 7                    | 41.95         | Low           |         |
| 15     | Conduct commercial water audits  | Water Conservation | Commercial   | 2            | 2             | 2                                   | 2                    | 2               | 10                   | 29.35         | Low           |         |
| 22     | Develop site specific plan to conserve water                               | Water Conservation | Golf Courses | 10           | 10            | 7                                   | 7                    | 7               | 10                   | 90.55         | Low           |         |
| 23     | Precondition turf grass through agronomic programs to minimize water needs | Water Conservation | Golf Courses | 7            | 7             | 4                                   | 4                    | 4               | 7                    | 60.55         | Low           |         |
| 19     | Minimize water lost to leaks   | Water Conservation | Golf Courses | 4            | 4             | 4                                   | 4                    | 2               | 10                   | 45.46         | Medium        |         |

## Appendix D

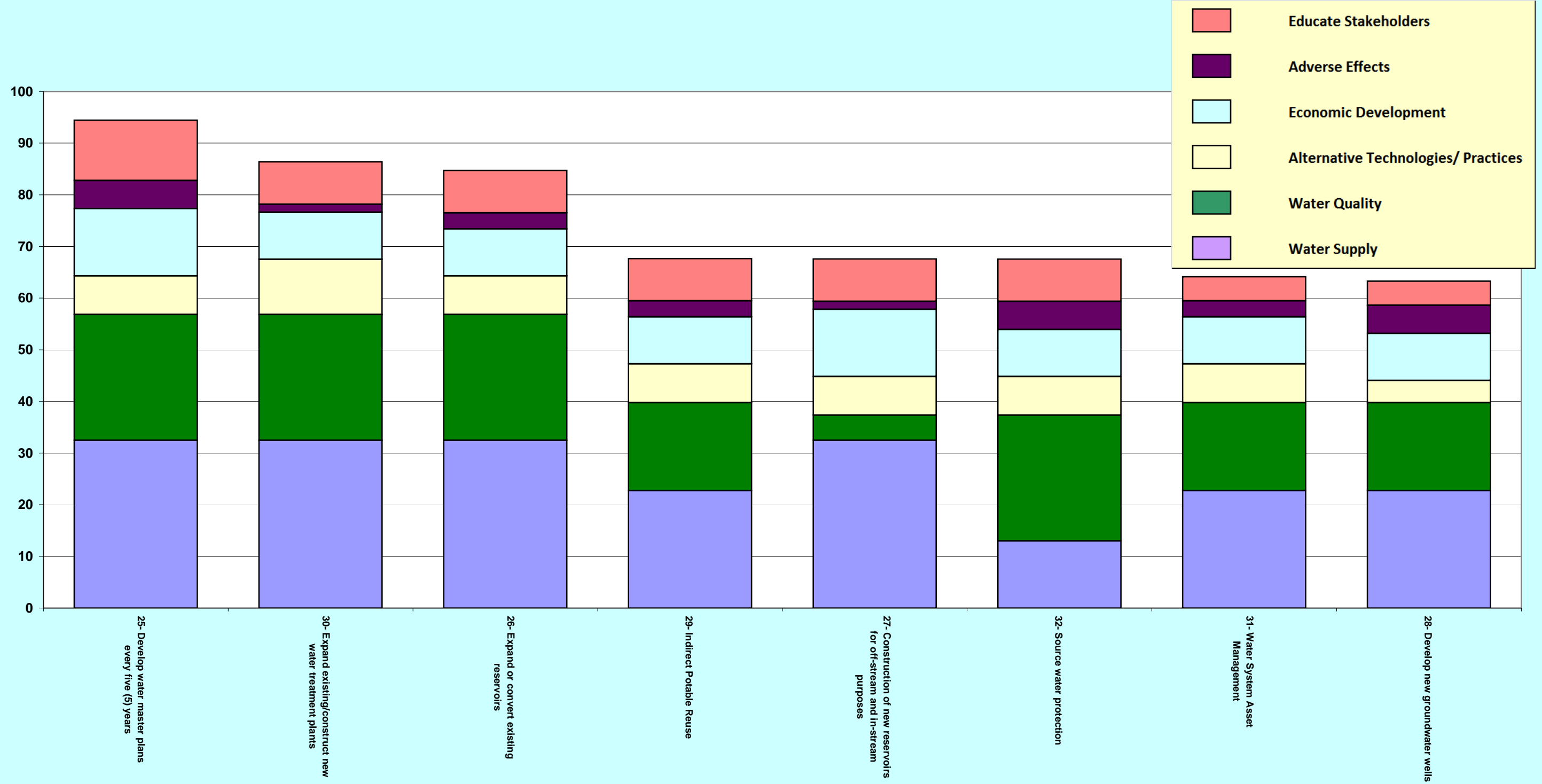
## Coosa-North Georgia Prioritization Scoring

| Number | Element   | Category           | Sector                  | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|---|--------------------|-------------------------|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 3      | Assess and reduce water system leakage  | Water Conservation | Institutional           | 10           | 4             | 4                                   | 7                    | 4               | 7                    | 66.89         | High          |         |
| 5      | Non-Potable Reuse   | Water Conservation | Institutional           | 7            | 7             | 4                                   | 7                    | 4               | 7                    | 64.45         | Medium        |         |
| 4      | Install 1.28 gpf toilets & low flow/waterless urinals in government buildings         | Water Conservation | Institutional           | 7            | 2             | 7                                   | 2                    | 4               | 7                    | 48.99         | Medium        |         |
| 6      | Conservation pricing  | Water Conservation | Residential             | 10           | 4             | 2                                   | 4                    | 4               | 10                   | 64.35         | Low           |         |
| 8      | Distribute low-flow retrofit kits to residential users                                | Water Conservation | Residential             | 7            | 4             | 7                                   | 4                    | 7               | 10                   | 62.31         | Medium        |         |
| 7      | Conduct voluntary residential water audits  | Water Conservation | Residential             | 2            | 2             | 2                                   | 2                    | 2               | 10                   | 29.35         | Low           |         |
| 14     | Provide incentives for water wise landscaping   | Water Conservation | Residential, Commercial | 7            | 7             | 7                                   | 7                    | 4               | 10                   | 71.17         | Medium        |         |
| 10     | Sub-meters in new multi-family buildings  | Water Conservation | Residential, Commercial | 7            | 4             | 4                                   | 4                    | 2               | 7                    | 51.69         | Low           |         |
| 11     | Replace older, inefficient plumbing fixtures  | Water Conservation | Residential, Commercial | 7            | 2             | 7                                   | 2                    | 4               | 7                    | 48.99         | Medium        |         |
| 13     | High-efficiency cooling towers in new construction permitted on or after July 1, 2012 | Water Conservation | Residential, Commercial | 7            | 4             | 7                                   | 2                    | 2               | 2                    | 46.46         | Low           |         |
| 12     | Rain sensor shut-off switches on new irrigation systems                               | Water Conservation | Residential, Commercial | 4            | 4             | 4                                   | 4                    | 2               | 10                   | 45.46         | Low           |         |

# Appendix D



## Total Benefit Score for Water Supply



## Appendix D

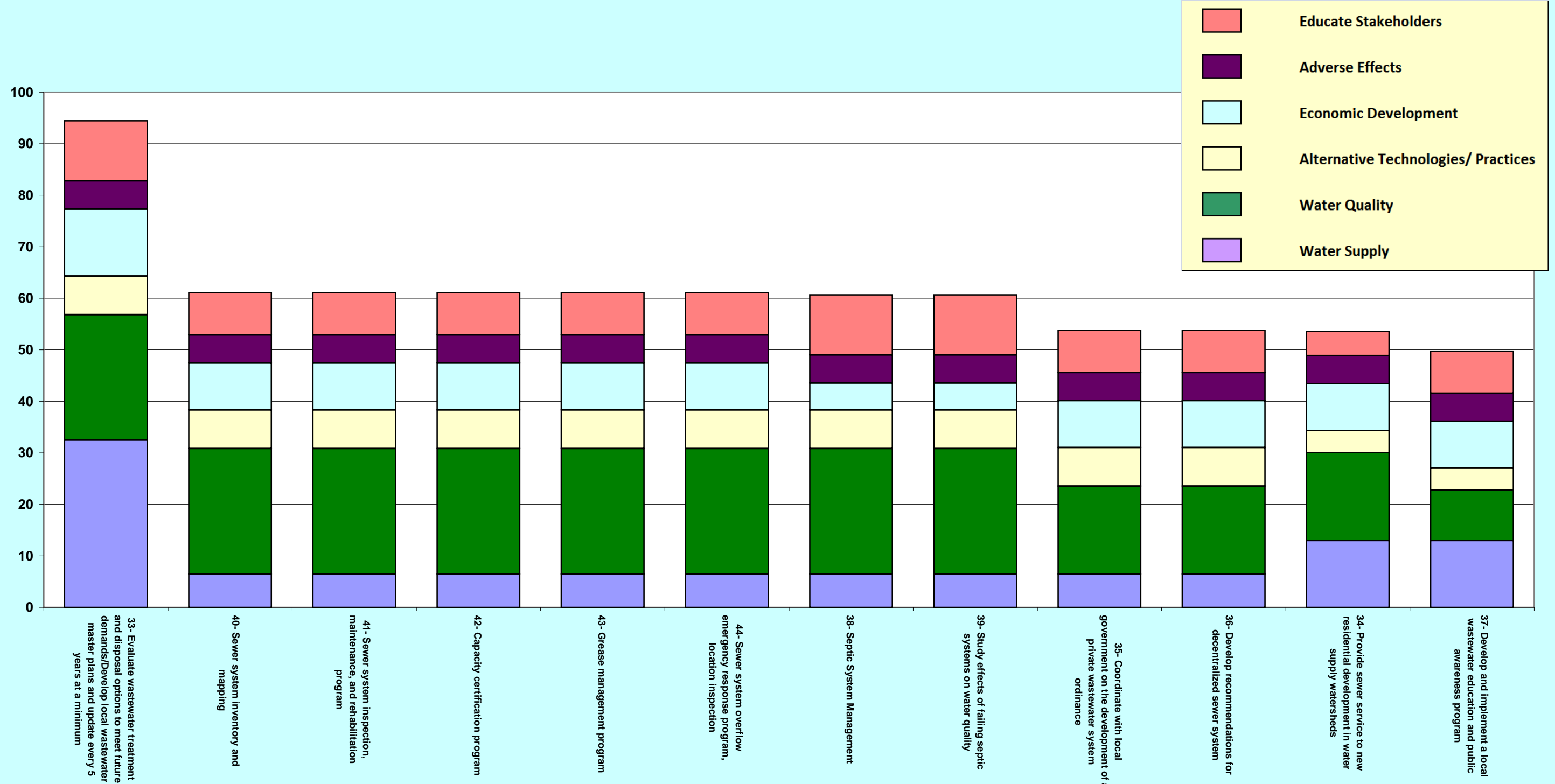
## Coosa-North Georgia Prioritization Scoring

| Number | Element  | Category     | Sector | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|--|--------------|--------|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 25     | Develop water master plans every five (5) years                      | Water Supply | N/A    | 10           | 10            | 7                                   | 10                   | 7               | 10                   | 94.45         | Low           |         |
| 30     | Expand existing/construct new water treatment plants                 | Water Supply | N/A    | 10           | 10            | 10                                  | 7                    | 2               | 7                    | 86.36         | High          |         |
| 26     | Expand or convert existing reservoirs                                | Water Supply | N/A    | 10           | 10            | 7                                   | 7                    | 4               | 7                    | 84.71         | Medium        |         |
| 29     | Indirect Potable Reuse   | Water Supply | N/A    | 7            | 7             | 7                                   | 7                    | 4               | 7                    | 67.66         | Medium        |         |
| 27     | Construction of new reservoirs for off-stream and in-stream purposes | Water Supply | N/A    | 10           | 2             | 7                                   | 10                   | 2               | 7                    | 67.57         | High          |         |
| 32     | Source water protection  | Water Supply | N/A    | 4            | 10            | 7                                   | 7                    | 7               | 7                    | 67.56         | Low           |         |
| 31     | Water System Asset Management  | Water Supply | N/A    | 7            | 7             | 7                                   | 7                    | 4               | 4                    | 64.16         | Medium        |         |
| 28     | Develop new groundwater wells  | Water Supply | N/A    | 7            | 7             | 4                                   | 7                    | 7               | 4                    | 63.28         | Medium        |         |

# Appendix D



## Total Benefit Score for Wastewater

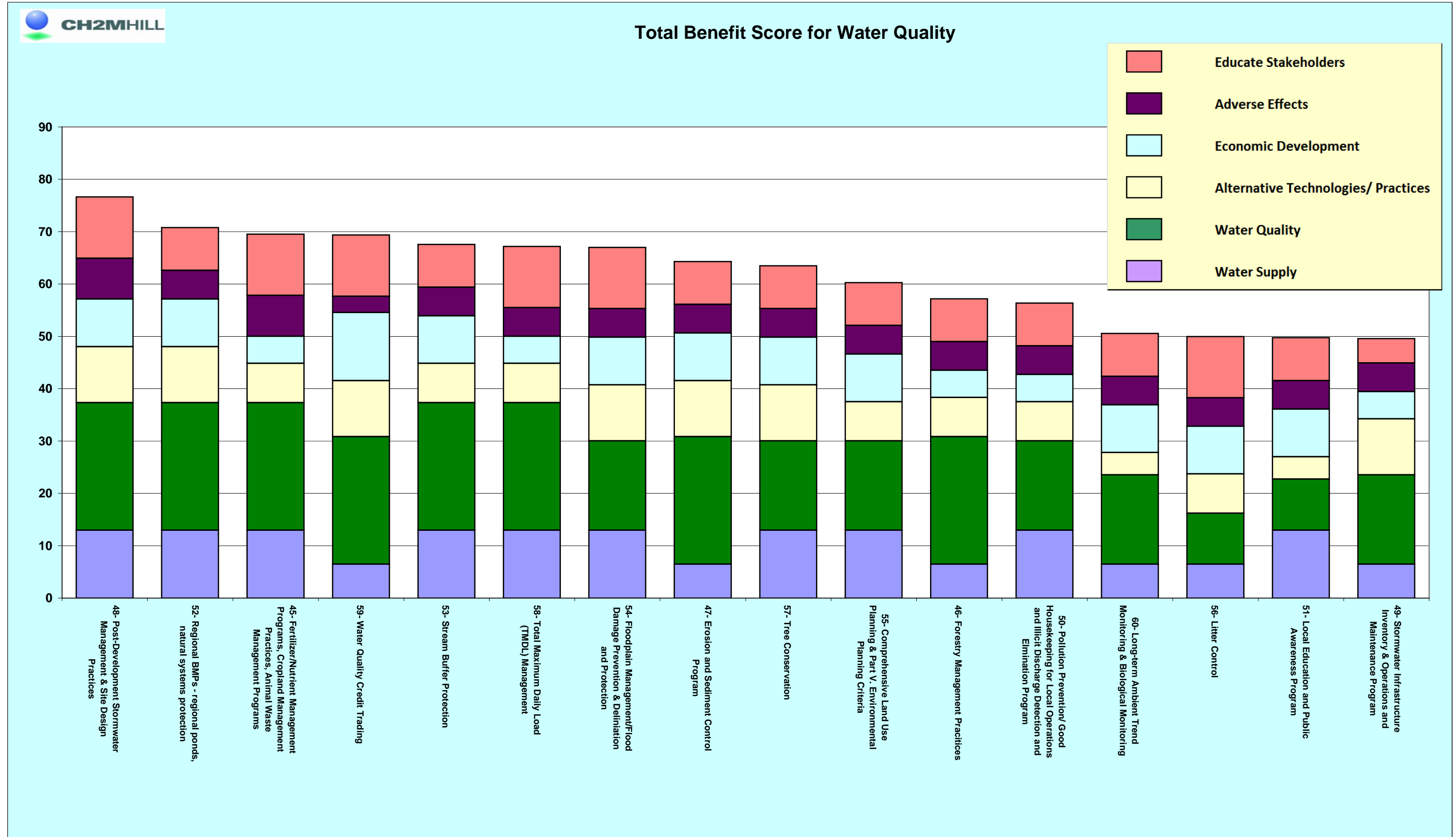


## Appendix D

## Coosa-North Georgia Prioritization Scoring

| Number | Element   | Category   | Sector | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|---|------------|--------|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 33     | Evaluate wastewater treatment and disposal options to meet future demands/Develop local wastewater master plans and update every 5 years at a minimum | Wastewater | N/A    | 10           | 10            | 7                                   | 10                   | 7               | 10                   | 94.45         | Low           |         |
| 40     | Sewer system inventory and mapping  | Wastewater | N/A    | 2            | 10            | 7                                   | 7                    | 7               | 7                    | 61.07         | Medium        |         |
| 41     | Sewer system inspection, maintenance, and rehabilitation program  | Wastewater | N/A    | 2            | 10            | 7                                   | 7                    | 7               | 7                    | 61.07         | Medium        |         |
| 42     | Capacity certification program  | Wastewater | N/A    | 2            | 10            | 7                                   | 7                    | 7               | 7                    | 61.07         | Medium        |         |
| 43     | Grease management program   | Wastewater | N/A    | 2            | 10            | 7                                   | 7                    | 7               | 7                    | 61.07         | Low           |         |
| 44     | Sewer system overflow emergency response program, location inspection   | Wastewater | N/A    | 2            | 10            | 7                                   | 7                    | 7               | 7                    | 61.07         | Medium        |         |
| 38     | Septic System Management  | Wastewater | N/A    | 2            | 10            | 7                                   | 4                    | 7               | 10                   | 60.68         | Medium        |         |
| 39     | Study effects of failing septic systems on water quality  | Wastewater | N/A    | 2            | 10            | 7                                   | 4                    | 7               | 10                   | 60.68         | Medium        |         |
| 35     | Coordinate with local government on the development of a private wastewater system ordinance  | Wastewater | N/A    | 2            | 7             | 7                                   | 7                    | 7               | 7                    | 53.77         | Low           |         |
| 36     | Develop recommendations for decentralized sewer system  | Wastewater | N/A    | 2            | 7             | 7                                   | 7                    | 7               | 7                    | 53.77         | Low           |         |
| 34     | Provide sewer service to new residential development in water supply watersheds   | Wastewater | N/A    | 4            | 7             | 4                                   | 7                    | 7               | 4                    | 53.54         | High          |         |
| 37     | Develop and implement a local wastewater education and public awareness program   | Wastewater | N/A    | 4            | 4             | 4                                   | 7                    | 7               | 7                    | 49.74         | Low           |         |

### Appendix D



## Appendix D

## Coosa-North Georgia Prioritization Scoring

| Number | Element  | Category      | Sector   | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|--|---------------|--|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 48     | Post-Development Stormwater Management & Site Design Practices   | Water Quality | Stormwater                                     | 4            | 10            | 10                                  | 7                    | 10              | 10                   | 76.62         | Medium        |         |
| 52     | Regional BMPs - regional ponds, natural systems protection   | Water Quality | Stormwater                                     | 4            | 10            | 10                                  | 7                    | 7               | 7                    | 70.78         | High          |         |
| 45     | Fertilizer/Nutrient Management Programs, Cropland Management Practices, Animal Waste Management Programs             | Water Quality | Agricultural                                   | 4            | 10            | 7                                   | 4                    | 10              | 10                   | 69.51         | Low           |         |
| 59     | Water Quality Credit Trading   | Water Quality | Other Practices                                | 2            | 10            | 10                                  | 10                   | 4               | 10                   | 69.35         | Medium        |         |
| 53     | Stream Buffer Protection   | Water Quality | Riparian Buffers                               | 4            | 10            | 7                                   | 7                    | 7               | 7                    | 67.56         | Medium        |         |
| 58     | Total Maximum Daily Load (TMDL) Management   | Water Quality | Other Practices                                | 4            | 10            | 7                                   | 4                    | 7               | 10                   | 67.17         | Medium        |         |
| 54     | Floodplain Management/Flood Damage Prevention & Delineation and Protection   | Water Quality | Floodplain Protection                          | 4            | 7             | 10                                  | 7                    | 7               | 10                   | 66.98         | Medium        |         |
| 47     | Erosion and Sediment Control Program   | Water Quality | Erosion and Sediment Control                   | 2            | 10            | 10                                  | 7                    | 7               | 7                    | 64.28         | Low           |         |
| 57     | Tree Conservation  | Water Quality | Natural Resource Protection                    | 4            | 7             | 10                                  | 7                    | 7               | 7                    | 63.47         | Low           |         |
| 55     | Comprehensive Land Use Planning & Part V. Environmental Planning Criteria  | Water Quality | Land Use Planning, Natural Resource Protection | 4            | 7             | 7                                   | 7                    | 7               | 7                    | 60.26         | Low           |         |
| 46     | Forestry Management Practices  | Water Quality | Agricultural                                   | 2            | 10            | 7                                   | 4                    | 7               | 7                    | 57.17         | Low           |         |
| 50     | Pollution Prevention/ Good Housekeeping for Local Operations and Illicit Discharge Detection and Elimination Program | Water Quality | Stormwater                                     | 4            | 7             | 7                                   | 4                    | 7               | 7                    | 56.36         | Low           |         |
| 60     | Long-term Ambient Trend Monitoring & Biological Monitoring   | Water Quality | Monitoring                                     | 2            | 7             | 4                                   | 7                    | 7               | 7                    | 50.55         | Medium        |         |

## Appendix D

### Coosa-North Georgia Prioritization Scoring

| Number | Element  | Category      | Sector                      | Water Supply | Water Quality | Alternative Technologies /Practices | Economic Development | Adverse Effects | Educate Stakeholders | Total Benefit | Relative Cost | Comment |
|--------|--|---------------|-----------------------------|--------------|---------------|-------------------------------------|----------------------|-----------------|----------------------|---------------|---------------|---------|
| 56     | Litter Control   | Water Quality | Natural Resource Protection | 2            | 4             | 7                                   | 7                    | 7               | 10                   | 49.97         | Low           |         |
| 51     | Local Education and Public Awareness Program                             | Water Quality | Stormwater                  | 4            | 4             | 4                                   | 7                    | 7               | 7                    | 49.74         | Low           |         |
| 49     | Stormwater Infrastructure Inventory & Operations and Maintenance Program | Water Quality | Stormwater                  | 2            | 7             | 10                                  | 4                    | 7               | 4                    | 49.57         | Medium        |         |

# Appendix E- Accepted Management Practices

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Appendix E

**Coosa-North Georgia WPC- Management Practices "Strawman"**

| Number | Category           | Practices   | Total Benefit | Etowah | Chattahoochee | Oostanaula | Tennessee |
|--------|--------------------|---|---------------|--------|---------------|------------|-----------|
| 1      | Water Conservation | Implement education and public awareness programs                                     | 49.74         | ✓      | ✓             | ✓          | ✓         |
| 2      | Water Conservation | Develop water conservation goals  | 90.55         | ✓      | ✓             | ✓          | ✓         |
| 3      | Water Conservation | Assess and reduce water system leakage  | 66.89         | ✓      | ✓             | ✓          | ✓         |
| 4      | Water Conservation | Install 1.28 gpf toilets & low flow/waterless urinals in government buildings         | 48.99         | !      | ✓             | ✗          | ✓         |
| 5      | Water Conservation | Non-Potable Reuse   | 64.45         | ✓      | ✓             | ✓          | ✓         |
| 6      | Water Conservation | Conservation pricing  | 64.35         | ✓      | ✓             | ✗          | ✓         |
| 7      | Water Conservation | Conduct voluntary residential water audits  | 29.35         | ✓      | ✓             | ✓          | ✓         |
| 8      | Water Conservation | Distribute low-flow retrofit kits to residential users                                | 62.31         | ✓      | ✓             | ✗          | ✓         |
| 9      | Water Conservation | New watering restriction  | 61.14         | ✓      | ✓             | ✓          | ✓         |
| 12     | Water Conservation | Rain sensor shut-off switches on new irrigation systems                               | 45.46         | ✓      | ✓             | ✗          | ✓         |
| 13     | Water Conservation | High-efficiency cooling towers in new construction permitted on or after July 1, 2012 | 46.46         | ✓      | ✓             | ✓          | ✓         |
| 14     | Water Conservation | Provide incentives for water wise landscaping   | 71.17         | ✓      | ✓             | ✓          | ✓         |
| 17     | Water Conservation | New ag permit requirements  | 20.00         | ✓      | ✓             | ✓          | ✓         |

Appendix E

**Coosa-North Georgia WPC- Management Practices "Strawman"**

| Number | Category           | Practices   | Total Benefit | Etowah | Chattahoochee | Oostanaula | Tennessee |
|--------|--------------------|---|---------------|--------|---------------|------------|-----------|
| 20     | Water Conservation | Encourage variable rate irrigation systems  | 88.80         | ✓      | ✓             | ✓          | ✓         |
| 21     | Water Conservation | Encourage conservation tillage  | 57.53         | ✓      | ✓             | ✓          | ✓         |
| 22     | Water Conservation | Develop site specific plan to conserve water  | 90.55         | ✓      | ✓             | ✓          | ✓         |
| 24     | Water Conservation | Encourage certified irrigation professionals  | 71.17         | ✓      | ✓             | ✓          | ✓         |
| 25     | Water Supply       | Develop water master plans every five (5) years   | 94.45         | ✓      | ✓             | ✓          | ✓         |
| 26     | Water Supply       | Expand or convert existing reservoirs   | 84.71         | ✓      | ✓             | ✓          | ✓         |
| 27     | Water Supply       | Construction of new reservoirs for off-stream and in-stream purposes  | 67.57         | ✓      | ✓             | ✓          | ✓         |
| 28     | Water Supply       | Develop new groundwater wells   | 63.28         | ✓      | ✓             | ✓          | ✓         |
| 29     | Water Supply       | Indirect Potable Reuse  | 67.66         | ✓      | ✓             | ✓          | ✓         |
| 30     | Water Supply       | Expand existing/ construct new water treatment plants   | 86.36         | ✓      | ✓             | ✓          | ✓         |
| 31     | Water Supply       | Water System Asset Management   | 64.16         | ✓      | ✓             | ✓          | ✓         |
| 32     | Water Supply       | Source water protection   | 67.56         | ✓      | ✓             | ✓          | ✓         |
| 33     | Wastewater         | Evaluate wastewater treatment and disposal options to meet future demands/Develop local wastewater master plans and update every 5 years at a minimum | 94.45         | ✓      | ✓             | ✓          | ✓         |

Appendix E

**Coosa-North Georgia WPC- Management Practices "Strawman"**

| Number | Category      | Practices  | Total Benefit | Etowah | Chattahoochee | Oostanaula | Tennessee |
|--------|---------------|--|---------------|--------|---------------|------------|-----------|
| 37     | Wastewater    | Develop and implement a local wastewater education and public awareness program                                      | 49.74         | ✓      | ✓             | ✗          | ✓         |
| 38     | Wastewater    | Septic System Management   | 60.68         | ✓      | ✓             | ✓          | ✓         |
| 40     | Wastewater    | Sewer system inventory and mapping   | 61.07         | ✓      | ✓             | ✓          | ✓         |
| 41     | Wastewater    | Sewer system inspection, maintenance, and rehabilitation program   | 61.07         | ✓      | ✓             | ✓          | ✓         |
| 42     | Wastewater    | Capacity certification program   | 61.07         | ✓      | ✓             | ✓          | ✓         |
| 43     | Wastewater    | Grease management program  | 61.07         | ✓      | ✓             | ✓          | ✓         |
| 44     | Wastewater    | Sewer system overflow emergency response program, location inspection  | 61.07         | ✓      | ✓             | ✓          | ✓         |
| 45     | Water Quality | Fertilizer/Nutrient Management Programs, Cropland Management Practices, Animal Waste Management Programs             | 69.51         | ✓      | ✓             | ✓          | ✓         |
| 46     | Water Quality | Forestry Management Practices  | 57.17         | ✓      | ✓             | ✓          | ✓         |
| 47     | Water Quality | Erosion and Sediment Control Program   | 64.28         | ✓      | ✓             | ✓          | ✓         |
| 48     | Water Quality | Post-Development Stormwater Management & Site Design Practices   | 76.62         | ✓      | ✓             | ✓          | ✓         |
| 50     | Water Quality | Pollution Prevention/ Good Housekeeping for Local Operations and Illicit Discharge Detection and Elimination Program | 56.36         | ✓      | ✓             | ✓          | ✓         |
| 51     | Water Quality | Local Education and Public Awareness Program   | 49.74         | ✓      | ✓             | ✓          | ✓         |

Appendix E

**Coosa-North Georgia WPC- Management Practices "Strawman"**

| Number | Category      | Practices  | Total Benefit | Etowah | Chattahoochee | Oostanaula | Tennessee |
|--------|---------------|--|---------------|--------|---------------|------------|-----------|
| 52     | Water Quality | Regional BMPs - regional ponds, natural systems protection                 | 70.78         | ✓      | ✓             | ✓          | ✓         |
| 53     | Water Quality | Stream Buffer Protection   | 67.56         | ✓      | ✓             | ✓          | ✓         |
| 54     | Water Quality | Floodplain Management/Flood Damage Prevention & Delineation and Protection | 66.98         | ✓      | ✓             | ✓          | ✓         |
| 55     | Water Quality | Comprehensive Land Use Planning and Environmental Planning Criteria        | 60.26         | ✓      | ✓             | ✓          | ✓         |
| 58     | Water Quality | Total Maximum Daily Load (TMDL) Management                                 | 67.17         | ✓      | ✓             | ✓          | ✓         |
| 59     | Water Quality | Water Quality Credit Trading   | 69.35         | ✓      | ✓             | ✓          | ✓         |