

## 1. INTRODUCTION

The purpose of this document is to describe the process by which the Lower Flint-Ochlockonee Council selected management practices for its regional water plan. The process of developing the plan took over two years (2009-2011). It required the Council to gather information from a variety of sources to provide a foundation for sound decision making. In the process, the Council interacted with state and federal agencies, local governments, and stakeholders from throughout the region, and it also coordinated with neighboring regional water councils, especially the Middle Chattahoochee and the Upper Flint Council, through multiple joint meetings with those councils. The Council used a consensus-oriented approach in this process. Through the management practices it selected, the Council sought to provide for a sustainable future for the Lower Flint-Ochlockonee Region.

This document describes the following components of the management practice selection process:

- Selection process design principles (Section 2)
- Council operations (Section 3)
- Council-defined vision and goals (Section 4)
- Information sources (Section 5)
- Selection process (Section 6)
- Selection process outcomes (Section 7)

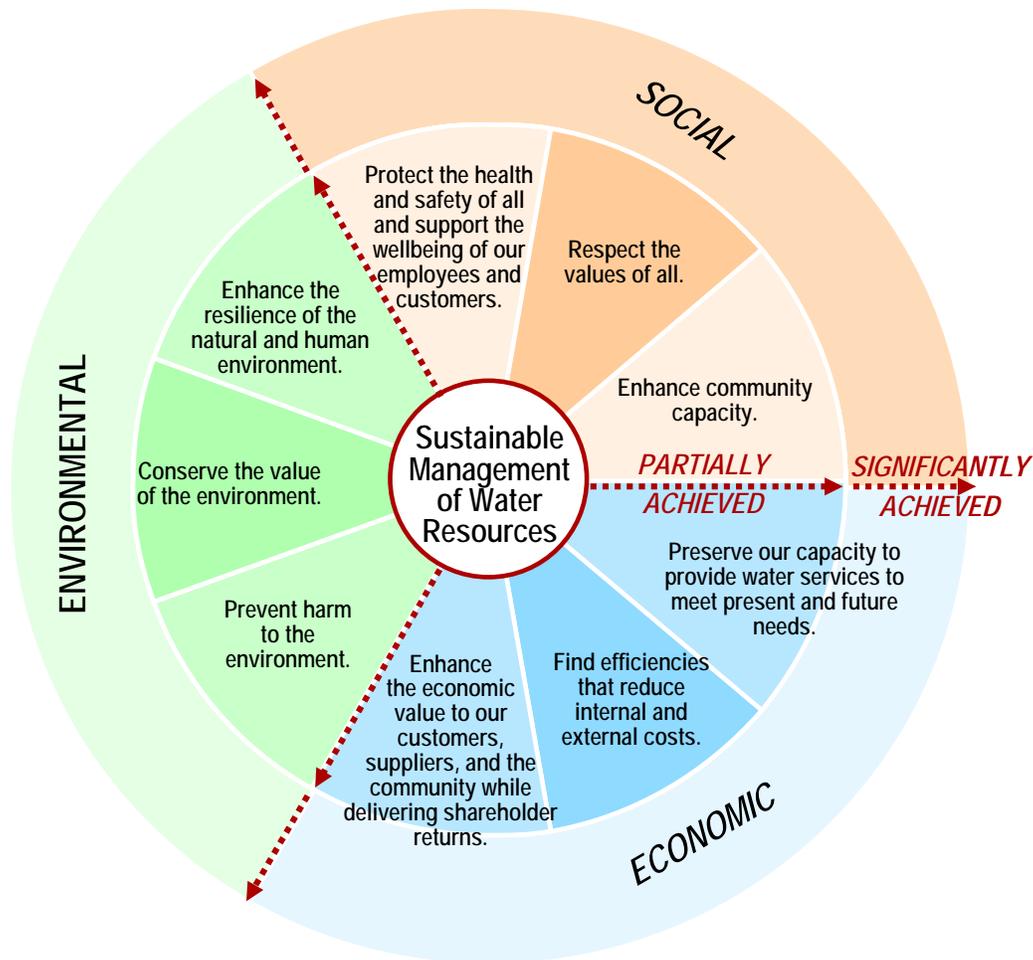
## 2. SELECTION PROCESS DESIGN PRINCIPLES

The Georgia State Water Plan provided the following as guidance and objectives for the management practices in the regional water plans:

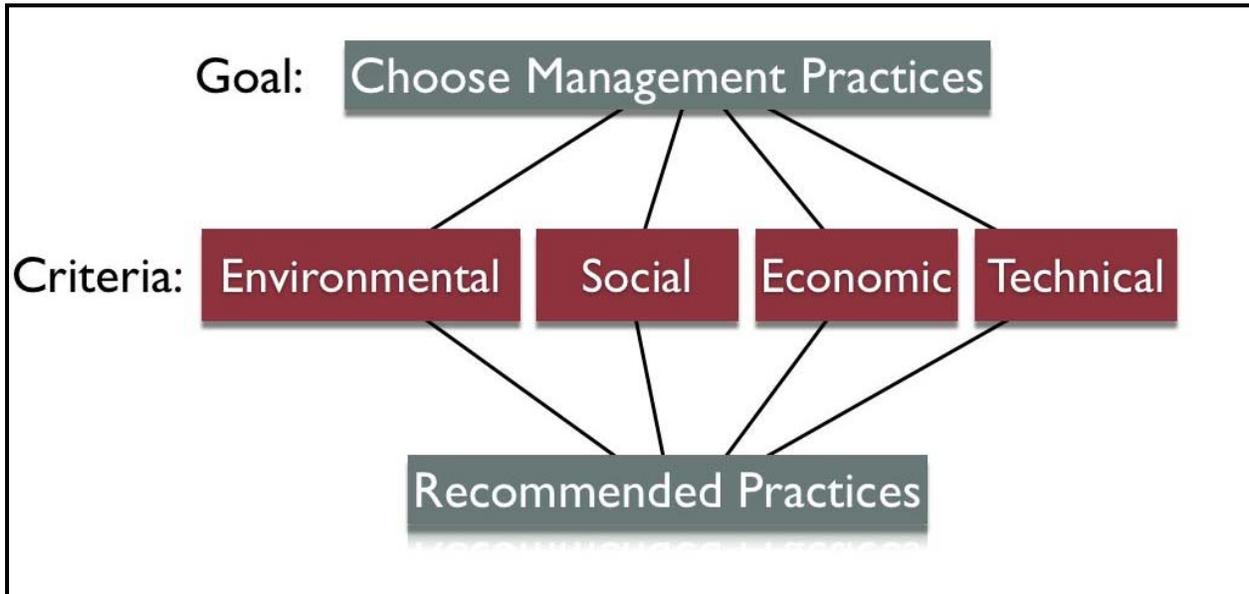
- Help meet the water quality management objectives of the regional water plan (RWP).
- Help meet water quantity management objectives of the RWP.
- Provide for sustainable use of available water or practices that supplement water availability.
- Ensure sustainable use of assimilative capacity on a watershed basis.
- Restore impaired waters.
- Protect waters that currently meet water quality standards.
- Address gaps identified in resource availability and assimilative capacity as identified through EPD resource assessment modeling efforts.

Additionally, the planning contractor team helped to guide the process through the concepts of sustainable planning embodied in the “Triple Bottom Line” (TBL) approach. The planning contractor used this approach in assisting the council in developing selection criteria and designing a selection survey for the council members. As shown in Figure 1, the TBL approach considers traditional economic factors, but that also incorporates social and environmental impacts. This approach provides for a more complete

evaluation in environmental decision-making and ensures that sustainability is considered in planning. The planning contractor felt it was necessary to add a fourth category to incorporate technical criteria into the selection process. These four categories (social, economic, environmental, and technical) are shown in Figure 2. The planning contractors suggested these as the primary criteria to orient the selection process. More discussion of the selection criteria follows in Section 6 below.



**Figure 1. Triple Bottom Line of Sustainable Planning**



**Figure 2. Main Category Hierarchy**

### **3. COUNCIL OPERATIONS**

Beginning at its first meeting, the Council worked to develop three documents to govern council operations: Memorandum of Agreement, Operating Procedures, and Rules for Meetings. Signatories to these documents included the Council, the Georgia Environmental Protection Division (EPD), and the Georgia Department of Community Affairs (DCA). These three documents are included with the supplemental materials to the regional water plan on the Lower Flint-Ochlockonee Council's website: ([http://www.flintochlockonee.org/pages/our\\_plan/index.php](http://www.flintochlockonee.org/pages/our_plan/index.php)).

The Council developed these documents in an iterative process with EPD and DCA. The process began with draft documents provided by EPD and DCA. The Council reviewed the documents and made numerous proposals for modifications. Over the course of three council meetings, the Council finalized all three documents in a manner acceptable to all signatories. The three documents were adopted by the Council at its third meeting on September 21, 2009.

These documents provided for a consensus approach, where possible, in council decision-making. The Council committed to trying to attain consensus in decision-making. In the event that consensus could not be reached in a reasonable amount of time, the Council decided to make decisions by a simple majority vote. The Council referred to Robert's Rules of Order to guide the process in situations not specifically addressed in the Operating Procedures or Rules for Meetings. In its meetings, the Council was almost always able to attain consensus in its decision-making.

#### **4. COUNCIL-DEFINED VISION AND GOALS**

Perhaps the most significant guides for the Council in the planning process were the vision statement and goals that the Council developed. The Council began work to develop its vision and goals at its first meeting. In that meeting, the Council discussed the trends, forces, and factors affecting water resources in the region. The following is the list of trends, forces, and factors that the Council developed in this discussion:

##### **Increasing Economic Uncertainty**

- Economic uncertainty affects industrial water use
- Subdivision development halted
- Economic uncertainty affects agricultural water use

##### **Factors that Decrease Demand for Water**

- Decreasing industry
- Increasing cost of supplying water (municipal)

##### **Political Pressure affecting Water Resource Management**

- Increasing political pressure to share water resources
- Increasing pressure to build dam on the Flint River
- Tri-State Water Wars

##### **Increasing use of water conservation**

- Increasing municipal water conservation
- Shift from diesel to electric power use
- Increased efforts to find water leaks in supply system
- Localized restrictions on outdoor water use
- State drought restrictions

##### **In-migration**

- Population migration (halfbacks) to Georgia

##### **Nature**

- Limitations on recharge in Flint
- Climate variation

##### **Data good, need more**

- Better, but not enough water resources data

##### **Regulatory Pressure**

- Nutrient limits on discharges in free flowing stream will make treatment more costly

### Water Quality

- Trend toward identifying more impaired waters
- Increase in factors endangering free flowing streams

During the discussion, the group also noted the following important factors:

- Critical importance of agriculture in the region
- Opportunities offered by the region's resources
- Lack of infrastructure for industry in some parts of region
- Need to better understand/estimate consumptive use of water by agriculture

In summary, like many other places, the region currently faces substantial uncertainty due to economic conditions. Water conservation efforts are increasing, while the future demand for water seems difficult to predict based on recent trends. Increasing attention is being paid to water quality concerns in the region, and new regulatory pressures relating to water quality may develop. Information on water resources has improved in recent years, but better information is still needed. Finally, political and natural factors place significant pressures and constraints on water resources management in this region.

The Council used the results of the discussion of trends, forces, and factors to begin to draft a vision statement. It also referred to the vision from the State Water Plan as a starting point: *Georgia manages water resources in a sustainable manner to support the state's economy, protect public health and natural systems, and enhance the quality of life for all citizens.*

Next, Council members worked individually to answer the following questions:

1. What do you want your rivers, lakes and groundwater to do for you and the citizens in your planning region?
2. What do you want to protect?
3. What do you want to achieve with your water resources?

The discussion of responses to these questions led to the following list of important points for the Vision and Goals Committee to consider in drafting a vision statement and goals for the Council:

- Human Consumption – Survival
- Water should be affordable
- Economic stability
- Importance of agricultural and industrial use
- Agriculture provides national security benefits
- Recreational use of water
- Power Generation

- ACOE Management will affect LFO region
- Concern for aquatic life
- Endangered Species – concern over too much flow devoted to this purpose
- Information needs to support decision making
- Balance economic growth with resource availability
- Variability of resources within the region

After some discussion, the Vision and Goals Committee decided that the vision statement of the Joint Comprehensive Water Study Committee and the State Water Plan was appropriate for the Council to adapt for its own use. This statement addressed Council concerns and presented the Council's perspective. Adapted for the Council, the statement was proposed to the Council as follows:

*The Lower Flint Ochlockonee Water Planning Council will manage water resources in a sustainable manner to support the region's economy, to protect public health and natural systems, and to enhance the quality of life for the region's citizens.*

The Council discussed whether the vision statement should specifically address the importance of production agriculture in the region. After some debate, the Council approved the above Vision statement for adoption at its 4<sup>th</sup> meeting on November 19, 2009.

At the same meeting, the Vision and Goals Committee presented a draft set of goals for the Council to consider. The Council modified the committee's goals and agreed to adopt the following set of goals at the Council meeting on November 19, 2009:

1. Ensure access to water resources for existing and future water users in the Lower Flint-Ochlockonee region.
2. Sustain the region's aquifers, most particularly the Floridan aquifer, in a healthy condition that will continue to support the natural systems and economic activities of the Lower Flint-Ochlockonee region.
3. Maintain the production agriculture based economy of the Lower Flint-Ochlockonee region.
4. Support sustainable economic growth in the region.

At its 7<sup>th</sup> meeting, the Council modified the 2<sup>nd</sup> goal to read as follows:

2. Sustain the region's aquifers, the Floridan, the Claiborne, the Clayton, and the Cretaceous, in a healthy condition that will continue to support the natural systems and economic activities of the Lower Flint-Ochlockonee Region.

## 5. INFORMATION SOURCES

The Lower Flint-Ochlockonee Council considered the following major sources of information to guide the selection of management practices for the Lower Flint-Ochlockonee Regional Water Plan:

- 1) ***Existing plans and practices***: The Council conducted a comprehensive review of existing local and regional water management plans and relevant related documents to frame the selection of management practices. When possible, successful management practices already planned for and/or in use in the Region formed the basis for the water management practices selected by the Council.
- 2) ***Comparison of resource demands (current and forecast) and resource capacities (as modeled in the resource assessments)***: See Sections 3 & 5 of the Lower Flint-Ochlockonee Regional Water Plan and additional technical memoranda summarizing the forecasts and assessment results available with the supplemental materials to the regional water plan on the Council's website: [http://www.flintochlockonee.org/pages/our\\_plan/index.php](http://www.flintochlockonee.org/pages/our_plan/index.php)
- 3) ***Lower Flint-Ochlockonee Council's Vision and Goals***: See Section 1 of the Lower Flint-Ochlockonee Regional Water Plan and Section 4 of this document.
- 4) ***Results of a survey of Council members on management practices and criteria for evaluation***: The survey asked council members to rate an extensive list of management practices and to rank criteria to guide management practice selection (see Section 6 of this document).
- 5) ***Public input***: The Council implemented a Public Involvement Plan to inform stakeholders and local government officials about the planning process and to engage them in providing input to the Council as it developed its plan. A copy of the Public Involvement Plan and a discussion of the public involvement activity is included in the Public Participation Technical Memorandum, available with the supplemental materials to the regional water plan on the Council's website: [http://www.flintochlockonee.org/pages/our\\_plan/index.php](http://www.flintochlockonee.org/pages/our_plan/index.php)

The selection of management practices required the development of a comprehensive listing of management practices from which to make selections. This list was developed based on a broadly scoped review of existing plans, reports, and other documents that discussed water resource management in the region and the state as a whole. These reports and plans included (but were not limited to) the following:<sup>1</sup>

- Georgia's Water Conservation and Implementation Plan (EPD, March 2010, See: <http://www.conservewatergeorgia.net/documents/wcip.html>)
- Best Management Practices for Georgia Agriculture (GSWCC, 2007, See: [http://www.gaswcc.org/docs/ag\\_bmp\\_Manual.pdf](http://www.gaswcc.org/docs/ag_bmp_Manual.pdf))

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<sup>1</sup> For more detail on plans reviewed in the development of the Lower Flint-Ochlockonee Regional Water Plan, see the Existing Regulatory and Local Plan Summary included in the supplemental materials on the Lower Flint-Ochlockonee Council's website: [http://www.flintochlockonee.org/pages/our\\_plan/index.php](http://www.flintochlockonee.org/pages/our_plan/index.php)

- Georgia's Best Management Practices for Forestry (GFC, 2009) (See: <http://www.gfc.state.ga.us/forestmanagement/bmp.cfm>)
- Georgia Stormwater Management Manual (Blue Book, See: <http://www.georgiastormwater.com/>)
- Mining Association Best Management Practices
- Water Quality/Quantity Best management Practices for Florida Container Nurseries (April 2007, See: [http://www.floridaagwaterpolicy.com/PDF/Bmps/Bmp\\_FloridaContainerNurseries2007.pdf](http://www.floridaagwaterpolicy.com/PDF/Bmps/Bmp_FloridaContainerNurseries2007.pdf))
- Metropolitan North Georgia Water Planning District: Water Supply and Water Conservation, Wastewater, and Watershed Management Plans (Metropolitan North Georgia Water Planning District, May 2009, See: <http://www.northgeorgiawater.org/html/19.htm>)
- State Energy Strategy for Georgia (GEFA, December 14, 2006, See: <http://www.gefa.org/Index.aspx?page=93#a4>)
- Groundwater Management Plan for Georgia, Georgia's Comprehensive State Groundwater Protection Plan (Georgia EPD, 1998)
- Georgia Water Stewardship Act (Georgia General Assembly, June 2010)
- Flint River Basin Regional Water Development and Conservation Plan (Georgia EPD, March 20, 2006, See: <http://www1.gadnr.org/frbp/index.html>)
- Watershed Assessments and Watershed Protection Plans (as required by NPDES permits)
- Water Quality in Georgia 2006- 2007 (305(b)/303(d) Report, See: <http://www.gaepd.org/Documents/305b.html>)
- TMDL Implementations Plans (See: [http://www.gaepd.org/Files\\_PDF/techguide/wpb/TMDL/TMDL\\_Implementation\\_Plans/TMDL\\_TMDLPlan\\_List\\_2007.pdf](http://www.gaepd.org/Files_PDF/techguide/wpb/TMDL/TMDL_Implementation_Plans/TMDL_TMDLPlan_List_2007.pdf))
- Nonpoint Source Implementation Plans
- Water and sewer master plans
- Stormwater master plans
- Local comprehensive plans from the Lower Flint-Ochlockonee Region
- USGS reports on Georgia water resources (See: <http://ga.water.usgs.gov/>)
- US Army Corps of Engineers documents on the ACF (See: <http://www.sam.usace.army.mil/acf.htm>)
- Water resource research reports from the Albany State University - Georgia Water Planning and Policy Center (See: <http://www.h2opolicycenter.org/research.shtml>)
- Georgia Better Back Roads Field Manual (See: <http://www.tworiversrcd.org/GABBR.htm>)

## 6. SELECTION PROCESS

The above sections describe the foundation laid by the Council to select management practices:

- Development of vision and goals
- Review of water and wastewater demand forecasts
- Review of resource assessment results on resource capacity
- Review of existing plans, practices, and pending regulations
- Development of a comprehensive list of management practices

Next, the Council worked from the comprehensive list of management practices to select the management practices for its regional water plan using the following steps:

- 1) Survey of council members on management practices and selection criteria
- 2) Creation of Water Quality and Water Quantity Committees to develop recommendations to the full council on management practices
- 3) Iterative development, review, and revision of Water Quality and Water Quantity “strawman” documents of management practice recommendations by the committee
- 4) Presentation of recommendations to the full council for consideration
- 5) Incorporation of Council comments
- 6) Adoption of management practices into the plan

First, the Planning Contractors developed a survey to gather information from the Council members on their priorities for selection criteria and for categories of management practices. The survey asked Council members to rate potential selection criteria, which the planning contractors developed for the survey based on the Triple Bottom Line approach described in Section II and based on input to date from Council discussions. The following is a list of criteria included in the survey, by category from Figure 2:

### **Economic**

Capital Cost  
Operation and Maintenance Cost  
Life Cycle Cost

### **Environmental**

Regulatory Compliance  
Water Quality  
Restoration of Impaired Waters

### **Social**

Public Perception  
Impact on Public

### **Technical**

Efficiency  
Reliability

The Council members were also asked to suggest other criteria that should be considered. The survey also asked the Council members to rate the importance, absolutely and relatively, of various types of management practices by category, including the following:

### **Water Quantity Management Practices**

#### ***Water Demand Management Practices***

- Measurement and Water Use Assessment Practices
- Practices to Reduce Water Waste and Loss
- Drought Planning and Response
- Practices to Increase Efficiency in Water Use and/or Reduce Water Use
- Water Reuse (non-potable, indirect potable, direct potable)
- Conservation Oriented Rate Structures and Other Incentives
- Education and Outreach Programs
- Energy Water Efficiency and System Management
- Agricultural Water Efficiency and System Management
- Golf Course Water Conservation Management Practices and Strategies
- Voluntary Certification Program for Landscape Professionals

#### ***Water Return Management Practices***

- Increase water returns by decreasing use of septic systems
- Increase water returns by decreasing use of land application systems
- Nonpotable Reuse
- Indirect Potable Reuse
- Direct Potable Reuse

#### ***Water Supply Management Practices***

- New Surface Water Storage Reservoirs
- Increase Existing Surface Water Storage Reservoirs
- New Groundwater Sources
- Interbasin Transfers
- Aquifer Storage and Recovery
- Desalination
- Interconnection of Supply Systems

**Water Quality Management Practices**

***Enhanced Water Quality Standards and Monitoring Practices***

- Constructed Treated Wetlands
- Actions to protect/manage source water quality and quantity
- New Development Stormwater Management Standards
- Watershed Improvement Projects
- Stormwater Public Education and Outreach
- Source Water Supply Protection
- Groundwater Recharge Protection
- Regional/Local Monitoring Programs
- Water Supply Security

***Enhanced Pollution Management Practices***

- Reduce Impervious Surfaces
- Establish a Stormwater utility
- Protect Sensitive Land
- Pollution Prevention Programs
- Coordinated Environmental Planning
- Maintenance for Septic Systems
- Water Quality Trading
- Post Development Stormwater Management

The results of the survey are provided in Table 1 below.

Table 1: Results of Lower Flint-Ochlockonee Council Member Survey on Management Practices			
Management Practices Most Highly Rated by Council Members			
WATER QUANTITY MANAGEMENT PRACTICES		WATER QUALITY MANAGEMENT PRACTICES	
Demand Management Practices	Supply Management Practices	Enhanced Water Quality Standards and Monitoring Practices	Enhanced Pollution Management Practices
<ul style="list-style-type: none"> <li>• Practices to Reduce Water Waste and Loss</li> <li>• Golf Course Water Conservation Management Practices and Strategies</li> <li>• Agricultural Water Efficiency and System Management</li> <li>• Drought Planning</li> </ul>	<ul style="list-style-type: none"> <li>• New Groundwater Sources</li> <li>• New Surface Water Storage Reservoirs</li> <li>• Increase Existing Surface Water Storage Reservoirs</li> </ul>	<ul style="list-style-type: none"> <li>• Groundwater Recharge Protection</li> <li>• Source Water Supply Protection</li> <li>• Actions to protect/manage source water quality and quantity</li> </ul>	<ul style="list-style-type: none"> <li>• Protect Sensitive Land</li> <li>• Coordinated Environmental Planning</li> <li>• Pollution Prevention Programs</li> </ul>
Evaluation Criteria Ranking			
<ol style="list-style-type: none"> <li>1. Economic/Financial (Capital Cost, Operation and Maintenance Cost, Life Cycle Costs)</li> <li>2. Social (Public Perception, Impact on Public)</li> <li>3. Technical (Efficiency, Reliability)</li> <li>4. Environmental (Water Quality, Restoration of Impaired Waters)</li> </ol>			

The Council chose to organize its work in selecting management practices through two committees: Water Quality and Water Quantity. The committees were created and initial appointments were made at the Council’s fifth meeting on March 25, 2010. The charge to these committees was to develop recommendations for the Council of management practices for the Council to adopt into the regional water plan. The results of the survey discussed above provided the committees with a starting point: an understanding of how the Council members rated the importance of various selection criteria and categories of management practices.

The planning contractors worked with the committees to develop “strawman” documents that outlined management practices for each committee to consider. The documents included supporting information

on the effectiveness and costs of the practices to the extent that such information was available.<sup>2</sup> The committees met with the Planning Contractors and EPD on multiple occasions to draft the management practices for the Council to consider. Committees met between Council meetings from May 2010 to April 2011. At each Council meeting, committee reports formed the basis of Council discussion of management practices. The committees also made other recommendations to the Council on the content of the regional water plan, including items for inclusion in the Council's Recommendations to the State (Section 7.4) and other sections of the plan.

In their deliberations, the committees considered the following:

- Council vision and goals
- Water demands (current and forecast)
- Water resource assessment results
- Gaps identified by comparing water demands and assessment model results
- Selection criteria ratings
- Cost information
- Effectiveness and efficiency information
- Timing for implementation

The selection criteria were important in orienting discussion to a broad range of factors that included not only environmental and economic factors, but also social and technical factors. On many occasions, the Council did not immediately accept a recommendation of the committee, and the committee worked further to refine the management practice recommendation. The committees worked with the planning contractors to detail implementation steps and schedules, benchmarks for plan implementation evaluation, and cost estimates for the management practices included in the plan. The committees provided the mechanism by which the Council was able to process substantial amounts of information into informed decisions to support the development of the regional water plan.

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<sup>2</sup> More information specifically related to the selection of conservation management practices is provided in the Water Conservation Technical Memorandum available in the supplemental materials on the Lower Flint-Ochlockonee Council's website: [http://www.flintochlockonee.org/pages/our\\_plan/index.php](http://www.flintochlockonee.org/pages/our_plan/index.php)  
Some information on the cost of management practices was derived from the Supplemental Guidance for Planning Contractors: Water Management Practice Cost Comparison (March 2010).

## **7. Selection Process Outcomes**

After a year of iterative work by the committees with the full council, the Council adopted a final plan to submit to EPD on April 19, 2011. The plan includes the selected management practices and several recommendations to the state regarding water resource management in the region. The selected management practices are listed in Section 6 of the plan. Four management practices are highlighted as high priority management practices based on the results of a council survey at Council Meeting 9. Details on implementation steps and schedules and cost estimates are included in Section 7 of the plan. Recommendations to the state from the Council on water resources management are also included in Section 7. Benchmarks to evaluate plan implementation are included in Section 8.