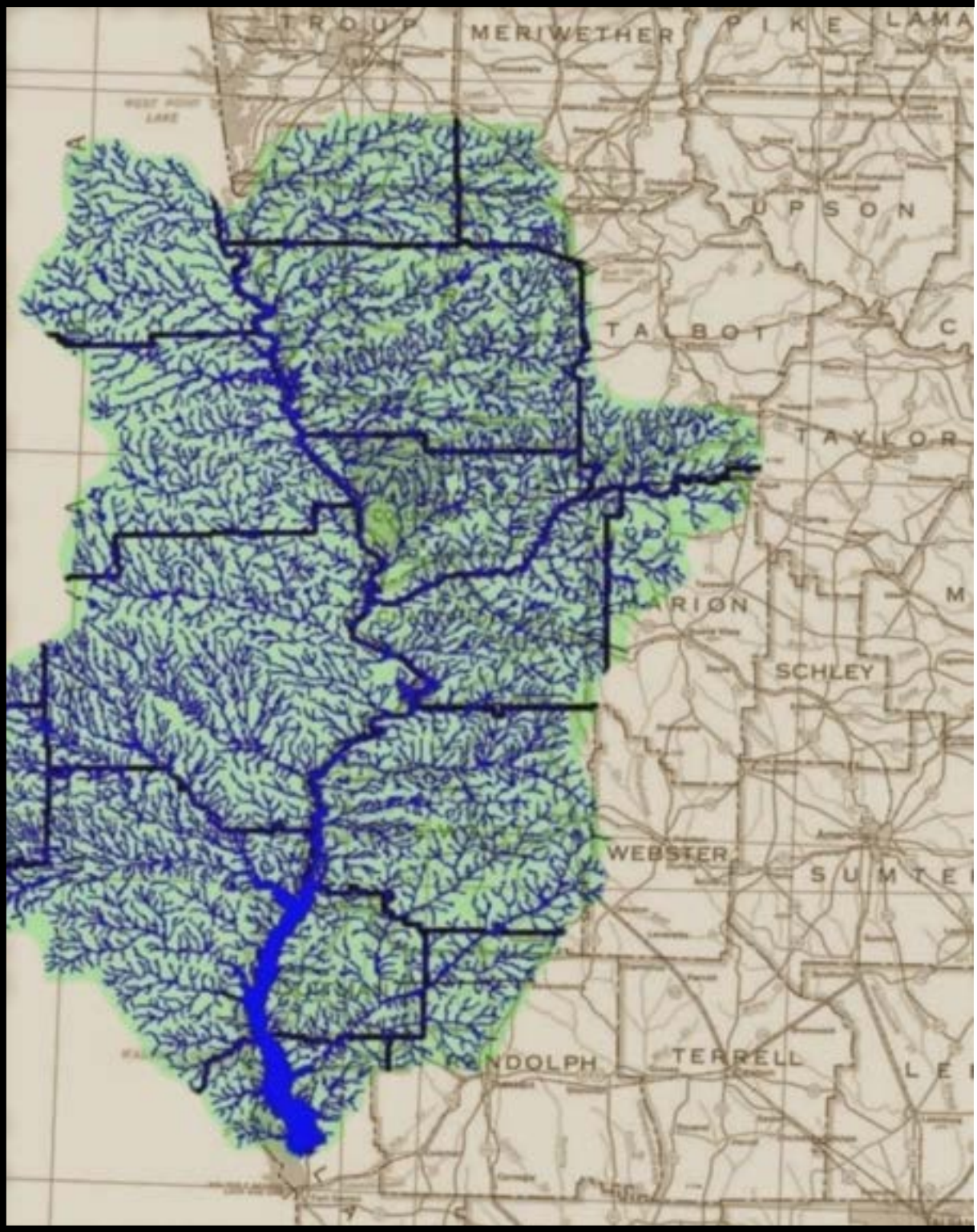
Middle Chattahoochee Watershed Workshop Report

Blueprints for Successful Communities
Fall 2006



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Middle Chattahoochee Watershed Workshop

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Overview

Blueprints for Successful Communities

Blueprints is an education and technical assistance program of the Georgia Conservancy designed to facilitate community-based planning across the state. The program is committed to achieving successful communities by creating sound conservation and growth strategies, and building consensus for action.

Georgia is home to an abundance of natural and cultural resources. Our development patterns over the last 50 years present a very real threat to these resources and to quality of life as a whole. Sprawling, decentralized development, where people must depend on automobiles, is expensive for local governments to serve and has a staggering effect on the environment. Vehicle emissions create toxic air pollution. Stormwater runoff from asphalt poisons rivers and streams. Thousands of acres of farms, woodlands, and open space are lost to wasteful, non-sustainable forms of development.

The Georgia Conservancy partnered with the Urban Land Institute and the Greater Atlanta Homebuilders in 1995 to host its first Blueprints for Successful Communities symposium. Currently the Conservancy maintains an active partnership with fourteen organizations. These diverse organizations and their members provide expertise in the relationships that exist between land use, public infrastructure, economic growth, and environmental quality.

Prior to the Middle Chattahoochee Watershed Workshop, Blueprints has addressed heritage corridor preservation, location of commuter rail stations, inner city neighborhood issues, and other planning opportunities, all through a collaborative planning process.

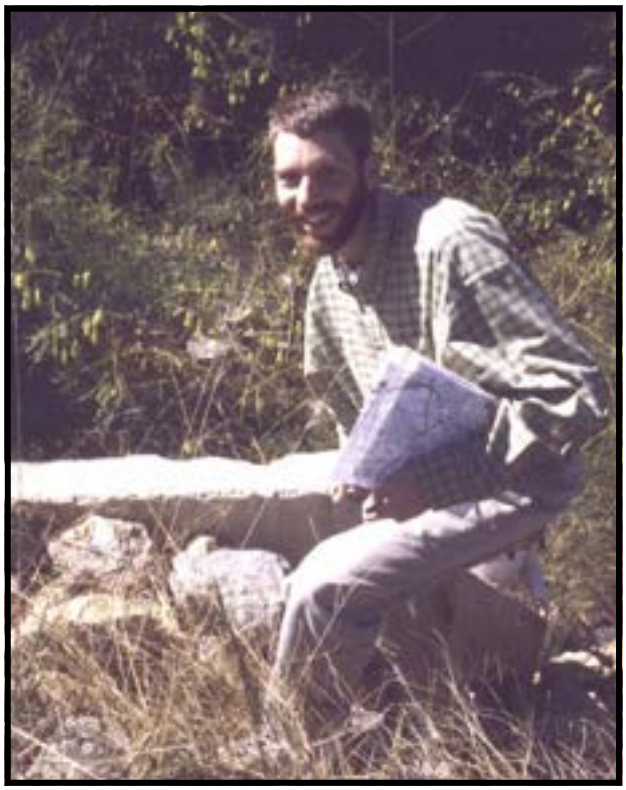
Blueprints Principles

The Blueprints process is modified to fit varying circumstances in each community. The first step in the process, however, is always and invitation to the Blueprints program from within the local community. Once Blueprints staff and local community leaders determine that Blueprints is the right planning tool for the community, a set of local stakeholders is assembled and agrees to work within the Blueprints Principles:

- Maintain and enhance quality of life for all residents of the community
- Employ regional strategies for transportation, land use, and economic growth
- Consider the effect of the built environment on the natural environment, including history and culture
- Employ efficient land uses

Community Design Workshops

A primary component of the Blueprints process is the community design workshop. These workshops allow participants to discuss pertinent issues in the area of concern, as well as possible solutions and strategies. The diverse nature of the Steering Committee that guides the overall process and directly participates in the workshops produces results that are sensitive to competing interests and represent a common vision for the area. This document reflects the outcomes of the three workshops that were a part of the Middle Chattahoochee Blueprints effort. A list of Steering Committee members is included at the end of the report.



Blueprints field work
Georgia Tech graduate student, Jonathan Lewis, surveys stormwater infrastructure during the Blueprints watershed workshop.

Why Middle Chattahoochee Watershed Blueprints?

In January 2001, The Blueprints staff was invited to collaborate with the Oxbow Meadows Environmental Learning Center, Columbus Water Works, the City of Columbus, the City of Phenix City, Columbus State University, and the Valley Partnership to host a Blueprints for Successful Communities workshop. This invitation provided an opportunity for the Blueprints program to reach into two new areas:

- To apply the Blueprints community design workshop process at the watershed scale; and
- To explore the options for addressing water quality and quantity in conjunction with land use policy planning and practices

Blueprints began with an educational symposium on watershed planning and navigation on the Chattahoochee River in December of 2001.

Following the half-day education session, a core group of roughly 45 stakeholders known as the Blueprints Middle Chattahoochee Watershed Steering Committee met on a monthly basis. During the first meeting, the Blueprints staff introduced the workshop process and concepts of watershed planning. The Steering Committee agreed to focus on the portion of the watershed between West Point Dam and Lake Walter F. George. Through facilitated discussion, the group outlined the assets and challenges of the watershed and adopted a set of guiding principles and goals for the study/planning process.

WATERSHED VISION AND GOALS

In March 2001, the steering committee compiled a list of the watershed's assets and challenges. This list was revisited and revised by the committee in Spring 2005.

Watershed Assets Initially Identified

- ecological integrity
- the river
- the Riverkeeper
- visual/ aesthetics (natural setting)
- conservation of biodiversity
- water supply
- rural mentality (love of the land)
- cooperation among City, County, industry, education
- proximity to community services
- people who want to preserve the land
- greenspace
- comprehensive watershed study
- several scientific studies
- cultural resources (built, archaeological)
- varied Interests- "harmonious stakeholders"
- low cost of living
- impoundments for supply & recreation
- navigable river
- commitment to public education – Oxbow
- extensive forest land
- ripe for regionalization of some public services
- financial resources from business and industry
- productive land
- federal facility- Ft. Benning
- major land owners
- foundation for citizen outreach in place
- highway system
- media support
- recreation
- regional hospital
- regional library
- low population density
- climate
- combined sewer overflow & wastewater treatment
- hydropower and flood control

Additional Watershed Assets

- river restoration, habitat, water quality, recreation
- eco-tourism- RiverWay South
- agri-tourism- USDA grant
- river as economic asset
- riverwalk
- conserved biodiversity at Benning
    - leverage for federal funds and programs in the future
- Middle Chattahoochee Blueprints
- opportunity to pull watershed together
    - urban areas and rural areas could/should be closely tied and interdependent
    - credit rural areas for benefits of open/undeveloped land.
- even greater opportunity for education
- watershed is an ideal location
- Middle Chattahoochee "Users Group"

Dogwoods draped with Spanish moss. The Piedmont meets the Coastal Plain within the Blueprints watershed study area.

Watershed Challenges Initially Identified:

- lack of land planning in relation to the river
- lack of implementation and leadership on comprehensive plans
- regulation of the river
- highway system
- coordination with Alabama and Atlanta
- lack of regulatory enforcement
- poor counties & unemployment
- air quality
- imbalance of development
- infrastructure issues in rural counties
- sprawl and associated sediment
- political fragmentation
- decision-making based on short-term rather than long-term
- transportation focus on highways
- infrastructure planning
- "air of resignation" but not as bad as Atlanta
- changing water priority
- community services (depends on location)
- education- literacy
- rapid residential growth
- economic development- the "right kind"
- threat of water decisions in courts
- watershed definition- importance of upstream and downstream
- TMDLs- lack of science and understanding
- land ethic- but no immediate concern
- inability to implement change
- property rights
- habitat fragmentation
- reliable data in usable format
- erodible soils and active erosion
- financial resources to update infrastructure
- landfills and other people's garbage
- economic feasibility of watershed planning
- need to improve basic quality of life in rural areas

Additional Watershed Challenges

- REGIONAL planning throughout the watershed- taking holistic, coordinated view. Reshaping regional planning
- dealing with rapid development
- planning for land use change- see Atlanta for bad example
- continuing/beginning collaboration throughout the watershed- bring in outlying counties
- balancing benefits of restoration with impacts (cultural, archaeological, environmental, recreation, land use
- bringing more people to river- public safety challenge
- dredging
- maintaining BALANCE
- political issues limiting local projects and decisions
- water distribution between states
- water use planning
- lack of citizen involvement- getting better slowly
- not much access to river south of town
- converting interest to action
- giving people a way to get involved/a vehicle to relate to the river
- educating the community– have we reached a plateau?
- promoting change of habit, lifestyle change
- taking advantage of the opportunity provided by the state land conservation plan
- assigning value to benefits of natural resource conservation & benefits to community
- understanding thresholds & priorities
- dealing with invasive species
- the Chattahoochee as a federal Inland Waterway (both asset and challenge)
- lacking large number of leaders in rural areas
- tendency for rural leaders to make short-term decisions with long-term consequences
- water politics, court decisions on water
- supporting commercial use of river without destroying the river

Middle Chattahoochee Watershed Goals

The Steering Committee felt is was important to set goals and principles to guide their involvement with the watershed. In several meetings they discussed and then agreed to the following:

- Provide leadership in supporting development that is both environmentally sound and economically viable.

- Encourage balanced economic development and improved quality of life for all residents of the watershed.

- Educate the public about all the waters in the middle Chattahoochee Watershed area, all the land over which the water flows, as well as the importance of the watershed to its human, plant, and animal inhabitants.

Guiding Principles to Accomplish Across All of the Goals

- Capitalize on and encourage increased participation from local and regional government leadership, business and industry entities, and civic partners
- Continue to foster a sense of cooperation across government, business, industry, an educational institutions throughout the watershed.
- Incorporate the natural, historic, and cultural heritage of the watershed in future development.
- Foster linkages among communities throughout the watershed.
- Promote policies and implementation practices that are based on scientific principles and Middle Chattahoochee Watershed data in order to make informed, careful decisions.
- Promote policies and practices that are consistent across all levels of government and local jurisdictions.
- Encourage long-term, sustainable solutions.

Fishermen on the Chattahoochee River below the Eagle and Phenix dam in Columbus

What is a watershed?

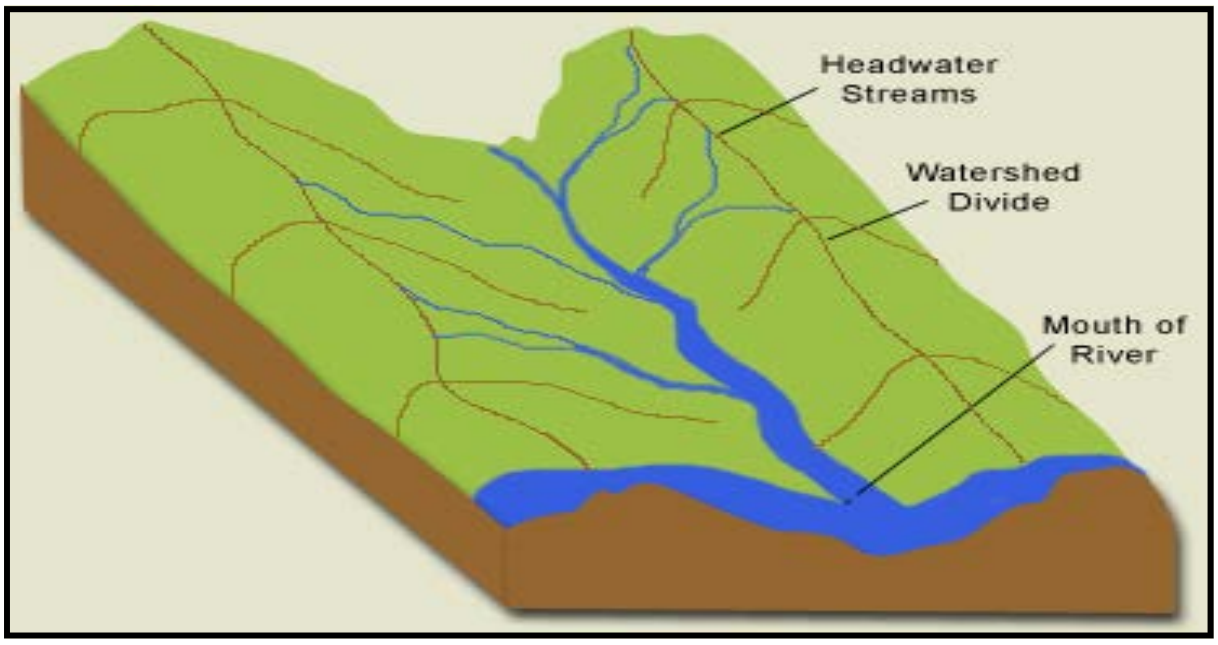
A watershed is an area of land that drains into a body of water, such as a stream, lake, river or wetland. Each watershed is separated topographically by a ridge or hill. A watershed is like a funnel, collecting all the water within the drainage area and channeling it into a waterway. Watersheds are natural bodies that do not recognize political boundaries.

Why Watershed Planning?

Research demonstrates that water quality and consumption should be managed at a watershed scale. By addressing the land use practice and consumption within a river's drainage area, we are best able to protect the water and the many services it provides. Political boundaries are rarely useful for managing water quality as they tend to be disconnected from the natural boundaries.

Watershed-based planning is underway in several Georgia locations. Regional, watershed based-planning with local leadership is one of the best ways our state can protect our water resources in the future.

The civic leaders within the Middle Chattahoochee watershed had the foresight to recognize the important role that the river plays in maintaining the quality and character of their communities. Although they may not share the same mayor or courthouse, they realize the river links them as a community and they want to protect it proactively.

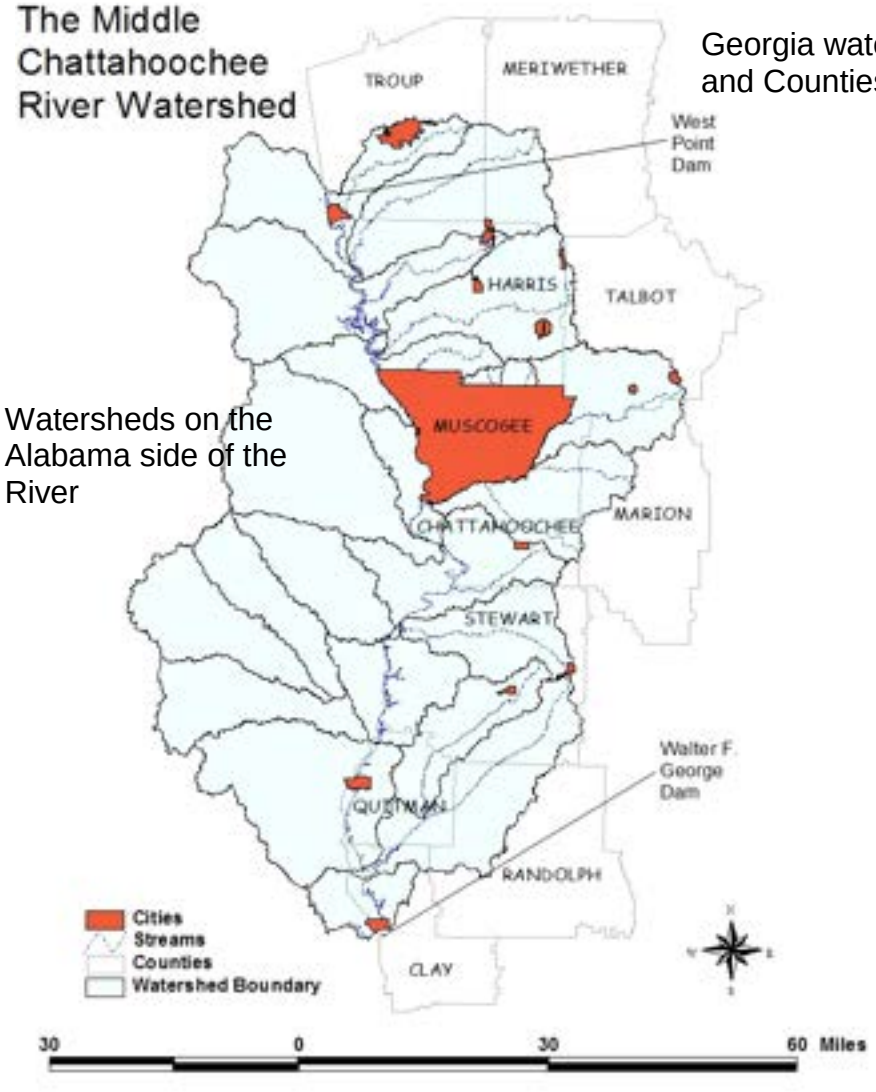


Watershed diagram courtesy of the Stony Brook-Millstone Watershed Association, New Jersey.

The Middle Chattahoochee Watershed-
The Big Picture:

The first research task for the Blueprints watershed workshop was to create a brief "snapshot" of the area included within the Middle Chattahoochee Watershed. All or part of eleven counties are included in the study: Chattahoochee, Clay, Harris, Marion, Meriwether, Muscogee, Quitman, Randolph, Stewart, Talbot, and Troup. The initial research presents demographic, land use, and environmental information documented in the Comprehensive Development Plans for each county. The synthesized information provides a conceptual understanding of the current situation (at the time the plan was written) and a formal exploration as to the future of each county as set out by the plan.

A two-part environmental policy overview was also completed for each county within the watershed. Part one is an inventory of environmental resources specifically designated in each plan. Part two is an inventory of goals and policies included in each plan that attempt to address the sensitive natural, cultural, and historic resources identified by the plan, development constraints, and goals and policies directly related to water and water quality.



Map created by Georgia Tech City and Regional Planning, School of Architecture, 2001

Summary of 2001 Land Use Trends and Goals

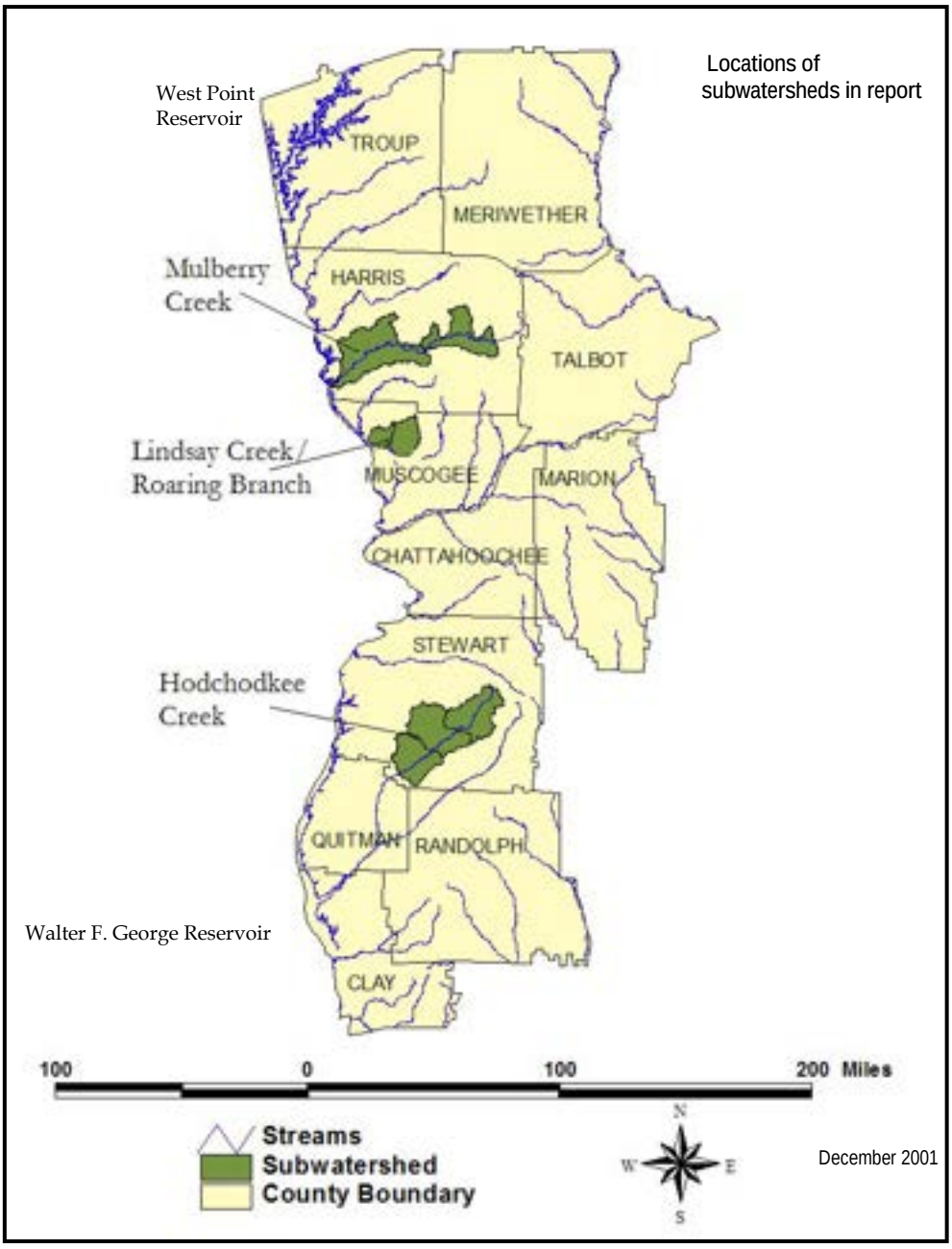
Source: County Comprehensive Land Use and Development Plans

COUNTY WITHIN WATERSHED	**LAND USE TRENDS** (2001study)	**COMPREHENSIVE PLAN GOALS AND POLICIES RELATED TO WATER RESOURCES** (2001 study)
Chattahoochee	Residential development along arteries, scattered agriculture, commercial forestry, future residential related to Fort Benning	Implement natural resource conservation district, include natural resource protection in proposed zoning ordinances, prevent development from altering flood plain
Clay	Static land use expected to continue, plan supports commercial uses in Fort Gaines and Bluffton, emphasizes protection of agricultural lands, future land use designates areas for inclusion in Parks/Rivers/Conservation District	Enforce environmental standards to protect wetlands, groundwater recharge areas and water supply watersheds, request FEMA floodplain mapping, prohibit development on steep slopes
Harris	Primarily residential development, commercial development at intersections of arterials	Enforce standards to protect wetlands, groundwater recharge areas, and water supply watersheds, restrict development in flood-prone areas
Marion	Primarily agriculture and forestry, some population growth due to Columbus and Fort Benning, residential growth expected, no land use regulations	Enforce soil erosion and sedimentation ordinances, enact ordinances for protection of prime agricultural land
Meriwether	Residential scattered along roads, prolific use of septic tanks, commercial associated with municipal areas, concern for protection of rural lands	Promote nodal and cluster development, discourage scattered and sprawl development, adopt and enforce watershed protection ordinance
Muscogee	Existing and proposed development varies by planning district. Commercial and residential development expected to continue, particularly in northern end of county	Improve monitoring of point and non-point pollution, maintain inventory of natural systems, review development proposals as to effect on watersheds and natural systems
Quitman	Timberland, concentrations of residential along highways and near reservoir. Commercial uses in Georgetown. Gradual land use change expected from timber to residential	Pursue FEMA mapping, adopt and enforce floodplain ordinance, encourage development that respects floodplains, slopes, wetlands, and limiting soil types
Randolph	Farmland, pastureland, timberland. New residential primarily in southeast section of County. Increased residential expected	Require construction to include erosion and sedimentation controls, request FEMA mapping, adopt and enforce standards for protection of wetlands, groundwater recharge areas, water supply watersheds
Stewart	Scattered residential development. Commercial within municipalities, 90% of land area commercial timberland. Conversion of timberland expected	Adopt and enforce standards for protection of groundwater resource areas and water supply watersheds, Implement Natural Resource Conservation District
Talbot	Timber, farm and pastureland. Residential concentrations in western area of county. Commercial scattered, but concentrated in municipalities.	Adopt and enforce standards for protection of groundwater resource areas and water supply watersheds.
Troup	Agriculture concentrated in southern portion of county. Conversion of agriculture to residential expected, commercial growth to continue in municipalities and along transportation corridors	Enforce floodplain management ordinance, develop criteria for protection of wetlands, groundwater recharge areas, and habitats. Develop River Corridor Protection plan with City of West Point

Subwatershed Studies

The Middle Chattahoochee Watershed Steering Committee closely examined three subwatersheds in order to understand some of the typical land uses within the watershed, the associated threats, and possible recommendations.

An exurban, developing subwatershed; an urban, heavily-managed subwatershed; and an economically static, rural subwatershed were chosen in order to consider the various development levels and land uses throughout the watershed. The recommendations provided for each subwatershed not only address water resource threats, but also respond to the resident's vision for their subwatershed community.



Mulberry Creek Subwatershed: Rural land uses converting to residential

Mulberry Creek Subwatershed Study Area

The Mulberry Creek subwatershed is located in the southern portion of Harris County, adjacent to Columbus/Muscogee County. Southern Harris County is home to increasing numbers of Columbus commuters. The Mulberry Creek subwatershed is experiencing rapid residential growth. Current ordinances require residential lots of two acres or greater in order to accommodate septic tanks. Mulberry Creek subwatershed possesses a rural character which attracts new residents, but is undergoing development pressure that threatens rural quality of life. The county will continue to grow and pursue opportunities for economic development.

Mulberry Creek Subwatershed Vision

The stakeholder vision for this study area is to maintain a high quality of life in the watershed through careful guidance of future development.

The Workshop

The Middle Chattahoochee Watershed Steering Committee participated in a full day, community design workshop. Facilitated by Georgia Conservancy Blueprints staff, Georgia Tech faculty and students, and two Blueprints Partners, the Steering Committee undertook a land use planning scenario for the Mulberry Creek subwatershed. Using maps of current development, land use, aerial photo, streams, ponds, wetlands, roads, topography and slope, the Steering Committee developed two conceptual land use scenario maps indicating location and type of development within the subwatershed as well as written recommendations based on growth management objectives:

- Identify and manage those lands that should not be developed
- Identify and manage those lands suitable for development with septic tanks
- Identify and manage those lands suitable for development with sewage treatment systems

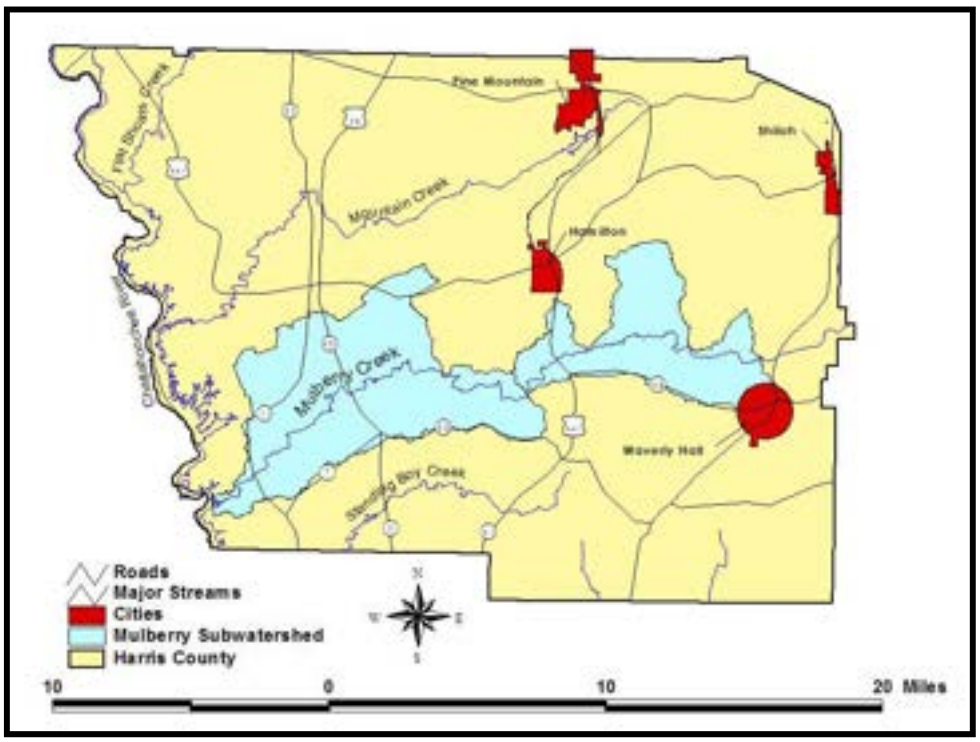
THE SUBWATERSHED VISION

Maintain the high quality of life in the watershed through careful guidance of future development

The Mulberry Creek Watershed Workshop: Members of the Watershed Steering Committee participate in a conceptual land use planning exercise for a portion of Mulberry Creek Watershed.

Mulberry Creek Subwatershed

Historically rural, Mulberry Creek watershed in Harris County is experiencing rapid land use change with substantial residential development. In order to address the unchecked growth, the Steering Committee developed a conceptual land use plan that directed growth for the next 20 years. The plan included the type and placement of development that protected natural resources and the rural character of the area while allowing for future development.



ASSETS

- Clean, free flowing streams
- Diverse native plants, animals
- Mulberry Falls
- Pine Mountain Ridge ecosystem
- Wetlands
- Upland wildlife corridors
- Riparian wildlife corridors
- Ground water recharge areas
- Cultural and historic sites
- Tax incentives for preservation
- Schools

CHALLENGES

- Maintaining rural lifestyle
- Improving public services
- Raising tax base
- Balancing residential/retail
- Increasing housing options
- Preserving greenspace and creating linkages
- Growing septic tank sprawl
- Enforcing codes and ordinances
- Protecting the watershed
- Finding quality political leadership

Mulberry Creek Subwatershed Implementation Strategies

Maintain the rural "village-type" aspects of the subwatershed by designating appropriate development areas.

- Village District at Hamilton with small stores, county government, medical center, medium density residential
- Highway 116/315 development zone with sewer, office/industrial/ commercial retail mix, higher concentration residential,
- Mulberry Creek zone with greenways, stream buffers, recreation opportunities.
- Increase Road connectivity throughout the watershed
- Make use of existing infrastructure including sewer, roads, and shopping centers.
- Look into establishing a system of greenways, bike and pedestrian links throughout the watershed. The system could serve as a recreation and wildlife habitat corridor while linking various development areas.

Protect natural and cultural resources within the subwatershed.

- Consider these resources when establishing appropriate zones for development

Protect water quality through stream buffers and wetland protection.

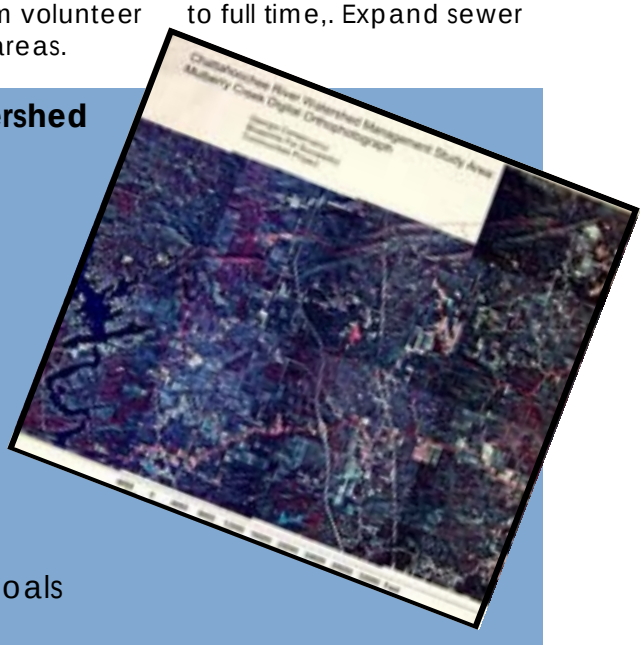
- Encourage and facilitate conservation easements
- Conduct a Historic Resources Survey and habitat inventory
- Establish and monitor water habitat and quality goals
- Form education partnership between elected officials, stakeholders, developers, contractors, timber industry, etc. to exchange information about watershed issues.

Promote environmentally sensitive development to increase tax base, add infrastructure, provide jobs, and increase retail.

- Promote a watershed-wide economic development and marketing effort. Start with an implementation plan
- Construct a "balance sheet" to demonstrate economic objectives
- Provide incentives for environmentally friendly development and for private landowners regarding erosion and sedimentation control
- Balance residential/retail and business/industrial development
- Improve public services. Boost fire protection from volunteer to full time,. Expand sewer system according to appropriate development areas.

The "Must-Have" List for Mulberry Creek Watershed Implementation Strategies

- Local leadership
- Watershed-based land use plan
- Zoning overlays where applicable
- Conservation easements
- Sewer system extension, but only according to land use plan
- Conservation incentives for landowners
- Code enforcement
- BMP controls related to topography
- Monitoring for water quality and habitat goals



Lindsay Creek/Roaring Branch Subwatershed : Urban land uses and impacts

The Lindsay Creek/Roaring Branch study area

The Lindsay Creek/Roaring Branch study area is located in the northeastern quadrant of Columbus and covers about 8 square miles. Roaring Branch flows directly into the Chattahoochee River at Lake Oliver. The drinking water intake for Columbus is a few hundred yards from the outfall of Roaring Branch. Lindsay Creek feeds Bull Creek, a larger tributary of the Chattahoochee River. The population in the study area has increased at a moderate rate over the last decade from 31,331 in 1990 to 37,012 in 2000.

Development in the study area includes low-density residential, commercial, and a limited number of manufacturing sites along major transportation corridors. Public recreation property is minimal. Large-scale retail such as Peachtree Mall and surrounding commercial centers are located in the southern portion of the study area. The watershed lies at the crossroads of many of the region's important transportation corridors and includes the Columbus Metropolitan Airport. The percentage of impervious cover in the study area was 33% in 2002, which could contribute to the degradation of Roaring Branch, Lindsay Creek, and their tributaries.

The Subwatershed Vision

The Blueprints vision presented here incorporates priorities identified during a community-wide visioning and goal-setting process initiated by Columbus Consolidated Government in 2001.

The Blueprints vision for this study area is to ensure that development occurrs in an environmentally sensitive fashion in order to protect the region's natural resources and to maintain a high quality of life. Comparing the vision to current development trends, three major obstacles to achieving the vision are recognized.

Potential obstacles to achieving the vision:

- Loss of small town character
- Impacts of land use changes on streams
- Frustration over raising public awareness of watershed issues

The Workshop

The Middle Chattahoochee Steering Committee, along with local subwatershed stakeholders, participated in a full day, community design workshop. Using maps of current development, land use, aerial photos, streams, ponds, wetlands, roads, topography and slope, the Steering Committee, working with Georgia Tech graduate students, developed a series of recommendations for achieving the watershed vision while overcoming real, potential and perceived obstacles to the vision.

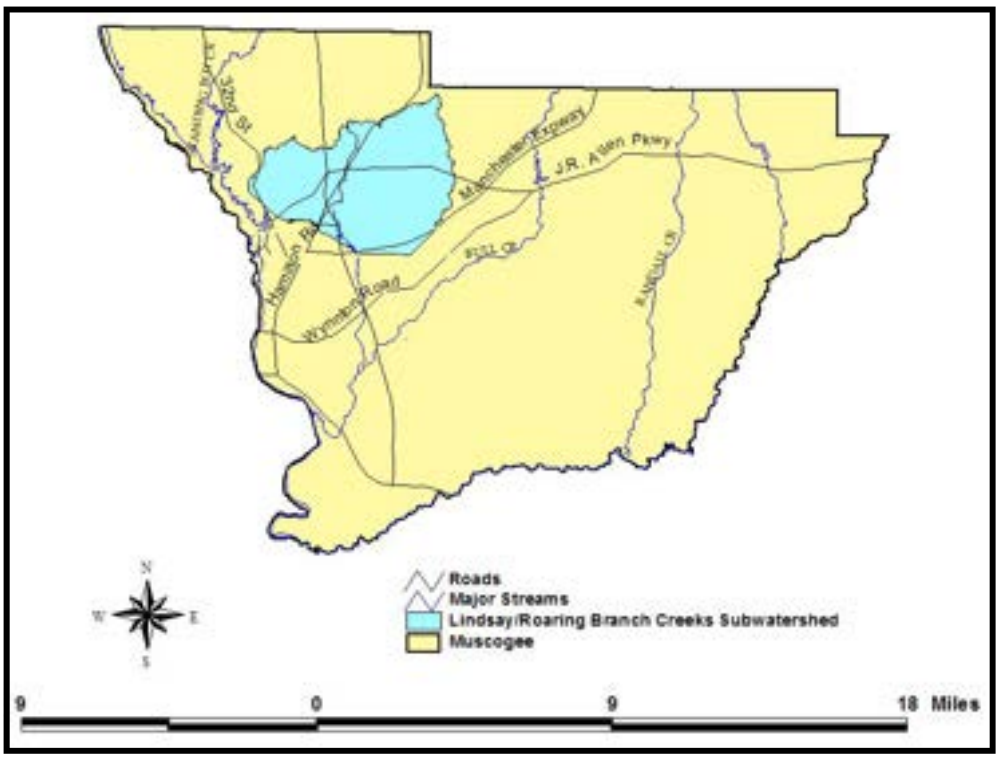
THE LINDSAY CREEK/ROARING BRANCH SUBWATERSHED VISION

Environmentally sensitive development that protects the region's natural resources and maintains high quality of life.

Lindsay Creek & Roaring Branch Creek Subwatershed

Te Lindsay Creek and Roaring Branch tributaries represent the land use and water quality conditions encountered in urban areas. The residents of the watershed want to maintain the positive features without stifling economic development.

Recommendations include alternatives to the current development patterns that protect the "small town" character and water resources while encouraging sustainable growth, such as more flexible zoning and conservation subdivisions.



ASSETS

- Natural creeks
- Consolidated city/county gov't
- Partnership between public & private sector
- Industry environmental stewardship awards
- Strong Chamber of Commerce
- Diversity of neighborhoods in size and economic status
- Excellent school system
- Largest stream/river cleanup in Georgia (11,000 people)
- Riverwalk
- Community awareness/love of the river
- Parks, recreation, fishing
- Creek and stream infrastructure
- "Big small town"
- Transportation facilities
- Regional center

CHALLENGES

- Development next to existing industrial and Fort Benning
- Effect of channelization on habitat and water quality
- Development practices & loss of forested areas, impervious cover
- Change in land use/environment has impact on streams
- TMDLS and economics
- Ordinances & fines vs. compliance
- Enforcement & lack of incentives for good development
- Human activity changing character of landscape
- Pollution- fish consumption
- Air quality non-attainment
- Regional Center
- Tri-state water compact

Recommendations

The study area recommendations specifically target major obstacles identified by stakeholders. Columbus residents currently enjoy the amenities of a regional center with the comfort of a close community. The community's water resources are of significant importance to sustaining quality of life and are a source of community pride. Bringing watershed issues to life will alleviate existing frustrations over water issues and establish a strong base for planning at the watershed level.

The recommendations are organized under the headings *Protecting Small Town Character, Protecting Water Resources*, and *Bringing Watershed Issues to Life*. Each heading includes a summary followed by a more detailed description of recommended steps.

PROTECTING SMALL TOWN CHARACTER

Summary

- Focus on enhancing existing centers of growth to promote the preservation of open space and reduce the scale and impact of existing commercial centers.
- Protect sensitive lands in order to lower tax expenditures and deter many of the big city problems associated with low-density growth.
- Revise existing zoning ordinances in order to expand the design choices currently available. Parallel zoning, conservation neighborhoods, and a rehabilitation sub-code are three specific examples.
- Streamline the permitting process to provide an incentive for developers to choose parallel zoning over conventional zones, conservation neighborhoods over traditional neighborhoods, and rehabilitation over new development.

The recommendations outlined in this section address the problem of small town character loss associated with current development practices. Promoting more environmentally sensitive land use practices can offset the scale and impact of the city's larger developments. Enhancing existing centers of growth can promote land conservation, reduce the impact of commercial centers, optimize infrastructure, protect sensitive lands, and lower tax expenditures.

The city's existing zoning code provides substantial flexibility to developers, including options for mixed-use and higher densities to efficiently use infrastructure.

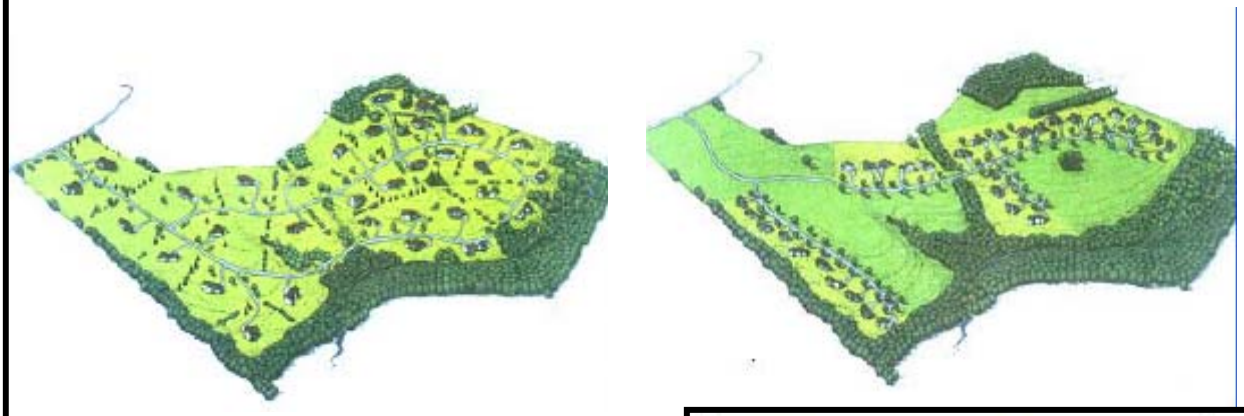
Recommended changes complement the existing zoning codes while promoting urban and environmental design features aimed at specifically preserving small-town character. These recommendations are:

- Parallel Zoning
- Conservation Subdivisions*
- Rehabilitation sub-code

Parallel zoning refers to the existence of a new set of zones that have a one-to –one relationship with existing zoning categories, thus offering the developer a choice between the old, conventional zone or the new, parallel zone. The process for transfer from an old to a new zone is virtually seamless and free from delays associated with a true rezoning. Typically, parallel zones would be used within commercial and mixed-use centers and would have urban and environmental design guidelines specifically aimed at developing character within those centers.

**The 2005 Unified Development Code for the City of Columbus includes a Conservation Subdivision Ordinance.*

Conservation Subdivisions



The drawing at left represents a conventional subdivision. At right, a conservation subdivision. Conservation subdivisions can play a vital role in implementation of a watershed land use plan by creating an economically feasible means of protecting vital areas of the watershed.

The Atlanta Journal-Constitution

ajc.com

With the rise of 'conservation subdivisions,' developers find green spaces make economic sense

Suggested Parallel Zoning Guidelines:

Environmentally Sensitive Design:

- Incorporate impervious surface ratio as performance criteria
- Incorporate buffer requirements
- Provide incentives for using environmentally sustainable building materials and systems

Parking Regulations:

- Provide incentives for shared parking and driveways
- Reduce minimum parking requirements
- Provide maximum parking requirements
- Provide standards for maximum allowable impervious surface
- Require pervious surfacing materials
- Revise standards for location of parking spaces (allow off-site parking, allow parking behind buldings)

Bicycle and Pedestrian Facilities:

- Provide design guidelines to promote pedestrian environment (build-to lines, minimum fenestration, building detail articulation, pedestrian entrances)
- Reduce maximum block sizes
- Require bicycle parking
- Ensure proper provision and design of sidewalks, crosswalks, street trees, and other pedestrian amenities

Mixed-Use Development:

- Require a percentage of ground floor retail uses
- Provide incentives, such as density bonuses, for including other uses

Conservation Subdivisions

The second zoning recommendation, which Columbus enacted in 2005, is the adoption of a conservation subdivision ordinance. Traditional zoning establishes maximum allowable densities through the use of minimum lot sizes, thus encouraging the development of an entire property to maximize housing units.

Conservation subdivisions generally apply to residential zones, and allow the developer to cluster the same number of houses on a smaller portion of the site. The remaining site area is preserved and placed under a conservation easement.

Conservation subdivisions can play a vital role in implementation of a watershed land use plan by creating an economically feasible means of protecting vital areas of the watershed.

This type of development yields positive benefits for the developer, the residents, and the greater community. The developer achieves flexibility to preserve environmentally sensitive areas without diminishing profit margins. Conservation neighborhoods also require less infrastructure, grading, and lawn establishment for the developer, thereby reducing development cost.

Greenspace areas within conservation subdivisions, including stream buffers, linear parks, wetlands, and open spaces can provide water quality and recreational benefits.

Rehabilitation Sub-Code

In addition to encouraging more environmentally sensitive designs for new development, it is important to ensure existing centers remain viable. One way to promote long-term sustainability of centers is to encourage rehabilitation and maintenance of existing structures and infrastructure through a rehabilitation sub-code.

The rehabilitation sub-code is a stand-alone code that provides flexible requirements specifically for rehabilitation projects while adhering to fire and structural safety requirements. Flexibility is the key for making rehabilitation economical for developers and encouraging development of existing centers in lieu of greenfield development.

Steering Committee members discuss watershed land use planning as related to the growth of Fort Benning.

PROTECT WATER RESOURCES

Summary

- Utilize stream buffer protection and conservation easements, erosion and sediment control enforcement in order to protect streams from impacts associated with high levels of impervious surface and exposed soils during development.
- Install structural and vegetative Best Management Practices (BMPs) to control stormwater.

As this urban study area continues to develop, maintaining or improving water quality and healthy stream habitat will become increasingly difficult. Urbanization raises the percentage of impervious cover, leading to polluted stormwater runoff and high fluctuations in stream flow. Additionally, developments are particularly prone to erosion during the construction process, leading to high turbidity, sedimentation, and other water resource problems.

This section outlines the following recommendations for protecting urban water resources:

- Adoption and enforcement of stream buffers and conservation easements
- Proactive enforcement of erosion and sediment control measures
- Use of innovative structural and vegetative Best Management Practices for stormwater,

Stream Buffers and Conservation Easements

Creating stream buffers is an effective method of treating contaminated stormwater runoff. A buffer, or vegetated area around the stream disperses water and allows infiltration of a range of pollutants. Stream buffers also provide wildlife habitat and shade streams, thus improving stream habitat. To obtain stream buffers along more urban, highly populated areas, a three-pronged approach may be necessary. Elements of this approach include:

- conservation easements
- buffer acquisition
- buffer regulations

This study recommends a minimum 50 foot buffer in order to protect water quality.

Right: Georgia Tech graduate students examine stormwater infrastructure at a retail complex in the Lindsay Creek watershed.

The students recommended the use of innovative structural and vegetative BMP's.

Erosion and Sediment Control Enforcement

Enforcement of the laws and ordinances mandating water resource protection are key to the success of watershed management. Erosion and sedimentation directly impact water quality, yet enforcement has been weak statewide. Insufficient erosion and sediment control was noted as a problem in the Lindsay Creek/Roaring Branch study area.

The following list of specific recommendations deals with enforcement of erosion and sedimentation regulations:

- Enlarge the engineering inspection team
- Cross train other government site inspectors to be aware of erosion and sedimentation requirements
- Allow inspectors to immediately issue a "stop work" order
- Define consistent "enforcement standards" to eliminate subjectivity whenever possible
- Require developers to delineate on site the trees and vegetation to be preserved. Fences, colored flags, or other demarcations should clearly post limits of land disturbance
- Reduce the land area cleared during construction. Establish minimum vegetation conservation limits
- Limit the length of time development can be vulnerable to erosion
- Conduct workshops to encourage creative site design that minimizes disturbance
- Require a stronger permitting process for developers and citizens to remove trees

Improved ordinances and strict enforcement are a vital part of the solution to erosion and sedimentation problems.

Structural and Vegetative Best Management Practices

Along with stream buffers and erosion and sediment control, there are other water resource protection tools in the form of innovative Best Management Practices that have great potential for improving water quality in urbanized areas.

This study recommends retrofitting existing infrastructure, and building new infrastructure using innovative vegetative or structural Best Management Practices. Following are examples of some of these Best Management Practices:

Right: Steering Committee members and Georgia Tech graduate students tour the Columbus Water Works' award-winning CSO facility.

Wet Pond	Stormwater ponds, or wet ponds, are constructed basins that have a permanent pool of water. This permanent pool provides water quality treatment, habitat, and aesthetic appeal
Stormwater Wetland	Stormwater wetlands are constructed shallow marsh systems. Stormwater wetlands allow suspended solids to settle, and they remove nutrients, metals, and pathogens. Selecting plant materials for constructed wetlands is important to the success of the wetland.
Bioretention Area	Bioretention areas are shallow stormwater basins that treat stormwater from small drainage areas. Bioretention areas are appropriate for residential areas, schools, and have been very successful in parking lot islands.
Infiltration Trench	Infiltration trenches are excavations filled with aggregate and sand. These trenches must be well vegetated to operate effectively and maintain aesthetic appeal
Enhanced Swale	Enhanced swales are vegetated open channels that transport stormwater while providing water quality benefits. Enhanced swales are preferable to a curb and gutter system, particularly in residential areas.
Stream Improvement Or Restoration	Opportunities may exist, such as Lindsay Creek in the Blueprints study area, for rehabilitation of channelized streams.

RASING PUBLIC AWARENESS OF WATERSHED ISSUES

Summary

- Create a watershed management group to raise awareness of watershed issues through partnerships.

  The group would concentrate on a coordinated public education program and development of existing physical and institutional infrastructure. Target audiences should be established for a variety of programs, activities, and publications

Columbus is home to several programs for protecting and enhancing local water resources. The Combined Sewer Overflow Program is a regional and national success story, Columbus Water Works receive the Public Education Award from the Georgia Water Pollution and Control Association, Oxbow Meadows won the PANDA award "Outstanding Interactive Educational Tool" for its "Rivers to the Sea" compact disc. In addition, Columbus is home to the state's largest Rivers Alive clean-up, and was designated a "Water Wise" community in 2005.

Despite this success, some frustrations remain within the community in regard to bringing watershed issues to life. A coordinated watershed program could decrease frustration and increase management effectiveness.

Create a Watershed Management Group

The watershed management activities in Columbus are divided among several governmental and private entities. A connected effort toward watershed management is key to increasing the overall productivity of each individual program. A local watershed management group might form and hire a director to organize collaborative efforts and handle administrative needs. This director would also look for partnership opportunities, areas for watershed improvement, and focus on watershed education.

Left: A boat tour of the Chattahoochee. Tours such as this one are one way watershed groups engage stakeholders.

Create a Coordinated Public Education Program

A well-coordinated education program will facilitate gradual change toward a more environmentally sustainable ethic and will allow the community to share successes.

Daily activities of individuals impact water resources. A coordinated education program could encourage community members to progress from awareness to individual behavior change and ultimately to participation in watershed planning.

Some example program goals might include:

- Improving awareness so that all residents recognize that they live in a watershed and understand how their actions affect water resources
- Motivate behavior changes that reduce stormwater pollution
- Educate builders and developers on techniques to reduce water quality impacts
- Enhance citizens' ability to recognize and report water resource problems

All of these recommendations require partnerships and coordination among key stakeholders within the community. The study area and surrounding region already have a number of dedicated groups interested in participating in watershed planning and management. Coordination and cooperation between these different entities will produce far-reaching results.

Above: Education events like Oxbow Meadows' ReptileFest are an excellent opportunity to educate watershed residents on individuals action they can take to improve the overall health of the watershed.

Hodchodkee Creek Subwatershed: Rural land uses and impacts

Subwatershed Vision

The Blueprints vision for this study area, as identified by the stakeholders, is to promote economic development that improves quality of life, while maintaining the natural and cultural heritage of the region.

The Workshop

A Hodchodkee Creek Subwatershed Committee, along with the Middle Chattahoochee Steering Committee, participated in a full day, community design workshop in Stewart County, Georgia. Using maps of current development, land use, aerial photos, streams, ponds, wetlands, roads, topography and slope, participants, working with Georgia Tech graduate students, developed a series of recommendations for achieving the watershed vision based on goals identified by local stakeholders.

Subwatershed Recommendations

The recommendations are organized around the following goals identified by stakeholders as vital to achieving the vision:

- to pursue economic development based on the existing assets to protect natural resources
- to recognize the connections among ecological and social systems
- to accomplish these goals through community building and partnerships

Each heading, or goal, includes a summary followed by a more detailed description of recommended steps.

THE HODCHODKEE CREEK SUBWATERSHED VISION

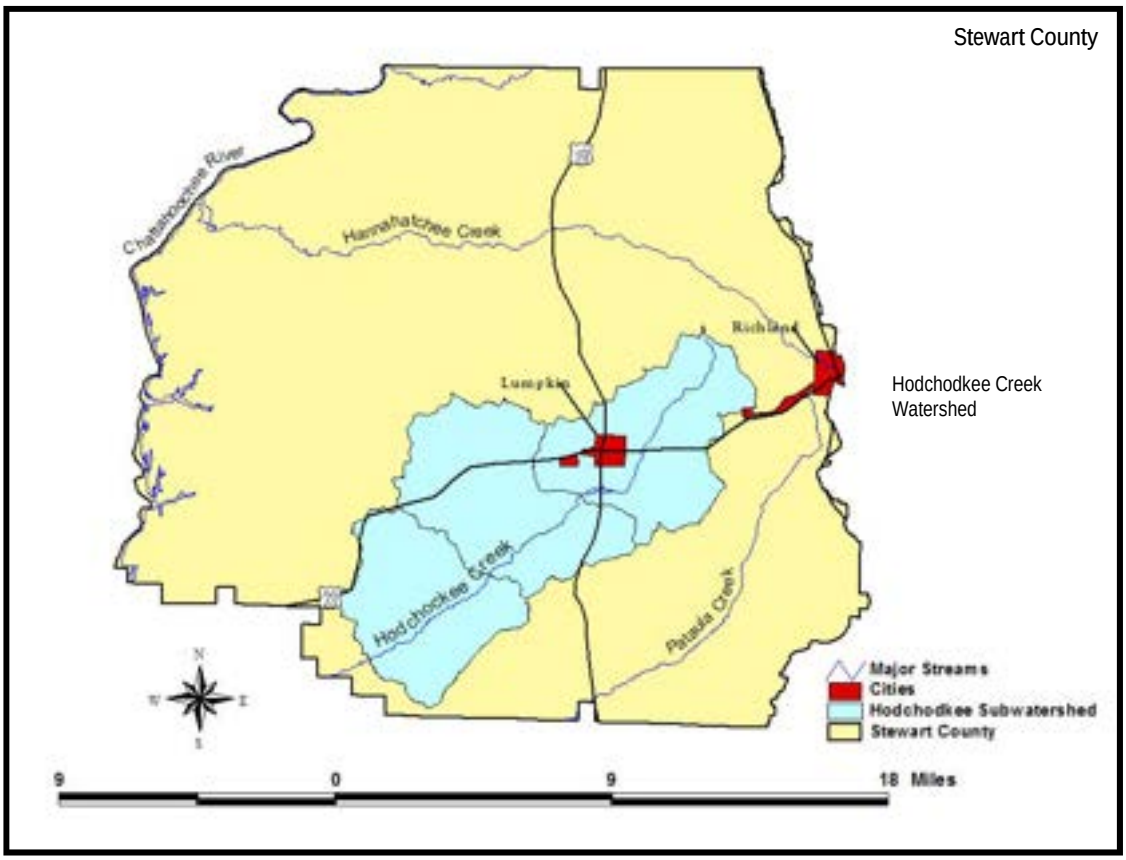
Promote economic development to improve quality of life while maintaining the natural and cultural heritage of the region.

Hodchodkee watershed residents and Blueprints Steering Committee members discuss watershed assets and challenges while working on an overall watershed vision.

The Upper Hodchodkee Creek Subwatershed

The Upper Hodchodkee Creek Subwatershed represents conditions frequently encountered in rural areas of the Middle Chattahoochee watershed experiencing little or no economic growth.

Forest comprises the dominant land use of this watershed in Stewart County. With the local economy at the top of the list of citizen concerns, the recommendations provided are economic development strategies that build on community assets and are sensitive to the rural and natural resource heritage of the watershed.



ASSETS

- Wildlife, topography, mountain plants, clean air
- Natural resources, historic, cultural resources, archaeology
- Sense of community volunteerism, cooperation
- Sense of family and security
- Local schools & hospital
- Very quiet, peaceful, privacy
- Sense of cooperation
- Churches- strong organizational & spiritual force
- Widening of 27 brings bike lanes & chance for recreation
- Farming & forestry

- **CHALLENGES**
- No jobs, facilities, factories
- Population loss
- Poor infrastructure & services
- No higher education
- Drugs, gangs, teen pregnancy
- Soil erosion
- water quality
- No quality low-income or affordable housing
- Counties/cities not working together to make better use of limited resources

PROMOTE ECONOMIC DEVELOPMENT BASED ON EXISTING ASSETS:

Summary

- Promote the local sale, exhibition, and creation of handcrafted items
- Connect tourism to the natural and cultural heritage
- Encourage multifunctional land use
- Develop specialty farming and forestry
- Experiment with innovative approaches to Social Services

Although there is no easy solution to rural economic development that sustains natural resources for future generations, a set of guiding principles can lead rural areas toward improved economic, social, and environmental conditions:

- Build new initiatives based on existing assets
- Focus on promising business sectors
- Seek profitable market niches
- Start with small ventures
- Add value to local products and services
- Diversify economic activities
- Recycle money within the community

By applying these principles to the study area, the stakeholders and Blueprints staff identified five sectors upon which economic development or provision of public services could be based.

- Nature-base tourism
- Local handcrafted or folk art
- Multi-functional land use
- Specialty farming and forestry
- Innovative Social Services

Providence Canyon State Park is one of the nature-based tourism opportunities in the Hodchodkee Creek area..

Nature-Based Tourism

The study area and surrounding Stewart County are home to a number of attractions, including Providence Canyon State Park, Florence Marina, Westville, and Walter F. George Reservoir. Tourism as a means of economic development is not a new concept in the southern Chattahoochee Valley. Traditionally, this region has focused on the tourism themes of hunting/fishing and historic preservation. Tourism based on these themes is strong and should be targeted for further expansion.

A type of tourism that has not receives as much attention in this area to date is nature-based, or outdoor recreation tourism. These activities might include cycling, mountain biking, backpacking, canoeing, birding, and horseback riding. The proximity of this watershed to Columbus offers a likely market for nature-based activities and outdoor recreation.

Local Handcrafted or Folk Art

Crafts and folk art have a following within the Chattahoochee Valley, with artists receiving promotion through Westville and the Historic Chattahoochee Commission. The handcraft industry has a firm foundation and the potential for expansion. Residents of the Hodchodkee Creek watershed maintain a strong connection to past by creating regional crafts. At Westville, white oak baskets, leather crafts, and pottery are created daily as part of living history presentations. These handcrafted items are sold at the Westville gift shop.

Expansion of craft operations might include greater development, marketing, and distribution of crafts at the regional and national levels. Establishment of a craft school could serve diverse clients such as resident artists, apprentices, hobbyists, and students.

Early efforts may develop into galleries and specialty shops in the Lumpkin town square, bringing additional visitors to the area. If the craft and folk art sector continues to grow, Lumpkin may develop as reputation as an arts community.

Muscogee County teachers make a field trip to Westville to learn methods of making historic handicrafts. Westville is the largest employer in the Hodchodkee creek watershed.

Specialty Farming and Forestry

Strategies to maximize economic returns from the land while protecting natural resources include the diversification of crops or trees grown. Markets for specialty crops and timber exist, and in some cases greater profits can be achieved than would be possible through production of commodity crops. Specialiy crops or timber might present opportunity for value-added businesses. For example, a specialty tree could be hand harvested and crafted into furniture, art, or other items. Small-scale demonstration projects could be conducted to test and develop alternative agriculture or forestry techniques.

Row crop agriculture is no longer the mainstay of the watershed, but fields continue to be farmed, and the opportunity exists to convert farmland from commodity to specialty items. Of all specialty crop sectors, organic farming is one of the most profitable given the right growing and market conditions.

Organic farming techniques are fairly well-developed, with farmers able to receive technical and marketing support from organic growers associations. restaurants or farmers markets in larger cities. Goat farming and specialty dairy products have found a niche in recent years, and many organic growers in Georgia sell their products at restaurants and farmers markets in larger cities.

In keeping with the agricultural and tourism themes, some farms find additional income through agri-tourism. Agri-tourism might include hosting visitors at the farm, providing "U-pick" fields, or offering entertainment such as petting zoos and hayrides.

Innovative Approaches to Social Services

The non-market economy, or goods and services that are bartered or traded without the use of money, is very important, yet frequently undervalued by traditional means of measuring economic productivity. In the case where a community is cash-poor, but people rich, the community may tap into its citizenry to render much needed services not provided through government-run programs. Non-profit organizations and partnerships may form to provide institutional framework to organize the services. Examples of innovative social services programs are time dollar programs, and involvement of youth and school resources in community an environmental service.

A time dollar program structures the trading of services outside the market economy. A community defines the time dollar currency, i.e. "Hodchodkee dollars" and establishes a system for their trading. A ride into town, for example, might be equal in Hodchodkee dollars to a home-cooked meal. Time dollars represent an accounting of what has been traditionally known as community service, volunteering, or neighborliness, but it adds recognition and security since participants know that their effort will be recorded and redeemable. A time dollar program is most effectively managed through creation of a local non-profit organization.

The second example of innovative social services is the involvement of youth in community and environmental service. With the activity known as service learning, teachers organize community or environmental service activities as a part of the curriculum. In return, students receive valuable experience that may later be applied to careers or civic involvement. A related approach to school-community partnering is for students to receive individual assistance through apprenticeships, internships, or other mentoring relationships connected to career interests.

The third example of innovative social services focuses on the school as a facility to house after-school activities for the entire community. Example programs include job training, child-care, computer literacy programs, and social gatherings for youth.

Pastureland in the Hodchodkee Creek Watershed. Low population density in many rural areas requires creative thinking regarding delivery of community services.

PROTECT NATURAL RESOURCES

Summary

- Protect the watershed from erosion and sedimentation
- Protect the watershed from pollution resulting from failing septic systems

Deliberate, protective measures should be taken to ensure that the watershed's natural resources remain productive and supportive of a high quality of life for residents.

The natural resources in the Upper Hodchodkee Creek watershed are abundant and in relatively good condition. These natural resources include numerous creeks, forested wetlands, commercial timberlands, agricultural fields, and habitats for unique and imperiled species such as the gopher tortoise. The forested setting surrounding Hodchodkee Creek results in less severe water quality problems than might be found in an urban or heavily agricultural.

Although the study area environment is in better condition than is often the case in more intensely developed watersheds, it is not immune to environmental problems. The Blueprints staff and local stakeholder committee identified pollution threats in the study area as erosion and sedimentation, and septic tank performance.

Erosion and Sedimentation Control

The most significant water resource problem identified in the study area was sedimentation and stream bank erosion. It appears as though dirt roads are a primary source of sedimentation in the watershed, followed by substandard forestry practices.

Sediment in stormwater runoff from dirt roads is most likely to enter streams at locations where roads cross the streams. Ten bridges cross Hodchodkee Creek within the study area. Proper construction and maintenance of dirt roads and bridges can substantially reduce the amount of sediment entering streams. Three specific practices for controlling erosion and sedimentation from unpaved roads are

- Water turnouts, or road structures designed to divert stormwater away from streams. Water turnouts can be ditches, trenches, or another conveyance that serves to spread out, filter, or slow runoff.
- Vegetative buffers consisting of grass, shrubs, or trees along streambanks
- Upgrading bridges and road approaches by paving them

Septic Tank Performance

The second localized pollution threat identified in the study area was the potential for inadequate septic system operation, namely the release of pathogens such as fecal coliform and nutrients such as nitrogen and phosphorous. Residents outside the city of Lumpkin rely heavily on private septic systems, some housing is in poor condition, and soils across the watershed are ill-suited for septic systems.

Zoning revisions are currently underway to require larger residential lots for new construction on septic tanks. Other options for addressing septic tank performance are public education and technical assistance, a comprehensive inspection program, and incentives for upgrading systems.

RECOGNIZE CONNECTIONS AMONG ECOLOGICAL AND SOCIAL SYSTEMS

Summary

- Start a community education program with local partners
- Consider methods of protecting natural areas for habitat and biodiversity
- Promote sustainable forestry practices through partnerships
- Institute natural disturbance routines, specifically controlled burns

An ecosystem approach to management is needed in order to maintain and possibly restore the wide range of ecosystem services the natural areas within the watershed provide. Although there are many ways to manage at the ecosystem level, three strategies in particular; habitat and biodiversity protection, sustainable forestry practices, and natural disturbance routines, may assist the Hodchodkee Creek watershed in promoting holistic conservation efforts while enhancing the local economy:

Protection of Habitat and Biodiversity

The rural setting of the study area, dominated by commercial forestry and to a lesser degree row crop and pasture farming, provides more wildlife habitat than is afforded in an urban area. However, attention to the protection of biological and ecological diversity in this setting remains important. The land within the study area succeeded from longleaf pine to agriculture to forestry, with stresses placed on species and habitats for centuries. Remaining habitat may be protected through several means including land acquisition and conservation easements. If wildlife enhancement is the goal, habitat corridors may be designated to link areas such as Hannahatchee Wildlife Management Area, Providence Canyon, and the Eufaula National Wildlife Refuge. Other incentives for habitat protection include aquifer recharge, stormwater runoff filtering, and floodwater buffering. Protected areas may also be used for outdoor recreation such as hiking, birding, and horseback riding.

Below: Forestland in the Hodchodkee Creek Watershed.

Sustainable Forestry Practices

It is impossible and undesirable for all the land in the study area to be devoted to habitat protection. Some management techniques allow working lands to also accommodate ecological functions. For land under management for the primary goal of commercial timber production, sustainable forestry practices provide an alternative scheme to incorporate ecosystem goals.

There are numerous sustainable forestry practices that may assist land managers in obtaining long-term benefits from the land. Planting more than one species at a time and using crop rotation are the basic principles behind sustaining ecosystem health. Planting species native to the soils and terrain will also minimize damage done to the natural habitat and maximize forest crop productivity. Maintaining vegetative buffers along streams reduces erosion and sedimentation.

The Sustainable Forests Alliance has resources and methods for forest managers and landowners in southern states to protect forest health and biodiversity. The Georgia Best Management Practices for Forestry is another valuable resource.

Sustainable forestry practices usually include the maintenance of natural disturbance routines, such as periodic burning. This flexible approach to ecosystem management applies to all types of land uses.

Natural Disturbance Routines

The traditional approach to managing natural areas suppresses natural disturbances, such as wildfires. Fire is one of the most important natural disturbance regimes, especially in the southeastern forests. Periodic fires promote plant diversity and resilience of native species, and decrease the likelihood of intense, damaging wildfires. Prescribed burns maintain native ecosystem types, such as longleaf pine forest in the Hodchodkee watershed, and keep corridors open for endangered species such as the red-cockaded woodpecker.

To encourage proper use of fire as a sustainable forestry practice in the Hodchodkee watershed, a fire management ordinance or a regional fire authority may be needed to facilitate controlled burn activities. A financial incentive for landowners and convenient technical assistance will generate higher rates of participation. Landowners should prepare a prescribed burn plan and have it approved by the fire authority to ensure safety and accurate timing of the burn.

Right: Harvesting native grass seed. Cultivation and sale of native grass seed is one potential method of sustainable , multi-functional land use.

COMMUNITY BUILDING AND PARTNERSHIPS

Summary

Bring active community leaders together in a new or existing forum to identify needs, inventory assets, and develop interior capabilities and roles before building partnerships with outside groups.

Successful ecosystem management stems from recognizing the connections between environmental, economic, and social issues. The process for recognizing and acting on these connections involves communication and cooperation.

Gathering resources (organizational, financial, technical, etc.) required to meet watershed or ecosystem management goals imposes challenges for a rural community. Although rural communities can and should take advantage of outside assistance through partnerships, another essential element is to leverage local resources through community building.

Prototype Steps in a Community Building Effort:

- Identify a Motivating Issue
- Get Organized
- Create a Unifying Vision
- Identify Strengths and Weaknesses
- Formulate and Evaluate Strategies
- Develop an Action Plan and Implement Projects
- Evaluate the Results

A community building process entails considerable organization and motivation from citizens and other stakeholders. The initial community building process is often motivated by a particular issue, but once the stakeholders build trust, the social capital formed may be applied to future concerns.

A cyclist enjoys the tractor parade during Lumpkin's October "Fair on the Square" celebration. Events like Fair on the Square are one way to build upon and celebrate community efforts.

Summary of Subwatershed Recommendations

The table below presents a very brief summary of the watershed conditions and recommendations outlined in the previous pages.

	Mulberry Creek	Lindsay Creek/Roaring Branch	Hodchodkee Creek
Land Uses	Rural pastureland converting to residential subdivisions	Urban, large percentage of impervious cover, heavily managed water resources	Rural, forestland, pastureland, hunting camps, low density residential in municipalities
Watershed Impacts	Erosion/sedimentation Loss of "rural quality of life", habitat loss	Polluted stormwater runoff, increased flooding, habitat loss, erosion/sedimentation	Erosion/sedimentation, loss of biodiversity, stream impairment due to failing septic tanks
Stakeholder Vision	Maintain the high quality of life in the watershed through careful guidance of future development	Environmentally sensitive development that protects the region's natural resources and maintains high quality of life	Promote economic development to improve quality of life while maintaining the natural and cultural heritage of the region
Recommendations	• Designate appropriate development areas, and encourage use of conservation easements for other areas • Implement water quality monitoring, stream buffer and wetland protection measures • Promote environmentally sensitive development to increase the tax base	• Focus on existing centers of growth • Protect sensitive lands • Revise zoning ordinances • Utilize stream buffers and conservation easements • Install structural and vegetative BMPs • Create a watershed management group	• Pursue economic development based on existing assets to protect natural resources • Recognize connections among ecological and social systems • Accomplish goals through community building and partnerships

Blueprints Implementation Phase

In February 2005, the Steering Committee agreed that project implementation would best be undertaken in the form of a watershed stewardship program. This stewardship program would at first consist of two parts:

- Watershed Education
- Land Use and Land Conservation

Watershed Education Phase I

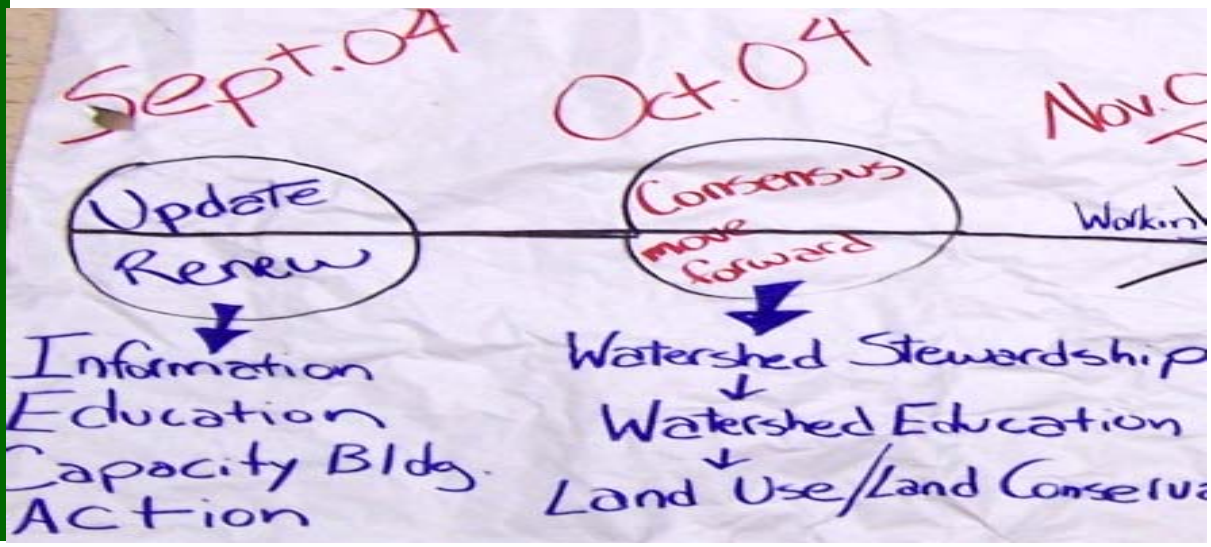
Phase I consists of general distribution of information to promote interest, awareness, and action

Phase I Methods :

- Community Newspapers
- Community magazines and newsletters
- Event marketing (booths and presentations)
- Special info to radio, TV as applicable
- Web page- kept current
- Committee/Sponsors as outlets (e-mails, bulletin boards, newsletters, water bills)

Phase I Requirements:

- General brochure- Project overview (supplemented with case studies)
- Web page and Newsletter materials, including photos and copy
- Booth and presentation graphics, text
- Interactive information piece
- Watershed Map
- Watershed signs



Watershed Education Phase 2

Phase 2 requires further research and resources. This phase includes more specifically targeted geographic distribution (based on case studies) in order to promote awareness, interest, and initiate action.

Phase II Methods- Same as Phase I with addition of:

- Targeted contact in partnership with strategic local initiatives
- Watershed forum/summit/event
- Committees/Sponsors as outlets (e-mails, bulletin boards, newsletters, water bills)

Phase II Requirements:

- Case studies (existing information)
- Current, targeted information specific to sub-watershed goals (new research)
- Basic demographic information
- Update research into planning documents, structure
- Update, acquire information on water resources
- GIS capability
- Strategic contacts within sub-watershed
- Interactive information piece

Land Use and Land Conservation

Land use and land conservation implementation focuses on integrating better land use practices into the watershed program, and promoting resource conservation

Phase I land use and land conservation:

- Promote and institute watershed mapping and "watershed addressing."
- Implement examples of watershed-specific protection and conservation tools.
- Develop and implement ordinances and land use tools.
- Provide specific information to facilitate individual action.

Georgia Conservancy
A statewide environmental organization with offices in Atlanta, Savannah, Moultrie, and Columbus. Resource for environmental stewardship, advocacy, education, quality growth.

Oxbow Meadows Environmental Learning Center

Oxbow Meadows is a nature discovery center located on 1,600 acres of hardwood wetland habitat nestled in a bend of the Chattahoochee River. The center is a hands-on interpretive facility that focuses on the natural & cultural history of the region. Oxbow Meadows is an outreach program of Columbus State University, in association with the Columbus Water Works.

Columbus Water Works
The Columbus Water Works manages water resources and water reclamation for the Columbus Consolidated Government as well as other cities and counties in Georgia and Alabama. Columbus Water Works programs include watershed monitoring and modeling, source water protection and assessment, and award-winning public education programs.

Chattahoochee Riverkeeper
Riverkeeper works for a safe and healthy lower Chattahoochee. This private, non-profit organization has helped to mandate sewage system operating improvements and has established several watershed stream monitoring groups. It leads the state in river cleanups and continues to raise community awareness through youth and adult education programs.

The Chattahoochee Valley Land Trust
The Chattahoochee Valley Land Trust uses its experience to guide landowners to land protection solutions. A good resource for landowners who want to protect their land, while continuing to use the land for their own benefit and enjoyment.

The Coalition for Sound Growth
An alliance of individuals, businesses, and organizations dedicated to improving quality of life in Columbus and the surrounding region through education and action that encourage the implementation of development practices fostering the community's long-term economic growth, sense of place and environmental health.

Historic Chattahoochee Commission
The Historic Chattahoochee Commission is charged with promoting tourism and historic preservation throughout the lower Chattahoochee River corridor. Programs include tourism development, preservation efforts, recreational development, and watershed education endeavors.

Lower Chattahoochee Regional Development Center
The Lower Chattahoochee Regional Development Center supports the cities and counties of the region in planning and developing economic opportunities and infrastructure necessary to maintain highest standard of living attainable for residents of the region and area local governments. Resource for planning assistance, grantwriting demographic information, geographic information systems.

Chattahoochee Flint Regional Development Center
Chattahoochee Flint Regional Development Center promotes and fostersthe physical, social, and economic growth of the region. Resource for planning assistance, grantwriting, demographic information, geographic information systems.

Right: A Trees Columbus tree planting in the Lindsay Creek watershed. Tree plantings are one of many opportunities to educate residents on individuals actions they can take to improve the overall health of the watershed.

MeadWestvaco
Resource for forest stewardship information, Sustainable Forestry Initiative, and Ecosystem-Based Forestry.

Middle Chattahoochee Water Coalition
The Middle Chattahoochee Water Coalition formed in December 2005 by a group of stakeholders from Georgia and Alabama in the Chattahoochee River Basin. Their purpose is to develop a comprehensive watershed plan for the Chattahoochee River basin that can be embraced by both states and the Federal government, and that addresses the needs of the entire basin.

The Nature Conservancy
The Chattahoochee Fall Line Project, based at Fort Benning, works with the Army and the community to protect and manage natural areas on the installation and identify conservation needs and opportunities in the surrounding area.

The Preserve at Callaway
The preserve is dedicated to the wise stewardship of our natural resources, and to offering new, exciting environmental education programs. Of all Callaway land, this parcel is in the most natural state. The land is a demonstration area for ecosystem restoration, sustainable forestry, watershed protection, and habitat improvement for wildlife

RiverWay South
RiverWay South is an organization working to establish a cohesive framework for promoting eco-tourism and heritage tourism from the Chattahoochee Valley to the Gulf of Mexico.

Trees Columbus
Trees Columbus is a non-profit advocacy group focused on planting, preserving, and protecting Columbus' trees and its natural environment to preserve the community's quality of life.

West Point Lake Coalition
The West Point Lake Coalition is a non-profit organization chartered to maintain and promote West Point Lake as a clean lake with sustainable water levels. Interest groups include fishermen, boaters, campers, environmental advocates.

Historic Westville, Inc.
Westville is a living history museum depicting an 1850 west Georgia village. Resource for heritage education and tourism, creation and sale of handcrafted items.

Alabama Clean Water Partnership
Alabama Clean Water Partnership is a coalition of public and private individuals, companies, organizations, and governing bodies working together to preserve and protect water resources and aquatic ecosystems throughout Alabama. Resource for public education programs, watershed planning programs, and sustainable stormwater management practices.

Many thanks to our Blueprints participants!

Georgia CONSERVANCY

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Alabama Department of Environmental Management
Callaway
Chattahoochee Agri-Tourism Project
Chattahoochee Flint Regional Development Center
Chattahoochee Riverkeeper
Chattahoochee Valley Land Trust
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Columbus Consolidated Government
Columbus State University
Columbus Water Works
Georgia Environmental Protection Division
Georgia Power Company
Harris County
Historic Chattahoochee Commission
Historic Westville, Inc.
LaGrange College
Lower Chattahoochee Regional Development Center
MeadWestvaco
The Nature Conservancy
Oxbow Meadows Environmental Learning Center
Phenix City
Trees Columbus
The Valley Partnership
Two Rivers RC&D
United States Army, Fort Benning
United States Environmental Protection Agency
United States Fish and Wildlife Service
Voyage of Discovery/RiverWay South
WC Bradley Real Estate
West Point Lake Coalition

Lindsay Creek/Roaring Branch Subwatershed Committee
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Cliff Arnett
Michael Burgess
Becky Champion
LuAnn Craighton
Harry Hall
William Kent
Bob Lahl
George Martin
Edsel Meachum
David Walls

Upper Hodchodkee Creek Subwatershed Committee
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Helen Booth
Jimmy Braizer
Ernie Brown
Patty Cannington
George Hancock
Benny Horton
Larry Jones
Jerry Kelley
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