

THE BROAD RIVER COMMUNITY WATERSHED PROJECT

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Abstract. The Broad River Watershed Protection Demonstration Project used GIS database development and spatial modeling to identify sensitive and threatened land areas within the river basin. A parallel public outreach effort involved and educated local stakeholders and local governments in water resource management issues and techniques. The tools and approaches used in the project may be transferred to other watersheds and river basins throughout Georgia. The study concluded that local stakeholders value watershed resources, and prefer educational approaches, followed by locally-based regulatory approaches, to protect these resources.

focused on developing multi-jurisdictional mechanisms and strategies to protect the Broad River watershed and may serve as a model for watershed protection planning in other regions.

Project Overview

The project was initiated by the Broad River Watershed Association (BRWA) to address issues associated with rapid development in this rural river basin of northeast Georgia. The project was intended to demonstrate an innovative approach to watershed protection planning incorporating three primary components:

- develop accurate information to focus priority attention, based on environmental sensitivity and development trends in the basin;
- solicit issues and concerns from stakeholders and inform them about natural resource management issues and tools; and
- inform local government officials, staff, and regional and local planners about options for managing sensitive environmental resources.

INTRODUCTION

The Broad River Watershed Protection Demonstration Project began in November 1996, and extended through June 1999. Partners in the project included: the Broad River Watershed Association, the Georgia Department of Community Affairs, the Community and Regional Development Division of the Carl Vinson Institute of Government (formerly the J. W. Fanning Institute of Leadership and Community Development) of the University of Georgia, the Georgia Environmental Policy Institute, and the U. S. Environmental Protection Agency.

The intent of this paper is to:

- provide a brief background regarding the Broad River and its watershed,
- describe geographic information system (GIS) database development and spatial modeling efforts, and
- discuss public involvement, particularly reactions and preferences regarding watershed protection strategies in the basin.

The database and models developed in this project may support future watershed-wide planning efforts

The approach employed GIS and spatial analysis models to highlight potential land use conflicts between development and water-based natural resources in the Broad River basin. As part of this process, areas of environmental sensitivity or vulnerability, as well as areas of high potential for rapid land development, were identified.

The GIS data and models were shared with local residents to provide a basis for discussing watershed protection issues and management tools for conserving the Broad River and associated resources. A locally planned and implemented outreach effort informed and solicited opinions from local elected officials, stakeholders, and residents. Public meetings and surveys conducted throughout the watershed collected input on three specific questions:

- How do stakeholders use and value the river?
- What issues or concerns do stakeholders have for future water supply and quality, as well as scenic and recreational resources?
- What vision(s) do stakeholders have for the future of the Broad River basin?

The Broad River Watershed

The Broad River watershed encompasses all (or portions of) eleven counties in Northeast Georgia with a total drainage area of about 944,000 acres. The river flows southeast from its headwaters in Banks, Habersham, and Stephens Counties through Franklin, Madison and Elbert Counties to its confluence with the Savannah River at the Clarks Hill Reservoir in Wilkes County. The number of affected local governments and the contrasting characteristics of the eleven watershed counties contribute to the challenge of basin-wide planning.

The Broad River Basin is largely rural in character. Although some counties are not experiencing development pressures, others are experiencing rapid growth. Potentially significant land development may include rapid industrial and commercial development associated with transportation corridors in the north and expansion of urban and commercial centers in the west-central portion of the watershed.

GIS Database and Spatial Model Development

Database and model development focused on creating a digital database for the watershed; creating spatial models representing environmental sensitivity and high development potential; database and model review and refinement; information dissemination, and decision support.

The digital database combined existing natural and cultural resources and infrastructure data from federal, state, and regional sources. In addition, it was necessary to generate digital data for wetlands and floodplains. Spatial models were generated to represent environmental sensitivity and high development potential over the subsequent ten-year period.

Environmentally sensitive areas delineated included: streams; wetlands; 100-year floodplain; significant ground water recharge areas; water supply intakes; permitted discharges into water sources; rare, threatened and endangered species population and communities; and slopes greater than 25 percent. Areas of high development potential were identified through literature review and interviews with area

experts. Modeling criteria incorporated existing infrastructure (roads, water, sewer, and other community services and facilities), transportation corridors (Interstate 85 and State Highway 441), and expansion from urban/commercial centers (Athens and Commerce).

Development Trends Identified. Two development trends emerged. The first, a typical growth pattern for the area, is expansion out from small town centers throughout the watershed. This pattern follows extension of infrastructure and other community services and generally is slow in nature. The second trend is rapid expansion following transportation corridors and growth from urban/commercial centers. This trend is characterized by rapid commercial and industrial growth along Interstate 85 (supported by county-supplied water services extended to the interchanges) and commercial and residential growth along State Highway 441 (encouraged by highway widening from two to four lanes), and rapid residential growth out from Athens and Commerce. These areas of high development potential correspond well with U. S. Census Bureau population projections for the areas, as well as other demographic indicators.

Public Outreach and Participation

Public meetings were held concurrently with database and model development. A primary goal of the project was to involve as many watershed residents as possible in developing a future vision for the basin. Outreach efforts concentrated on a series of public meetings to provide information and obtain comments, and dissemination of information through brochures, newspaper articles, and displays in regional libraries and other public buildings throughout the watershed.

Project staff and volunteers organized and participated in four types of meetings: *Kick-Off Meetings with Local Elected Officials*, *Meetings with Community Organizations*, *Public Drop-In Meetings*, and *County Forums*. *Kick-Offs* informed government officials and staff about the watershed project before initiating public activities. *Meetings with Community Organizations* provided opportunities for local residents and stakeholders to learn more about the project and to inform project staff about their concerns and preferences regarding the Broad River and watershed protection in general. *Public Drop-In Meetings* encouraged participants to review and update maps and discuss watershed management issues and concerns. A preliminary list of resource management tools was

presented for participant review and comment. Following the Drop-In Meetings, the project *Advisory Committee* (representing diverse interests throughout the watershed) evaluated potential management tools before they were formally presented at County Forums. *County Forums* provided opportunities for watershed residents to discuss, evaluate, and indicate preferences about the various management tools developed in response to stakeholder issues and concerns.

Brochures and surveys were developed and distributed at meetings and public buildings throughout the watershed. A series of articles about the Broad River basin, watershed protection, and the Community Watershed Project appeared in at least five newspapers in the watershed. Also, a project display including the survey was set up at regional libraries and other public buildings throughout the watershed. Approximately 50 surveys were returned. Survey responses were combined with public meeting comments to generate an initial list of potential watershed management tools.

River Forum Results. Comments made at public meetings indicated that watershed residents regard the Broad River as a valuable community resource, recognizing its importance to agriculture, industry and wildlife. Residents indicated that they wanted the river to remain natural and clean. Many valued the river for recreation, particularly fishing, floating and swimming, and for scenic beauty. Most residents preferred more public access, but some preferred limiting access to the river. Many residents expressed concern for the river's future, specifically threats from sedimentation, erosion, industrial waste, agricultural waste and runoff. Pollution from development and growth also were of major concern to meeting participants. Many participants indicated that land development should be controlled. Developments on wetlands and floodplains, as well as pollution from growing industries, were the most often cited issues.

Responses regarding regulations and controls were generally split between those who preferred more and less regulation. There were considerably more responses supporting regulations and controls to protect water quality than other water resource values. Mandatory buffer zones were the most commonly supported regulatory tool. Protecting the rights of

private property owners was the primary reason given for opposing regulations and controls and supporting voluntary programs instead. Most participants preferred that controls originate and be enforced locally, not at the state or national level.

Project Advisory Committee. The committee reviewed a list of fourteen resource management tools generated in response to public concerns and issues. Each tool was assessed on two dimensions: its ability to protect the watershed and community acceptability. Committee members indicated that most of the tools would be effective in protecting the river. Group discussion concluded that no single tool could address the range of issues related to watershed protection. Therefore, the committee identified effective combinations of tools. The group consistently favored an approach emphasizing public education as a first step, or in conjunction with some enforcement and regulatory techniques.

Two educational approaches seemed apparent. The first encouraged use of fines and regulatory controls. In this case, a developer fined for not adhering to erosion and sedimentation laws, would learn to abide by them in the future. The second focused on teaching the benefits of good land stewardship. In this case, showing that following Best Management Practices can increase project value would encourage their use. The committee agreed that a balanced combination of "carrot" and "stick" approaches should be applied.

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For More Information

For more information and for figures representing watershed resource inventories and results of spatial models, refer to the following web site: <http://www.uga.edu/brwa/brwa.html>.